Self-Generated Processes for Integrating Balinese Drumming and the Drumset

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Abstract

This is a multi-faceted research project investigating interactions between the performance of the Balinese *kendang* and the drumset. *Kendang* is the double headed cylindrical shaped drum that often leads *gamelan* (Balinese music ensemble) orchestras. Drawing on more than two decades of performance experience as a drumset and *kendang* practitioner, this thesis sets out original strategies for integrating technical and creative aspects of both instruments. Existing scholarship on interactions between two disparate drumming traditions such as these is limited and has thus far been primarily concerned with literal translation: rhythms of the source drumming remaining intact with a system of sonic equivalents established. In response, this study investigates alternatives to literal translation. By exploring alternatives to this approach, the research establishes a range of original categorised developmental processes on the drumset and *kendang*, whilst simultaneously providing insights into how the investigation has informed my identity as a performer on both instruments. The potential creative output that can result from these two contrasting drumming traditions coming together is also revealed and forms a significant component of the study. The project involves the creation of original musical works, fieldwork, autoethnography, development of analytical methods for viewing Balinese drumming, the creation of original musical instrument hardware and it relies heavily on video material. Research outcomes and associated developmental processes on both the *kendang* and drumset highlight the potential of a self-generated approach, reflective of personal experience, and offer a set of transferable categorised processes and models that can be applied to other drumming practices.

Declaration of Originality

The work presented in this thesis is, to the best of my knowledge and belief original, except as acknowledged in the text, and has not been submitted either in whole or in part, for a degree at this or any other university.

Adam King

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Thank you to Ron Reeves, Natalia Gould and John Cheog-Holdaway for their generous assistance with document and interview translations. Thanks also to Julian Langdon for his fine ears in remastering some of the live performance videos appearing in the thesis.

This project has emerged in response to my long-standing engagement with traditional Balinese music and I feel very fortunate to have shared many wonderful experiences with friend, mentor and collaborator Yande. Yande and his family have hosted me on several occasions at their home in Bali. I'm incredibly grateful for their ongoing support and encouragement.

I am also grateful to have been mentored by Veronica Kent and Adrian Sherriff throughout my undergraduate Honours program. A heart-felt thanks to them both for their passion for practice-based research and faith and belief in me as a practitioner and researcher.

Sincere thanks must also be given to I Gde Made Indra Sadguna, I Wayan Sudiarsa, I Wayan Sudirana, I Ketut Gede Rudita, I Wayan Merta and Pande Gde Eka Mardiana. I am grateful for their willingness to participate in this project and for generously offering their time and sharing their knowledge, passion and personal experience in the art of *kendang bebarongan*.

Finally, I would like to thank my family: Alene King, Rod King, Alice To, Raymond To, and dedicate this thesis and project to my wife Jo To, and our children Asha and Alia. This study was only made possible due to their incredible support and patience which I am truly grateful for.

Chapter One
Introduction – Research Outline

1.1 Developing research from my experience with Balinese music

This is multi-faceted research investigating interactions between the performance of the Balinese *kendang* and the drumset. *Kendang* is the double headed cylindrical shaped drum that often leads *gamelan* (Balinese music ensemble) orchestras. The thesis sets out original strategies for technical and creative development on the drumset and the *kendang* which stem from my long-term relationship with both. The project involves the creation of original musical works, fieldwork, autoethnography, development of analytical methods for viewing Balinese drumming, the creation of original musical instrument hardware and it relies heavily on video material.

Originally, I began as a performer of the drumset which I have sustained for over three decades. I have had experience performing several types of music including Contemporary Jazz, Funk, Hip-Hop, Rock and Afro-Cuban music. After ten years into that I was introduced to Balinese *gamelan* during the final year of my undergraduate degree program (2001). I then joined several local community groups and had the opportunity to collaborate with a Balinese *dalang* (puppeteer) who taught me basic drumming patterns. During this time, I also studied South Indian rhythm and have performed regularly, on the drumset, with leading musicians from the South Indian *Carnatic* music tradition.

Within a couple of years of being introduced to Balinese music I visited Bali for the first time in 2006 and commenced mentorships with Balinese musicians in the villages of Singapadu and Batubulan. I learnt a broad range of Balinese instruments, however focused primarily on the *kendang*. For the next fifteen years, I continued to visit Bali regularly and studied a range of *kendang* styles and associated performance techniques. This included almost all of the more widely performed paired drumming styles along with several solo drumming styles. It needs to be pointed out at this stage that there are two drumming systems operating in Balinese music. In many ensembles drumming is performed by a pair of drummers whose parts interlock to form complex rhythmic patterns. There is another repertoire of Balinese drumming that utilises one drummer playing on a single drum. Within this form of solo drumming there are two sub-styles. These are known as *kendang tunggal* (solo drumming with two bare hands) *kendang bebarongan* (solo drumming with one bare hand and a *panggul* – Balinese mallet/drumstick). It is *kendang bebarongan* that this study is concerned with.

Shortly after commencing my study of Balinese drumming in Bali I was given the opportunity to perform with one of my mentors. Performing with high-level Balinese musicians was a transformative experience. For each subsequent trip to Bali I divided my time between mentor sessions, practising *kendang*, and performing as a *kendang* player. In between trips back home in Melbourne, Australia

I practised *kendang* on a daily basis in preparation for each visit.

The performances I participated in, in Bali, involved a range of traditional repertoires including *gamelan gong kebyar*, *gamelan rindik*, *gamelan semar pegulingan*, *gamelan beleganjur*, *gamelan geguntangan* and also modern composition: *kreasi baru* (lit. 'new creations').[1] The performance contexts included village festivals, religious ceremonies and also the prestigious annual *Pesta Kesenian Bali* (PKB: Bali Arts Festival). An excerpt of my performance at the 2012 Bali Arts Festival can be viewed in Video 1.1. The group in this performance was formed and directed by the celebrated composer I Nyoman Windha and this performance featured a suite of his *kreasi baru*.

Video 1.1 Excerpt of my performance at the 2012 Bali Arts Festival

1.2 The origins of Balinese *kendang* influencing my drumset playing

The majority of my performances in Bali involved playing *kendang*, however I also received opportunities to play the drumset through collaborations with several groups. An excerpt of a performance in 2010 can be seen in Video 1.2. The performance features the group "JES Gamelan Fusion" and represents my first experience of playing drumset with an all Balinese group. This group, myself included, went on the perform at the 2010 *Pesta Kesenian Bali* in the large open arena "Ardha Candra."

1 For explanations for these different types of *gamelan* see I Wayan Dibia and Rucina Ballinger, *Balinese Dance, Drama & Music* (Tuttle Publishing, 2004); Colin McPhee, *Music in Bali: A Study in Form and Instrumental Organisation in Balinese Orchestral Music* (Da Capo Press, 1976); Michael Tenzer, *Balinese Music* (Periplus Editions, 1991).

Video 1.2 Excerpt of my performance in 2010 with JES Gamelan Fusion group

Balinese music had become a significant part of my life. The experience of becoming a *kendang* player and performing with Balinese musicians had shaped my musical identity more than any other previous musical experience. My drumset playing however remained a separate endeavour and the notion of Balinese music guiding my development on the drumset was something I had not considered or even felt the need for. This changed in 2016 when I commenced an Honours degree program (additional year of an undergraduate program). The motivation to pursue the Honours program can be attributed to the artistic output of Australian drummer Simon Barker, East-Timorese-Taiwanese-American vocalist Jen Shyu and American drummer Dan Weiss, all of whom have had direct and sustained engagements with musical traditions outside of the country in which they reside.[2] The research conducted during this period involved investigating the application of Balinese *kendang* rhythms to the drumset and consequently offered a different way of approaching drumset performance.

The question of "how do I do this?" quickly revealed challenges. There are limited models available for how one form of drumming may inform another, with the standard approach being "literal translation." By literal translation I mean the rhythms of the source drumming remain intact with a system of sonic equivalents established. The result of the literal translation process consistently results in the source drumming being easily recognisable in its literally translated form. Many examples of the literal translation approach already exist with the most documented involving the Afro-Cuban, Brazilian and West African drumming traditions.[3] Another documented example of

2 Simon Barker, *Driftwood*, Kimnara Records, 2012, Digital Album; Jen Shyu, *Jade Tongue*, Chiuyen Records, 2008, Compact Disc; Dan Weiss, *Tintal Drumset Solo*, Chhandayan Records, 2005, Compact Disc.

3 Duduka Da Fonseca, *Brazillian Rhythms for Drumset* (Alfred Publishing, 1993); Royal James Hartigan, "Blood Drum Spirit: Drum Languages of West Africa, African-American, Native America, Central Java, and South India" (Ph.D., Wesleyan University, 1986); Royal James Hartigan, *West African Rhythms for Drumset* (Warner Bros. Publications Inc., 1995); Frank Malabe, *Afro-Cuban Rhythms for Drumset* (Alfred Music, 1994); Dafnis Prieto, *A*

the literal translation approach has involved the North and South Indian rhythmic traditions.[4]

Although slightly reluctant I was nonetheless curious about the literal translation approach as I was not aware of another way to integrate Balinese *kendang* and drumset playing.[5] However, when I did this, I was not satisfied with the outcome. I concluded that the things that attracted me to Balinese drumming were lost in the process. This prompted further questions: How else could I do this? Is there another way? How could all my knowledge and experience with Balinese drumming inform the process?

In response to these questions I embarked on this research project which sets out a range of ways that Balinese drumming has informed a personalised approach to creative and technical development on the drumset. The outcomes set out in this thesis are therefore not situated in the realm of literal translation, and are not intended to represent "Balinese drumming on the drumset." Instead, they represent a response to Balinese drumming in a way that is intentionally not trying to be like it, or even sound like it. In-fact, little is said about the actual rhythms or what I propose as "low resolution" - involving the more conventional musical components often associated with learning how a particular form of music works or how it is organised. In simple terms, the notes and the structures in which the notes appear.

It is possible that a musician with some reasonably developed transcription skills could proceed with a literal translation approach without having any direct experience with the source music.[6] Having had twenty years of sustained engagement with Balinese music I am in an optimal position to pursue an alternative approach, which can be categorised as "high resolution" - an approach revealing a substantial amount of detail that extends far beyond the notes and structures.[7]

In summary, my experience as a drumset player, coupled with becoming a player of the Balinese *kendang*, led me to formulate this research to respond to these specific questions:

1. How could my experience of becoming a Balinese *kendang* player inform my identity as a drumset performer?

World of Rhythmic Possibilities: Drumming Lessons and Reflections on Rhythm (Dafnison Music, 2016); Mokhtar Samba, *African Rhythms and Independence for Drumset* (Music in Motion, 2001); Ed Uribe, *The Essence of Brazilian Percussion and Drumset* (Alfred Music, 1994); Ed Uribe, *The Essence of Afro-Cuban Percussion and Drumset* (Alfred Music, 1996).

4 Gregory Michael Diethrich, "The Arts of North Indian Tabla Drumming: Adaptions to the African-American Drumset Tradition" (MA, San Jose State University, 1995); Jerry Leake, *Drum Set Adaptions of North India Tabla* (Rhombus Publishing, 1989); Pete Lockett, *Indian Rhythms for Drumset* (Hudson Music, 2008); Dan Weiss, *Tintal Drumset Solo: Complete Transcriptions* (Self-published, 2006).

5 To my knowledge my Honours project represents the first research into the possibilities of literally translating Balinese *kendang* rhythms to the drumset. Adam King, "Kendang Tunggal: Rhythmic Materials in Balinese Solo Drumming that Inform Drumset Improvisation," (BA(Hons) University of Melbourne, 2016).

6 Although not presented explicitly in these terms John Riley refers to essentially a similar practice as "Cross-Training." John Riley, *The Jazz Drummer's Workshop: Advanced Concepts for Musical Development* (Modern Drummer Publications, 2004) 10-12.

7 The terms "low resolution" and "high resolution" emerged through discussions with Australian drummer Simon Barker.

2. What other means could there be to integrate Balinese *kendang* playing into drumset performance other than literal translation?
3. What potential creative output could result from these two contrasting drumming traditions coming together?
4. How could this process inform my development on the *kendang*?

1.3 The *lomba kendang*: the primary impetus

The primary impetus for this project was an invitation by my mentor and collaborator Pande Gde Eka Mardiana to participate in a *lomba kendang* (drumming competition) in Bali in 2020. The *lomba kendang* involves the performance of the aforementioned *kendang bebarongan* style of drumming. *Kendang bebarongan* is a virtuosic form of drumming performed by a single drummer on a single drum that accompanies the dance of a mythical lion type creature called *Barong*. Many *lomba kendang* are scheduled throughout the year in Bali and to date a non-Balinese musician has yet to participate, indicative of the high level of skill required to perform in the *kendang bebarongan* style.

I accepted the invitation and began practising upon the commencement of this study in 2018. As a result, my focus became more specific. I was intrigued not so much about how my previous experiences, although still valid, could influence my drumset playing but by how the experience of preparing for the *lomba kendang* could influence my drumset playing. I also recognised this as an opportunity to further develop my skills on the *kendang* to a level that I previously thought was unachievable. Consequently, I became intrigued and open to the possibility that the resultant *kendang* influence on drumset playing could in-turn inform my development on the *kendang*.

Unfortunately, the *lomba* performance was not possible due to the COVID-19 global pandemic, however the project developed into much more than the competition itself. In fact, the project was potentially more meaningful without it.[8] In response, I highlight the self-directed teaching/self-directed learning that is possible when working in isolation - Australia, outside of the central environment where the music exists - Bali.

1.4 A multi-disciplinary research approach

This is a multi-disciplinary study that examines my relationship with Balinese music, namely *kendang bebarongan*, the Balinese musicians whom I have become associated with, and my relationship to the drumset. This project therefore documents a personalised response to these relationships.

The thesis is organised and presented as four separate projects, or case studies, titled “Project One, Two, Three and Four” respectively. Although each project has distinct conceptual and theoretical

8 The *lomba* performance was scheduled for October, 2020 as part of the “Utsawa Bali Sani X” festival hosted by Universitas Hindu Indonesia in Bali. In addition to this performance, abstracts were accepted by the following conferences in 2020: “International Society for Improvised Music” and “Australian Jazz and Improvisation Research Network,” however were also unable to proceed due to the COVID-19 global pandemic.

areas, they function as a set of integrated components. Each project highlights original strategies for technical and creative development through a range of methodological approaches. These comprise practice-based research, fieldwork, autoethnography and music analysis.[9]

Practice-based research is a popular and innovative method adopted by many contemporary creative arts practitioners. It offers a suitable alternative to theory, criticism and historical investigation which have been prioritised in the humanities, arts and social sciences.[10] In practice-based research, practise becomes the principal research activity.[11] By implementing a practice-based approach I consciously situate myself as both the researcher but also the subject of the research. The research insights set out in the thesis have therefore emerged as a result of practising. This is represented in the form of embedded videos, to be described in more detail later, featuring drumset and *kendang* demonstrations and performances, coupled with the adoption of an autoethnographic narrative approach.

Hazel Smith and Roger Dean suggest that "creative practice – the training and specialised knowledge that creative practitioners have and the processes they engage in … can lead to specialised research insights …".[12] As a creative practitioner with many years of experience playing Balinese music and the drumset - training and specialised knowledge - practice-based research is a vital part of my research process and it is the specialised research insights that I am most interested in. Insights that can only be accessed through practise.

This study is also in part ethnomusicological with fieldwork employed as a fundamental and formative research activity. The study of Balinese music has consistently involved fieldwork as an important, often vital research method.[13] Although the fieldwork for this study took place in specific

9 In Hazel Smith's and Roger T. Dean's introductory chapter "Practice-led Research, Research-led-Practice – Towards the Iterative Cyclic Web" they acknowledge the distinction between practice-based and practice-led research, however go on to note that "these terms are often used more loosely." While there is some cross-over between these two constructs I have adopted the term "practice-based" to emphasise "creative practice in itself." Hazel Smith and Roger T. Dean, "Introduction: Practice-led Research, Research-led-Practice – Towards the Iterative Cyclic Web," in *Practice-led Research, Research-led Practice in the Creative Arts*, ed. Hazel Smith and Roger T. Dean (Edinburgh University Press, 2009), 1-38.

10 Smith and Dean, "Practice-led Research, Research-led-Practice – Towards the Iterative Cyclic Web," 2. The methodology in this study has also been informed by the practice-based research approaches set out in the work of Estelle Barrett and Barbara Bolt, *Practice as Research: Approaches to Creative Arts Enquiry* (I.B. Tauris, 2010).

11 Bradley Haseman, "A Manifesto for Performative Research," in *Media International Australia Incorporating Culture and Policy*, theme issue 'Practice-led Research', 118 (Sage, 2006), 103.

12 Smith and Dean, "Practice-led Research, Research-led-Practice – Towards the Iterative Cyclic Web," 5. There are a range of practitioners who have also employed practice-based approaches in their work as researchers. A selection of these include Simon Barker, *Korea and the Western Drumset: Scattering Rhythms* (Ashgate, 2015); Grant Collins, "Solo Drumset: Revering the Drumset as a Solo Instrument with Expansions for the Instrument, Notation, Physical Expression and Compositional Works" (Ph.D., Griffith University, Queensland, 2014); Andrew Gander, "Developing a Polyrhythmic Idiolect" (Ph.D., University of Sydney, 2017); James Robert McLean, "A New Way of Moving: Developing a Solo Drumset Practice Informed by Embodied Music Cognition" (Ph.D., University of Sydney, 2018); Daniel Stephen Susnjar, "A Methodology for the Application of Afro-Peruvian Rhythms to the Drumset for Use in a Contemporary Jazz Setting" (DMA, University of Miami, 2013); Darren Moore, "The Adaption of Indian Carnatic Rhythmic Structures and Improvisation Methods into Drumset Language and Performance Practice" (Ph.D., Griffith University, Queensland, 2013); Hartigan, "Blood Drum Spirit."

13 I Wayan Dibia, "Arja: A sung Dance-Drama of Bali. A Study of Change and Transformation" (Ph.D., University of California, 1992); I Wayan Dibia, *Taksu: In and Beyond the Arts* (Yayasan Wayan Geriya, 2012); Peter Dunbar-

stages throughout 2018 I, like Nicholas Gray in his study of Balinese *gender wayang*, saw no clear distinction between my practise of *kendang bebarongan* drumming and the fieldwork I conducted about it.[14]

During fieldwork in Bali in 2018 I conducted interviews with the following Balinese *kendang* players: I Gde Made Indra Sadguna, I Wayan Sudiarsa, I Wayan Sudirana, I Ketut Gede Rudita, I Wayan Merta and Pande Gde Eka Mardiana. These *kendang* players were selected due to their various ages and levels of experience in *kendang bebarongan* performance. Although I had known Pande Gde Eka Mardiana (known as Yande) and I Wayan Sudiarsa (known as Pacet) for many years, through a variety of collaborative and performative contexts, the other *kendang* players were new acquaintances, with introductions assisted and co-ordinated by Yande. The interviews took place in the villages of Batubulan, Sanur, Singapadu and Ubud, displayed on the map in Figure 1.1.[15] Ethics approval to conduct these interviews was granted on 22/11/2017 by The University of Sydney Human Research Ethics Committee - Protocol number: 2017/865.

Hall, "Balinese Gamelan: Continual Innovation, Community Engagement, and Links to Spirituality as Drivers for Sustainability," in *Sustainable Futures for Music Cultures*, edited by: Huib Schippers and Catherine Grant (Oxford University Press, 2016), 145-177; Lisa Gold, *Music in Bali: Experiencing Music, Expressing Culture* (Oxford University Press, 2004); Ed Herbst, *Voices in Bali: Energies and Perceptions in Vocal Music and Dance Theatre* (Wesleyan University Press, 1997); Made Hood, *Triguna: A Hindu-Balinese Philosophy for Gamelan Gong Gede Music* (LIT Verlag, 2010); Made Hood, "Persistent Mutualisms: Energising the Symbiotic Relationship between Balinese Dancer and Drummer," in *Sounding the Dance, Moving the Music*, edited by: Mohd Anis Md Nor and Kendra Stepputat, (Ashgate, 2017), 42-56; Andrew Clay McGraw, "Different Temporalities: The Time of Balinese Gamelan," *Yearbook for Traditional Music* 40 (2008): 136-62; Andrew Clay McGraw, *Radical Traditions: Reimagining Culture in Balinese Contemporary Music* (Oxford University Press, 2013); Colin McPhee, *Music in Bali*; I Wayan Sudirana, "Borrowing, Stealing, Transforming: Cross-cultural Influences in Balinese Neo-Traditional Composition," in *Performing Arts in Postmodern Bali: Changing Interpretations, Founding Traditions*, edited by: Kendra Stepputat, (Shaker Verlag, 2013), 165-183; Peter M Steele, "Balinese Hybridities: Balinese Music as Global Phenomena," (Ph.D., Wesleyan University, 2013); Tenzer, *Balinese Music*; Wayne Vitale, "Balinese Kebyar Music Breaks the Five-Tone Barrier: New Composition for Seven-Tone Gamelan," *Perspectives of New Music* 40 (2002): 4-69.

14 Nicholas Gray, *Improvisation and Composition in Balinese Gender Wayang: Music of the Moving Shadows* (Routledge, 2011), 43.

15 The villages of Batubulan and Singapadu are recognised historically for their distinct *kendang bebarongan* playing styles however nowadays there is less regional identity. I Wayan Jebeg was central figure in the Batubulan style of playing. During my fieldwork, I attempted to interview Pak Jebeg, however he was too old and frail to be able to meet my requests.

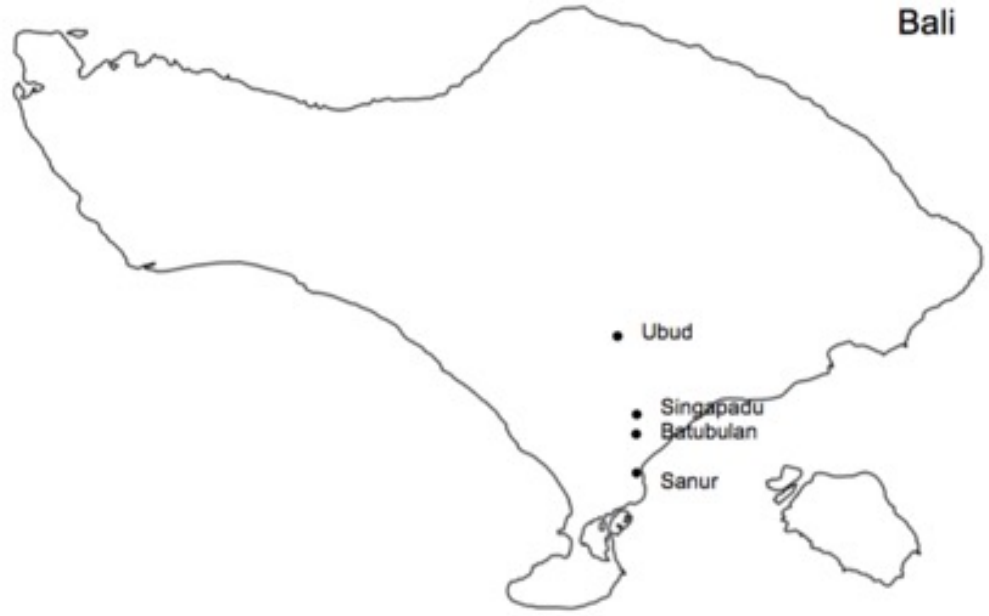

Figure 1.1 Map of Bali showing locations of sites mentioned

The following table (Table 1.1) shows the interviewees, dates and locations for the interviews conducted.

Interviewee	Date	Location
I Gde Made Indra Sadguna	6th May 2018	Singapadu
I Wayan Sudiarsa	7th May 2018	Ubud
I Ketut Gde Rudita	9th May 2018	Batubulan
I Wayan Sudirana	11th May 2018	Ubud
I Wayan Merta	13th May 2018	Sanur
Pande Gde Eka Mardiana	15th May 2018	Batubulan

Table 1.1 Interviewees, dates and locations of interviews conducted

This focused short period of interviews consolidated the questions I had been formulating in response to the problems I was trying to solve throughout the many years of playing *kendang*. The interviews, mostly in Indonesian with some in English, explored a range of topics associated with *kendang bebarongan*. These were predominantly conceptual and philosophical. Concepts were often illustrated with practical demonstrations. The interviews and demonstrations were recorded on both digital audio and digital video and resulted in approximately 12 hours of footage. The decision to record video in addition to audio was to document the physical gestures of the interview participants which are central to the act of playing the *kendang*. Many of the outcomes in the thesis were in response to the thoughts, ideas and gestures shared with me throughout these interviews.[16]

In *Music of Death and New Creation*, Michael Bakan expresses the frustration and limitations

16 A full list of the questions prepared for these interviews can be found in Appendix 5 of this thesis.

he experienced when working within the perceived conventional methodological parameters of ethnomusicology, and was motivated to explore other options.[17] Through his study of the Balinese *gamelan beleganjur* Bakan challenges these conventions and sets out a highly self-reflexive examination of his own personal experience as a student and performer of the music. Like Bakan I chose to explicitly embrace my own situation and examine my own experiences of becoming a *kendang* player. Bakan also speaks of "tuning in" to his teacher's words and playing, and attempts to find ways to understand precisely what his teacher wanted from him.[18] Although the thoughts and actions of my mentors and interview participants were respected and examined, I instead chose to find meaning in these thoughts on my own terms. This may seem bold, however throughout all of the interviews I conducted it was impressed upon me by Balinese musicians that I must find my own way and that the various concepts discussed were highly individual. This was a regular area of discussion and this project is largely in response to that.

To facilitate the focus on personal experience and individualised ways of developing, an autoethnographic narrative approach was adopted. The basis of this approach involves an "awareness of one's self as a researcher."[19] Brydie-Leigh Bartleet speaks of the process of "foregrounding" her own personal experiences of conducting and that autoethnographic writing techniques allowed for a process of "zooming outward and inward, backward and forward" to ascertain how they fit within a broader context.[20] Carolyn Ellis terms this as the "back and forth ethnographer's gaze."[21] In this thesis I utilise personal diary entries and self-reflection, which when examined allowed for the type of "gaze" that Bartleet and Ellis refer to. This approach was paramount to the research methodology and the resultant research outcomes.

Peter Dunbar-Hall, through his experiences of learning music in Bali, reveals that autoethnography "exposes one's insecurities, forces questioning of assumptions, and requires re-assessment of ways of thinking and believing."[22] Ellis and Bochner term the researcher in this situation as "the vulnerable self."[23] Bartleet also writes of her feelings of musical inadequacy: "my inescapable absorption in conducting became my autoethnographic starting point. Although it was painful to be facing these

17 Michael Bakan, *Music of Death and New Creation: Experiences in the World of Balinese Gamelan Beleganjur* (The University of Chicago Press, 1999), 17.

18 Bakan, *Music of Death and New Creation*, 316 – 333.

19 Peter Dunbar-Hall. "Studying Music, Studying the Self: Reflections on Learning Music in Bali," in *Music Autoethnographies: Making Autoethnography Sing/ Making Music Personal*, edited by: Carolyn Ellis and Brydie-Leigh Bartleet (Australian Academic Press, 2009), 153.

20 Brydie-Leigh Bartleet, "Behind the Baton: Exploring Autoethnographic Writing in a Musical Context," *Journal of Contemporary Ethnography* (2009): 716.

21 Carolyn Ellis, *The Ethnographic I: A Methodological Novel about Autoethnography* (Altamira Press, 2004), 37.

22 Dunbar-Hall, "Studying Music, Studying the Self," 154. For further information concerning autoethnographic and auto-pedagogical approaches by those who have considered and interrogated their own learning experiences see Paul Berliner, *Thinking in Jazz: The Infinite Art of Improvisation* (University of Chicago Press, 1994); Timothy Rice, *May it Fill Your Soul: Experiencing Bulgarian Music* (University of Chicago Press, 1994); David Sudnow, *Ways of the Hand* (The MIT Press, 1993).

23 Dunbar-Hall, "Studying Music, Studying the Self," 154; Carolyn Ellis and Arthur Bochner, "Autoethnography, Personal Narrative, Reflexivity: Researcher as Subject," in *Handbook of Qualitative Research*, edited by N. Denzin and Y. Lincoln (Sage Publications, 2000), 739.

issues head-on, it was also strangely confronting to acknowledge them."[24] Autoethnographic writing similarly became a starting point for my research in that I had experienced long-standing issues of self-consciousness with my own playing. I recognised autoethnography as an indispensable method to also confront some of these issues whilst simultaneously contextualising them more broadly. My aim however throughout this project was to not only acknowledge and confront these issues, but to address them and find solutions for them. To facilitate this type of self-analysis, the autoethnographic approach involved the use of a diary in which I documented and reflected on my practice. In my diary, I recorded; locations, names and dates of activities; the content of mentor sessions and interviews; terminology that I was developing; diagrams and short-hand self-communicative notations; self-reflection on my research; graphic representations of models; documenting and tracking my progress and self-reflections on my performances. Quotes, diagrams and self-communicative notations from this diary are used throughout the thesis to trace the procedural development of research outcomes.

1.5 Navigating the thesis

This project utilises practise as the principal research activity. It is presented as an eBook which allows the reader to engage with the practical components of the project which are integrated into the flow of the text. A performance presentation of the practical outcomes, as might be the case with a more traditional performance-based project, is not appropriate here as I wish to examine "process" in addition to music rather than "only" music. This would also result in the practical component being detached from the thesis. A separate package containing the audio/visual artefacts would also not suffice as this can disrupt the flow of the narrative. By embedding the audio and visuals in the eBook format it is my intention that they are weighted equally to the text and therefore not "supplementary," or completed removed, as might be the case with the aforementioned alternatives.

Movement is an important aspect of this project which text alone struggles to accurately convey. The videos, often with on-screen annotations, provide a clear representation of this, which is frequently detailed and complex. Interview footage is also presented in video format in order to convey important physical gestures which are often central to the drumming being discussed. The videos therefore ensure a clear rendering of the high resolution knowledge that emerged throughout the study. It is also important to note that the videos, many of which are quite brief, are also viewed at the appropriate time in relation to the text commentary. The eBook facilitates this and consequently allows the reader to progressively absorb the ideas with a more complete understanding of what is being demonstrated and why.

24 Carolyn Ellis and Brydie-Leigh Bartleet, "Making Autoethnographies: Making Autoethnography Sing/Making Music Personal," in *Music Autoethnographies: Making Autoethnography Sing/ Making Music Personal*, edited by: Carolyn Ellis and Brydie-Leigh Bartleet (Australian Academic Press, 2009), 3.

1.6 Scope and limitations

Throughout this thesis the reader may observe the absence of staff notation. This stemmed from my former reliance on staff notation when playing the drumset prior to becoming a *kendang* player. Balinese musicians typically do not use staff notation and when I began learning the *kendang* in Bali I made a conscious decision to learn without notation. Learning without the use of staff notation has been an aspect of my drumset and *kendang* practice since 2006. The decision to not use staff notation throughout this project was also conscious as I was curious about the implications this might have on research outcomes.[25] In addition to the thesis presentation, at no point during my practice was staff notation utilised. This allowed other aspects of the music to be prioritised such as movement. The analysis of *kendang* rhythms, however not including *kendang bebarongan*, in staff notation form already exists and is therefore beyond the scope of this study.[26]

In addition to setting out developmental processes in which *kendang bebarongan* has informed my drumset playing, the study establishes several models of self-directed learning including a model for self-assessment. Although the Balinese pedagogical system is acknowledged it is important to note that this project is not concerned with traditional modes of learning, which in-part have previously been addressed.[27]

The range of outcomes set out in this study emerged directly from discussions between myself and the *kendang* practitioners I interviewed. These discussions were largely philosophical and often highly conceptual, in which a range of insights emerged, relevant to my development as a *kendang* player. These insights functioned as conceptual prompts and were explored through practical activity on the drumset and *kendang*. The process of treating the prompts as starting points for practical activity on the drumset and *kendang* was a central mode of research with the prompts posited and embraced as subsidiary research questions throughout the project.

An example of one of these prompts is pindekan (Balinese windmills).[28] During a practise session

25 In I Wayan Sudirana's paper "The Balinese and Western Notation: The Potential for Misrepresentation," he argues that while staff notation is reliable in the Western academic world to describe and represent music form Bali, it is not capable of completely representing the music. Sudirana explains the potential problems of misrepresentation including conceptions of beat as well as to tempo and dynamic shifts. I agree with Sudirana and have hence chosen to abstain from using staff notation throughout this study with the aim of representing other aspects of the music and drumming.

26 Bakan, *Music of Death and New Creation*; Hood, "Finding Your Gedig"; McPhee, *Music in Bali*; I Wayan Sudirana, "Kendang Tunggal: Balinese Solo Drumming Improvisation" (MA, University of British Columbia, 2009); Micheal Tenzer, *Gamelan Gong Kebyar: The Art of Twentieth-Century Balinese Music*, 2000); Leslie Tilley, *Making it up Together: The Art of Collective Improvisation in Balinese Music and Beyond* (The University of Chicago Press, 2019).

27 Bakan, *Music of Death and New Creation*; Gray, *Improvisation and Composition in Gender Wayang*; Andrew Jocuns, "Semiotics and Classroom Interaction: Mediated Discourse, Distributed Cognition, and the Multimodal Semiotics of *Maguru Panggul* Pedagogy in Two Balinese Gamelan Classrooms in the United States," *Semiotica* 164 (2007): 123-151; I Wayan Sudirana, "Meguru Panggul and Meguru Kuping; the Method of Learning and Teaching Balinese Gamelan," *Lekesan* Vol 1, Issue 1 (2018): 39-44.

28 *Pindekan* are slender two-bladed propellers made from bamboo that are attached to a long bamboo pole, typically installed in rice fields to scare way birds. They can be generic in their design, yet also customised. The custom versions are often highly decorated and purposefully crafted to produce particular sounds. *Pindekan* enthusiasts are often interested in other "wind" hobbies, including kite flying. Pande Gde Eka Mardiana, personal

with one of my mentors, a particular drum stroke on the *kendang* was identified as needing more work. It was explained to me that the stroke must sound like the sound of *pindekan* and that this was a helpful way to think about it. There was no further description and no clear instruction provided for "how" to make the stroke sound this way. There are numerous examples of this throughout the project including "learning from the stick," where it was explained to me that a particular movement of the *panggul* is the most challenging aspect of *kendang bebarongan*, and that understanding the *panggul* is essential for learning how to manage energy, power and strength. Again, there was no clear directive for "how."

In response, I chose to find meaning in the concepts and ideas shared with me on my own terms, without external influence and in isolation, away from Bali: a self-generated approach. The decision to develop a solo drumset vocabulary, set out in Chapters Three and Four, further facilitated the solitary research environment that I felt would reveal the insights that I was interested in discovering. The scope of the study is therefore defined by the internal monologue I have set up which examines my own relationship to Balinese music.

The aforementioned cancellation of the *lomba kendang* in Bali also placed me in a particularly vulnerable and solitary position as a researching practitioner. Questions arose such as: How do I continue to develop the skills I need to perform at such a high level when I am on my own, without anyone guiding or instructing me, and at the same time living in a different country? Living in Australia, and in close geographical proximity to Bali, I previously had the luxury of visiting Bali frequently to hone my skills and to maintain relationships with the Balinese musicians that I felt connected to. How do I proceed when this is no longer possible? This project is also concerned in addressing questions such as these.

Finally, despite this project being the first known scholarly investigation into *kendang bebarongan* it is by no means comprehensive or exhaustive. I do however highlight several pertinent aspects of the drumming including movement, information processing, playing at speed, playing with power, and agility. I also introduce I Wayan Merta as a pivotal practitioner and central figure in the community of *kendang bebarongan* drummers in Bali. Even though I spent a generous amount of time with Merta there was much more to be explored. With anticipation, I reserve further discussion for another time.

1.7 Thesis structure

This research involves creative responses on the drumset and *kendang* that stem from clear starting points: discussions with Balinese *kendang* players. The thesis is organised accordingly with

communication with author, Batubulan, Bali, May, 2018. *Pindekan* are also erected and used in Bali in the context of the ceremony *nyekah*. *Nyekah*, also known as *memukur* or *ngasti*, is a ritual where "…a deceased Balinese person receives their final rites of purification." Bakan, *Music of Death and New Creation*, 75.

chapters dedicated to specific response areas (explained in detail below). Each response area may be interpreted as an independent project or case-study, in which the corresponding research was conducted in separate time periods. Although they may be interpreted this way, the presentation of the response areas and resultant chapters are intended to be viewed as a set of integrated components. The research is also presented in chronological order. This facilitates integration of the response areas with several developmental processes and theoretical outcomes often referred back to and expanded upon. An example of this is the "Inward Elliptical Sweep," first appearing in Chapter Three, yet is also integrated into the research process appearing in Chapter Six.

The reader may observe the absence of a discrete literature review. Instead, I choose to refer to relevant literature throughout the thesis when and where appropriate and necessary. In addition to this, subsidiary research questions appear throughout the text which are specific to the content appearing in each chapter.

This thesis also relies on Balinese musical terminology as used by Balinese musicians. A combined glossary is included as an appendix. All terms are Balinese with the inclusion of some Indonesian terms; indicated by the abbreviation "I" in the glossary. Additionally, some terms are hybrid, combining both Indonesian and Balinese words. Hybrid terms are indicated by the abbreviation "H."

Each of the chapters appearing in this thesis will now be described in detail. Chapter One provides an overview of developing research from experience with Balinese music, including the origins of Balinese music appearing in my drumset playing and personal motivations for embarking on this study. The research methodology is also set out in addition to the defined scope and limitations of the project.

Chapter Two features an analysis of the solo *kendang bebarongan* drumming prelude "*pengawit kendang*." The analysis begins with an overview of the characteristics of *kendang bebarongan* before embarking on a detailed discussion of the cellular hand-patterning vocabulary. In this chapter I establish direct links between cellular hand-patterning design and its role in physical efficiency and introduce the concept of "Equalised Movement Distribution." This chapter represents an analytical response to *kendang bebarongan* vocabulary shared with me by Pande Gde Eka Mardiana.

In Chapter Three, tilted "Project Two – Drumset Response," I establish a range of original developmental processes on the drumset. These are categorised according to their varying degrees of influence, and form the "Spectrum of Influence" model. Initially the processes appearing in the model stem from the cellular hand-patterning vocabulary set out in Chapter Two however quickly transition into a variety of processes in response to Balinese thought emerging through mentor practise sessions and practitioner discussions. The Spectrum of Influence model represents a taxonomy of original developmental processes emerging from a range of *kendang bebarongan* conceptual

prompts. A suite of creative works in the form of solo drumset compositions and improvisations showcases the full range of processes appearing in the model.

Chapter Four "Learning from the Stick," features an additional and contrasting response on the drumset documenting a range of developmental processes emerging through an interview with I Wayan Merta. In this interview, which I term as a "practitioner-to-practitioner" discussion, I highlight several of Merta's insightful philosophies and conceptions pertaining to the use of the *panggul* in *kendang bebarongan* and the role these concepts have in self-teaching and personal development. As with Chapter Three, this chapter also features a creative outcome in the form of a solo drumset composition.

Chapter Five sees the study transition to a dedicated response on the *kendang*. I begin by contextualising the work in this chapter by introducing a model pertaining to information processing in *kendang bebarongan* performance. The model highlights and categorises the range of stimuli a *kendang* player must process throughout the course of a performance, presented from the drummer's perspective. This is followed by a self-audit of my own *kendang* playing in which I establish a baseline of my performance ability to contextualise the research in the final chapters of the thesis. This chapter concludes with tracing the development of a preliminary technical reset on the *kendang* in response to an analysis of Merta's physical gestures when playing *kendang*. The preliminary technical reset serves as a prelude to an entirely self-generated approach to creative and technical development on the *kendang* featured in Chapters Six and Seven.

The documentation of a self-generated response on the *kendang* in Chapters Six and Seven sees the development of a "self-assessment indicator model" as a primary research outcome.[29] The model highlights a range of aspects pertaining to *kendang bebarongan* performance, categorised as "understanding the elements of performance." A variety of sub-categories, functioning as "indicator areas" feature a set of criteria for the self-assessment of my own *kendang* playing. In addition to the development of the self-assessment indicator model, this chapter sees a re-framing and re-conceptualisation of several fundamental aspects of my own *kendang bebarongan* playing including sitting position/posture, speed, power and agility. These chapters prioritise movement as the primary mode for procedural development on the instrument, displayed in the embedded videos.

29 This is an adaption of a model originally developed by Thomas Engesser through his work with soccer players in Sydney, Australia. Engesser's model was generously shared with me by drummer Simon Barker.

Chapter Two
Project One – In-Built Physical Efficiency

2.1 Overview

This chapter presents and outlines the development of an analytical model for viewing and categorising cellular rhythmic material identified in *kendang bebarongan* drumming. The intention here is to highlight physical concepts that function as guiding principles of a rhythmic vocabulary, revealing an organisational logic within the drumming which can be applied to both the drumset and various contexts of *kendang* playing. The analytical model emerged following a research trip in Bali early in the project (2018) where preparation had been taking place for my participation in the *lomba kendang*. Whilst the model is rooted in the musical analysis paradigm, I wish to emphasise that the development of the model stemmed from practical engagement with the drumming which then provided a pathway to a variety of practice-based research activities and outcomes.

Whilst the model presented in this chapter does identify an organisational logic embedded in the hand-patterning of *kendang bebarongan* drumming, it is not my intention to claim a universal system that governs all aspects of the drumming. There is more involved, particularly with the placement of playing rhythms with the *panggul*. Also guiding much of the drumming is a profoundly refined aesthetic framework which provides clear guidelines for the structure of rhythmic materials. Despite this, the model does reveal and offer an organisational logic, allowing the vocabulary to be viewed in a way that provides insights into the physicality of playing the *kendang*. For the purposes of the study it is therefore not necessary to establish a single model that acts as a global system, and throughout this thesis I will demonstrate how a limited number of occurrences of a concept, or a distinct feature of the music, can provide a philosophical construct and developmental pathway for the practitioner.

2.2 The Balinese *kendang*

As mentioned in the introductory commentary Balinese *kendang* are cylindrical double headed drums that typically sit on the lap horizontally and are played with the bare hands, however they can also be played with a *panggul* in one hand.[1] *Kendang* from Bali are often identified as being played in pairs, however there are also two sub-styles of solo drumming.[2] Solo drumming refers to drumming that is performed by a single drummer on a single drum but can still include accompaniment by the *gamelan*. The *kendang* used to perform *kendang bebarongan* drumming, shown in Image 2.1, are a medium sized instrument (length: 64cm, diameter: 23 to 27cm), somewhat smaller and larger to

1 Tenzer, *Balinese Music*, 38. There are several types and sizes of *kendang* that are specific to particular styles of *gamelan*. These include *Kendang Angklung, Kendang Krempungan, Kendang Nyalah (Babancian, Barong), Kendang Gupekan, Kendang Cedugan* and *Kendang Mebarung*. See I Wayan Sudirana, “Kendang Tunggal,” 13-14.

2 Sudirana, “Kendang Tunggal,” 12.

other *kendang* in Balinese music, and occasionally referred to as *kendang babancian* (*babancian* meaning "androgynous.")[3] *Kendang bebarongan* drumming typically appears in a village-based ensemble called *gamelan bebarongan*.[4] In addition to an extensive instrumental repertoire, *kendang bebarongan* drumming and the *gamelan bebarongan* commonly accompany the dance performance of a mythical lion-type creature called *Barong*.[5]

Image 2.1 Balinese *kendang bebarongan* with *panggul* (mallet) (Photo by the author, 2020)

Surprisingly, Balinese solo drumming has received limited scholarly attention despite it being regarded by many Balinese musicians as the most prestigious form of *kendang* playing.[6] The three studies that currently exist, are authored by Balinese music scholars I Made Bandem,[7] Michael Tenzer,[8] and I Wayan Sudirana[9]. These investigations, largely observational in their point of view, are primarily concerned with organological characteristics, stylistic topics and improvisational aspects related to the structure of the tonal vocabulary associated with *kendang tunggal* drumming. To my knowledge this is the first scholarly inquiry into the practice and performance of *kendang bebarongan* drumming. It is therefore intended that this study will offer new insights into the aesthetic, physical and technical aspects of Balinese solo drumming and Balinese drumming more broadly.

3 Michael Tenzer, *Gamelan Gong Kebyar*, 296-297.
4 Sudirana, "Kendang Tunggal,", 27-28. There are many types of *gamelan* in Bali and these are often differentiated by instrumentation, tuning system and context. The ensembles that utilise *kendang* include *gamelan gong kebyar, gamelan semar pegulingan, gamelan pelagongan, gamelan angklung, gamelan gong gde, gamelan luang, gamelan beleganjur* and *gamelan geguntangan*. See Tenzer, *Gamelan Gong Kebyar*, 79-89.
5 Dibia and Ballinger, *Balinese Dance, Drama & Music*; Sudirana, "Kendang Tunggal"; Tenzer, *Balinese Music*.
6 Sudirana, "Kendang Tunggal," 16.
7 I Made Bandem, *Gamelan Bali: Di Atas Panggung Sejarah* (Denpasar, Bali: Stikom Bali, 2013).
8 Tenzer, *Gamelan Gong Kebyar*.
9 Sudirana, "Kendang Tunggal." See also: I Wayan Sudirana, "Improvisation in Balinese Music: An Analytical Study of Three Different Types of Drumming in Gamelan Gong Kebyar," *Journal of Music, Science, Technology and Industry 1* (2018): 1-22.

2.3 Characteristics of *kendang bebarongan* drumming

There are several salient features of *kendang bebarongan* drumming that are consistent within almost all sections of a performance of a *Barong* dance. A *kendang bebarongan* practitioner is presented with a variety of challenges throughout their development period and into their life as an active performer. The most significant of these is the tempo, which is consistently fast and ranges from 155 crotchet bpm – 200 crotchet bpm with the *kendang* playing at an almost continuous rhythmic rate of sixteenth notes (four rhythmic attacks per crotchet beat). Further demand is placed on the *kendang* player as the tempo needs to be sustained for nearly the full duration of the performance with little room for physical recovery. A *lomba kendang* performance lasts for approximately 15-20 minutes, however a performance in the context of a religious ceremony may be up to 30-40 minutes in length. In addition to the fast tempo and performance duration *kendang* players are expected to generate continual rhythmic variation which is generally improvised. Furthermore, *kendang* players must also respond appropriately to the choreography of the *Barong* dance and relay these responses to the rest of the *gamelan*. A short video excerpt is provided in Video 2.1, featuring Yande. The video displays an example of the fast tempo and continual rhythmic variation. Along with the characteristics of tempo, performance duration and rhythmic variation also exists the use of a wide dynamic range - note the *Barong* entering the stage appearing on the right side of the image. The *kendang* player must draw upon a considerable amount of physical power to generate the volume and sonic projection used regularly to signal musical changes to the rest of the *gamelan*.

Due to the physicality associated with these characteristics it is crucial that *kendang* players manage their energy efficiently to be able to sustain the length of a performance. A concept that is especially pertinent in this context is *ngunjar bayu*: *ngunjar* (Balinese word for “use” or “distribution”) and *bayu* (Balinese word for “force” or “energy”). This term is a governing philosophical concept referring to an energy distribution system and more specifically how energy must be used efficiently to meet the demands of a performance including the fast tempo, performance duration, rhythmic variation, sonic projection and use of dynamics. Along with the organisation of drumming vocabulary *ngunjar bayu* is highly individual and *kendang* players must find meaning and application of this concept through their own experience.

Video 2.1 Video performance demonstrating characteristics of *kendang bebarongan* drumming

2.4 *Pengawit kendang* model

The analytical content presented in this chapter is concerned with a section of music known as *pengawit kendang* (the former from the Balinese root word *ngawit*, meaning "to alert, prepare beforehand").[10] The *pengawit kendang* is an introduction that opens a performance of the *Barong* dance and is performed by the *kendang* player prior to the entry of the *gamelan* ensemble. It is particularly unique as it features an unaccompanied solo, often improvised, performed solely on the *kendang*.[11] The example I will be discussing was created and performed by Yande.[12]

Video 2.2 (below) features a version of Yande's *pengawit kendang*. In the context of a performance the *pengawit kendang* can be improvised and this is especially true with more experienced *kendang* players. The version displayed in Video 2.2 was offered to me by Yande as a model that could be played in my *lomba kendang* performance as it contains the essential musical information that meets the fundamental requirements of the *pengawit kendang*. Alternatively, it was offered as a model for which I could create my own vocabulary and therefore design my own *pengawit kendang*, with the goal of being able to improvise this section in performance. The *pengawit kendang* model, as provided by Yande, consists of two low tone rhythms, played predominantly with the *panggul*,

10 Bakan, *Music of Death and New Creation*, 121.

11 The *pengawit kendang* is also used as an introduction for *tabuh bebarongan* (Instrumental repertoire) and the dance *Jauk Manis*.

12 Yande resides in the village of Batubulan and is a sought-after judge at many *kendang bebarongan* competitions as well as a highly influential *kendang* player: Bali records have released a cassette titled "Kendang Tunggal" that displays his incredible abilities as a solo *kendang* player: Makaradhwaja Performing Arts Group, *Kendang Tunggal*, Bali Records, 2008, Cassette. A further example of a *pengawit kendang* by Yande can be heard on the opening track of this recording. The relationship between myself and Yande began in 2008 on one of my first independent study trips to Bali. In addition to practising with Yande, I have had the opportunity to be involved with him as a *kendang* partner in a range of performances. These experiences have been incredibly valuable in my personal development as a *kendang* player. Yande's family are also highly accomplished musicians and are part of community of respected professional artists which have assisted generously in various aspects of this study.

which open and close, or rather "frame" the *pengawit kendang*. These strikes with the *panggul* are referred to as *cedugan*.[13] In between the *cedugan* are three extended phrases that feature the left-hand slap stroke "*pak*". Each of these extended phrases becomes progressively shorter in length, and finishes with a short, often pre-composed, *cedugan* phrase. The meter of the rhythms in these extended phrases is ambiguous to the listener however, Yande was thinking of a consistent tempo and organising the rhythms in a way that could be perceived of as a rhythmic flow that is multi-metered or even through-composed.[14]

Video 2.2 Video of Yande's *pengawit kendang* model

The *pengawit kendang* may appear as streams of through-composed material, however the rhythms can be categorised and will be referred to as *cells*. These cells, as appearing in the Video 2.2 demonstration, range from four to twelve rhythmic attacks in length and are arranged by the *kendang* player to form a continuous rhythmic flow. This is the way the music was communicated to me by Yande and is significant in that it is the same vocabulary used in metered sections of the music, played with the full *gamelan*. This is important as it is the same vocabulary, yet conceptualised in a different way. It therefore demonstrates what is possible when drums are played on their own, without accompanying instruments and also without accompanying dance movement.

A broad range of terminology exists amongst Balinese drummers, yet also in the literature concerned with Balinese drumming. The categorisation of *kendang* rhythms in this cellular manner is represented in the scholarship of Bandem, Sudirana, Tenzer and Tilley.[15] However, the musical contexts in which these cells appear is limited to metric structures and omits the inclusion of *kendang bebarongan* drumming and the *pengawit kendang*.[16] The terminology employed in this scholarship

13 Tenzer, *Gamelan Gong Kebyar,* 48.

14 During an Interview in May 2018 I requested Yande to vocalise the beat while he was playing the *pengawit kendang*. It was unusual request, however confirms my observations as stated.

15 Sudirana, "Kendang Tunggal"; Tenzer, *Gamelan Gong Kebyar*; Tilley, *Making it up Together*.

16 In Bakan's "*Music of Death and New Creation*" the term *pukulan* is used, however it is in the context of paired

includes: “full-patterns”, “*motif-motif*”, “*pola*”, “patterns”, “sub-patterns”, “segments” and “variants”.[17] Among the many Balinese drummers I have been associated with, the terms *motif*, *mupuh*, *pola*, *pukulan* and *pupuh* are commonly used, however in my experience these are dependent on context, yet may also be used interchangeably.[18] Despite there already being an established, albeit inconsistent, terminological syntax for categorising other forms of Balinese drumming I have chosen to pursue my own on the basis that terminology remains consistent when shifting between discussions about metric and non-metric *kendang* rhythms, yet also when transitioning into interactions with drumset playing.

To assist the reader in understanding the structure of the *pengawit kendang*, Table 2.1 displays a timeline of the first extended phrase and the sequence of cells as they appear in the Video 2.2 performance, including the opening/closing *cedugan* rhythms and the number of repetitions of each cell.

Time Marked in Seconds	Cell	Number of Repetitions
0:00	Opening *cedugan* phrase	
0:04	Cell 1	2
0:05	Cell 2	1
0:06	Cell 3	2
0:08	Cell 4	3
0:09	Cell 5	1
0:10	Cell 6	2
0:12	Cell 7	3
0:14	Closing *cedugan* rhythm	

Table 2.1 Timeline of cells appearing in Yande’s *pengawit kendang* model

As mentioned earlier, the drumming in Yande’s *pengawit kendang* model can be conceived of as a series of cells coupled together, at the discretion of the drummer, to form a continuous rhythmic flow. As set out above, Table 2.1 provides a timeline of each of the seven cells as they appear in Video 2.2. In addition to this, Figure 2.1 displays the hand-patterning sequence of each of these seven cells. There are a variety of timbrally contrasting drum strokes used to perform the cells, however at this stage of the discussion I wish to prioritise cellular hand-patterning sequences rather than any particular sonic characteristics. As can be seen in Figure 2.1 the cells range from four to twelve rhythmic attacks in length and feature sequences of left and right and movements. Due to

drumming and in a different idiom.

17 I Ketut Gede Asnawa, “The Kendang Gambuh in Balinese Music” (MA, University of Maryland, 1991); Bakan, *Music of Death and New Creation*; Bandem, *Gamelan Bali*; Sudirana, “Kendang Tunggal”; Tenzer, *Balinese Music*; Tenzer, *Gamelan Gong Kebyar*; Tilley, *Making it up Together*. I am acutely aware of the omission of Colin McPhee’s “Music in Bali.” While McPhee does notate some *kendang* rhythms, his work here is not relevant.

18 In an interview with Yande in May, 2018 I attempted to get some clarity on the application of these terms only later to find that they were still used interchangeably from player to player. The terms listed do however refer to drumming patterns. Terminology within Balinese music is often inconsistent and often varies from village to village.

the rapid tempo in the performance of Video 2.2, it is anticipated that the reader may not be able to distinguish between cells without additional information to assist in understanding the structure of the pengwait *kendang*. In response to this, it is recommended that the reader engages with the information provided in Table 2.1 and Figure 2.1, followed by a repeat viewing of the Video 2.2 performance.

Cell 1:	L R L R
Cell 2:	L R R L R L L R
Cell 3:	R L L R L R R L R L L R
Cell 4:	L R L R
Cell 5:	L R L R R L R L L R R L
Cell 6:	R L R L L R R L
Cell 7:	R L R L L R

L = left-hand stroke; R = right-hand stroke

Figure 2.1 Hand-patterning of first seven cells of Yande's *pengawit kendang* model

2.5 Equalised Movement Distribution within hand-patterning cells

Upon a closer examination of the cells contained within Yande's *pengawit kendang* model, they exhibit an equal distribution of left and right-hand movements. For example, as displayed in Figure 2.1: Cell 1 and Cell 4 exhibit two left-hand movements and two right-hand movements. This equality in movement distribution is embodied in all seven cells. The left and right-hand movements in these cells, performed by a singular body, therefore evidence an equalised and balanced series of movements that provide insight into some of the primary characteristics of the music and drumming as set out in Section 2.3 of this chapter.

The concept of Equalised Movement Distribution can be seen easily by dividing each cell at the mid-point.[19] As displayed in Figure 2.2, Cell 1 features a single alternation of left and right-hand movements in the first half of the cell followed by the same sequence in the second half of the cell.[20]

19 An alternate way of viewing the cells presented in this chapter can be seen in Appendix 2 of this thesis.

20 The principle of symmetry, and its various forms, is also applicable and apparent when viewing these cells, however beyond the scope of the focus of this thesis. For information concerning symmetry in music see Hermann Weyl, *Symmetry* (Princeton University Press, 1952); Alexander V Voloshinov, "Symmetry as a Superprinciple of Science and Art," *Leonardo*, Vol 29, No. 2 (1996): 109. For symmetry in the context of Balinese *gamelan* see Jonathan Dimond, "An Exploration of Intercultural Influences in Contemporary Composition," (Ph.D., University of Queensland, 2018); Tenzer, *Gamelan Gong Kebyar*.

Cell 1:	L R : L R
Cell 2:	L R R L : R L L R
Cell 3:	R L L R L R : R L R L L R
Cell 4:	L R : L R
Cell 5:	L R L R R L : R L L R R L
Cell 6:	R L R L : L R R L
Cell 7:	R L R : L L R

Figure 2.2 Cellular hand-patterning mid-point division

This balance need not be replicated by the exact hand-patterning sequence in each half of the cell to represent movement equalisation. Cell 7 for example, as displayed in Figure 2.2, displays R L R in the first half of the cell, whilst L L R is featured in the second half. Balance however is retained in this cell through the number of repeated hand movements (R R – L L) with non-repeated hand movements (L – R). For the purposes of understanding the concept, the cell will be re-ordered to allow this relationship to be viewed more easily. As we can see in Figure 2.3 the first half of the hand-patterning sequence has been reversed or *mirrored* in the second half of the cell, evidencing an Equalised Movement Distribution between the left and right hands.

Cell 7:	R R L : L L R

Figure 2.3 Cell 7 re-ordered to display movement equalisation and balance

Of further significance in all of the cells presented in Figure 2.1 and Figure 2.2 is the absence of triple strokes and cells are therefore limited to combinations of single hand strokes (R and L) and double hand strokes (R R and L L).[21] This limitation gives the drumming an identifiable quality yet also contributes towards physical efficiency as performing multiple strokes of more than two (R R and L L) at tempos of 155 bpm and above for a duration of more than 15 minutes can be physically taxing.

Of additional interest is the hand that begins each cell. This adds another intriguing layer to the theory of Equalised Movement Distribution and the overall physicality required to perform the music at tempo. As presented below in Figure 2.4 we can see the hand that begins each cell. These "cell-beginning" hand strokes will be referred to as "leading hands" as it can be conceived that the

21 Triple strokes are a standard technique when playing with the *panggul* (mallet/stick) however still used sparingly. For the purposes of this chapter drumming with the *panggul* is excluded and is reserved for Chapters Three, Four, Five, Six and Seven of the thesis.

chosen hand to begin each cell leads the pattern, and is therefore more dominant than the other hand in this cell-beginning position. The leading hand allows the *kendang* player to shift between the left and right sides of the body evidencing a broader level of physical efficiency built into the hand-patterning design. This does not necessarily imply that the entire cell is led by a particular hand. For example, Cell 6, as appearing in Figure 2.4 begins with the right hand leading however switches to left hand lead at the mid-point of the cell on rhythmic attack 5. This is due to the placement of the left-hand accented stroke "*pak*". Although this lead hand switch does occur within the cell I am more concerned with the hand that begins each cell. In practice, the shift between the leading hand, despite the option of momentary shifts within certain cells, represents Equalised Movement Distribution at the cell to cell level.

If we extract the leading hand from each of the seven cells in Figure 2.4 and present them as a single line sequence of leading hands: "**L L R L L R R**" we reveal Equalised Movement Distribution at a macro level with each hand starting no more than two cells in a row. This is in accordance with micro level hand to hand-patterning set out in Figures 2.1 and 2.2 that also contains no more than two repeated strokes from each hand.

Cell 1: Left-hand lead – (**L** R L R)

Cell 2: Left-hand lead – (**L** R R L R L L R)

Cell 3: Right-hand lead – (**R** L L R L R R L R L L R)

Cell 4: Left-hand lead – (**L** R L R)

Cell 5: Left-hand lead – (**L** R L R R L R L L R R L)

Cell 6: Right-hand lead – (**R** L R L L R R L)

Cell 7: Right-hand lead – (**R** L R L L R)

Figure 2.4 Leading hand of first seven cells of Yande's *pengawit kendang* model

As I have demonstrated in this chapter the concept of Equalised Movement Distribution is an important organisational characteristic of *kendang bebarongan* drumming providing insight into hand-patterning design and its contribution towards physical efficiency and sustained use of energy at multiple levels. In the next chapter I discuss how analytical concepts featured in this chapter, coupled with my experiences of becoming a *kendang* player, provided a foundational vocabulary that informed my development on the drumset.

Chapter Three
Project Two – Drumset Response

3.1 Overview

This chapter sets out a series of categorised developmental processes to create a personalised vocabulary for the drumset, drawing upon my experience as an emerging performer of the Balinese *kendang*. In broad terms this period of development may be conceived of as a "Drumset Response" to *kendang bebarongan* drumming. More specifically it is a creative response that stems from clear starting points, informed by concepts which I identified as characteristic features of *kendang bebarongan* drumming that were pertinent to my development on the *kendang*. The chapter falls into two natural parts that are distinct yet relate to each other. The first part traces the development of a model including a range of categorised procedural processes on the drumset in response to *kendang bebarongan* drumming. The second part expands this model by establishing a taxonomy of procedural parameters which are then contextualised and demonstrated in a series of solo drumset compositions/improvisations.

Throughout this development period I continued to practise the *kendang* regularly and the majority of drumset responses emerged from prompts that arose whilst practising the *kendang*. These were in the form of conceptual, technical and vocabularic areas that transitioned into a variety of highly individual and unique processes, contrasting with the initial *kendang bebarongan* prompt. A system of categorisation began to emerge as a way of measuring the various gradations or degrees of influence. Consistently, the prompt was retained as a clear reference point, however the creative response evolved largely through my personal interpretation of the prompt accompanied by an almost obsessive curiosity and willingness to "dive in," and try to understand how it works for myself.[1] In this chapter I discuss and highlight the key developments from this research period presented under the conceptual title "Project Two – Drumset Response."[2]

Wayan Sudirana's account of neo-traditional Balinese compositional influences in his article "Borrowing, Stealing, Transforming" serves as a useful starting point for categorising the variety of processes I developed on the drumset in response to *kendang bebarongan* drumming.[3] Sudirana treats the terms "borrowing, stealing and transforming" as equal, however does provide distinct meaning for each and defines "transforming" as "making a thorough change in the form, appearance or character."[4] Under the framework "Spectrum of Influence" the work presented in this chapter is situated entirely in the area of "transformation" and provides a model of three distinct categories of

1 Smith and Dean, "Practice-led Research, Research-led-Practice – Towards the Iterative Cyclic Web," 6.
2 This component of the research was presented as a paper titled "Balinese Solo Drumming and the Western Drumset." at the *Analytical Approaches to World Music Conference*, Aristotle University of Thessaloniki, Greece, June 26-29, 2018.
3 I Wayan Sudirana, "Borrowing, Stealing, Transforming," 165-183.
4 Sudirana, "Borrowing, Stealing, Transforming," 167.

procedural parameters that guide transformation as displayed in Table 3.1.

"Spectrum of Influence" **Procedural Parameters Guiding Transformation**		
Category 1: **"Internal"**	**Category 2:** **"Composite"**	**Category 3:** **"External"**
Most simple, clear and transparent transformation with potentially recognisable elements of Balinese drumming vocabulary. Processes: - Self-Generated Physically Efficient Cells - *Kempur* gong played with foot pedal - *Cedug* EWE's	Moderately abstract, less literal and more complex. Containing elements of Balinese drumming combined with additional unrelated musical concepts. Processes: - Decoupling Hand-Patterning - Dynamic Rotations - Inverted *ngutang gedig*	Most radical departure from original source. Abstract, opaque and highly conceptual. Often emerging from engagement with non-musical disciplines. Processes: - Blindfold Sensory Constraint - Crushed Double Strokes - Inward Elliptical Sweep

Table 3.1 Spectrum of Influence model[5]

The first category, "Internal," is a parameter that sees emerging processes contained within the vocabulary of Balinese drumming without any additional influence. This is the most simple and transparent form of transformation.[6]

Category 2, titled "Composite," contains combined influences of Balinese drumming coupled with additional musical influences unrelated to Balinese drumming.

The third and final category, termed "External," contains processes that radically depart from the original Balinese drumming prompt. The processes in this category often emerge through additional engagement with non-musical disciplines and the outcome is consistently abstract and highly conceptual.

The range of procedural parameters within the Spectrum of Influence model is demonstrated throughout this chapter, culminating in a series of "musical pieces" in the form of video performances. The pieces represent creative research outcomes and are embodied distillations of the categorised processes set out in the model. Multiple processes from multiple categories within the model exist

5 A *kempur* is a particular type of Balinese gong, EWE is an abbreviation for "End Weight Emphasised" doubles strokes, and *ngutang gedig* is a Balinese drumming technique. Discussions concerning these three procedures appear later in this chapter.

6 It was necessary to invent terms throughout this project which reflect the emergent knowledge. All terms from here on will appear capitalised.

within each of the pieces. As set out in the introductory remarks of this thesis, the intention here is not to "do" Balinese drumming on the drumset in the form of a "literal translation." In fact, there is a driving personal desire to do the opposite and the reader may notice the creative outputs presented in this chapter have little resemblance to Balinese drumming at all, at least on the surface. However, the underlying processes informing the creative output have a clear connection to Balinese drumming in every foundational aspect of the work.

This chapter provides commentary pertaining to processes within the Spectrum of Influence model with varying degrees of analysis. Category 1 procedures comprise summations of these processes due to their overall simplicity and more obvious connection to Balinese drumming. The processes within Category 2 receive more detailed commentary as these are generally more complex. Finally, Category 3 procedures are given the highest priority in the discussion due to their complexity, highly conceptual approach and multi-staged development.[7]

3.2 Category 1 procedure

Self-Generated Physically Efficient Cells

In accordance with hand-patterning appearing in Yande's *pengawit kendang* model, as discussed in Chapter Two, a series of self-generated cells was designed for development on the drumset. The purpose here was to create a rhythmic vocabulary, consisting of malleable cellular units that could be spontaneously ordered to generate a varying rhythmic flow.[8] The six-note cell (Cell 7) from Yande's *pengawit kendang* model provided a vocabularic prompt and clear starting point for the development of this procedure. However, rather than select existing cells from the *pengawit kendang* model I extracted a set of principles, and employed those as the guiding conceptual framework for generating additional cells. James McLean proposes a similar framework for generating a personalised "sticking" vocabulary that "…conformed to specific demands and aesthetics."[9] Of note is McLean's second criteria which is to "avoid triple strokes, or other similar ornamentations,

7 Additional analytical content is provided in the Appendix section of this thesis. This pertains to selected Category 1 procedures and is intended for the reader who would like to explore these processes further outside the flow of the main text.

8 Previous attempts, prior to this study, at working creatively with *kendang* rhythms on the drumset revealed limitations with patterns of longer lengths, or rather; more malleability appeared to be possible when working with shorter length patterns. An example from this period can be found in my composition for solo drumset "Phase Rotation": https://www.youtube.com/watch?v=yPTXNsm1HJg

9 McLean, "A New Way of Moving," 47. Examples of the use of cells or modules of varying lengths to create drumset vocabulary, on the snare drum or with full drumset orchestrations can also be found in the 26 Snare Drum Rudiments and the work of Gary Chaffee, *Sticking Patterns* (Alfred Music, 1994); Jack DeJohnette and Charlie Perry, *The Art of Modern Jazz Drumming* (Drum Centre Publications, 1988); David Garibaldi, *Future Sounds: A Book of Contemporary Drumset Concepts* (Alfred Music, 1990); Rick Latham, *Advanced Funk Studies: Creative Patterns for the Advanced Drummer in the Styles of Today's Leading Funk Drummers* (Alfred Music, 1980); John Riley, *The Art of Bop Drumming* (Alfred Music, 1994); Charlie Wilcoxon, *The All-American Drummer* (Ludwig Masters, 1945). Triple strokes comprise three consecutive notes/strikes of equal duration and are performed with a single hand using a drumstick. The examples listed in this note feature limited use of triple stokes.

that significantly inhibit performance speed."[10] This is a striking similarity to *kendang bebarongan* cellular hand-patterning which is also avoids triple strokes due to the technical demands these place on sustaining performance speed. Whilst establishing my own set of criteria for generating hand-patterning cells the potential inhibition of performance speed was factored in to the requirements of the vocabulary. In summary, the criteria for generating my own series of drumset cells is as follows:

1. Generate a series of cells of varying lengths
2. Retain the principal of Equalised Movement Distribution in the hand-patterning
3. Limit the hand-patterning to combinations of single and double strokes.

By responding to the set of three criteria, pertaining to key principles of *kendang bebarongan* drumming, a series a four-cells was formed as an emerging rhythmic vocabulary for the drumset. The length of the four cells that form this vocabulary are four-notes, six-notes, eight-notes and ten-notes. They all retain the principal of Equalised Movement Distribution and are limited to hand-patterning combinations of single and double strokes.[11] A segmented presentation of this vocabulary can be viewed in Video 3.1. Coincidentally, the four-note and eight-note cells in this vocabulary also appear in the cellular vocabulary of *kendang bebarongan* drumming. The ten-note cell however is a cell that I have not yet encountered, particularly as a ten-note conceptual construct, throughout my 20 years of playing and performing Balinese drumming. The reader may be critical of this parallel and I acknowledge that it would have been convenient to simply extract existing cells from *kendang bebarongan* drumming. However, through this research I have established clear principles which allow rhythmic vocabulary to be generated, therefore providing insight into the creation of new vocabulary, in the form of a ten-note construct as the primary example. Further to this I have offered a broader conception of the possibilities of viewing drumming vocabulary, via the formation of the expanded ten-note cell.[12]

10 McLean, "A New Way of Moving," 47.

11 Further analytical information is provided in the appendix section of this thesis, featuring a visual representation of the drumset cells in geometric diagram form.

12 Like the *pengawit kendang* cells discussed in Chapter Two, there is an alternate way of viewing the Self-Generated Physically Efficient Drumset Cells presented here. This can be seen in Appendix 3 of this thesis.

Video 3.1 Cellular drumset vocabulary

3.3 Category 2 procedures

Decoupling Hand-Patterning

The Decoupling Hand-Patterning process, mapped onto the Spectrum of Influence model under Category 2, involves "decoupling" the two hands used to perform the cellular drumset vocabulary set out above in section 3.2. Andrew Gander's "horizontal isolation" process provided a useful starting point.[13] Gander describes: "…this approach segregates layers of the complete part into "horizontal" combinations of limbs."[14] Gander's approach, whilst offering a conceptual prompt, however does not involve the application of additional processes once the limbs have been segregated. For the purposes of this study an additional process was required that would alter the cell in an obvious way whilst still retaining its identity. This needed to be rhythmic as an approach to orchestration, with an application of tonal similarities (or differences) on the *kendang*, would still leave the cell in its original rhythmic form. The "decoupling" process therefore involved subjecting the cell to an additional procedure. This involved halving the rhythmic rate of the right-hand in each of the cells whilst the left-hand remained at its original rhythmic rate. The process can be seen in Video 3.2, featuring all four drumset cells in "decoupled" form.

13 Gander, "Developing a Polyrhythmic Idiolect," 66.
14 Gander, "Developing a Polyrhythmic Idiolect," 66.

Video 3.2 Decoupling Hand-Patterning process

Of consideration was developing the cellular material in a way that draws on the conventions and capabilities of the drumset. Using the feet to play the drumset is a standard playing technique and an obvious difference when comparing to the "hands-only" Balinese *kendang*. To retain the identity of the drumset cells in Video 3.1, and further develop the "decoupling" process, I halved the rhythmic rate of the already altered right-hand, resulting in layered texture between the left-hand, right-hand and right-foot performed at three different rhythmic rates. The outcome of this process can be viewed in Video 3.3 and cells that have been subjected to this process will be termed as "Layered DS (drumset) Cells."[15]

Video 3.3 Layered DS Cells

15 The reader may note the similarity to the "stratified layering" present in almost all forms of Balinese *gamelan*. This is purely coincidental, however none the less intriguing.

The audio example below (Audio 3.1) features an improvised performance of the Layered DS Cell vocabulary which emerged through the Self-Generated Physically Efficient Cell development and Decoupling Hand-Patterning procedures. These processes can be seen mapped onto the Spectrum of Influence model under Categories 1 and 2 respectively. In accordance with the spontaneous organisation of cells appearing in *kendang bebarongan* drumming this cellular drumset vocabulary proved to be malleable and allows for the generation of a continual stream of rhythmically varied material in a way that embraces the conventions of the drumset whilst drawing on *kendang bebarongan* organisational principles. Whilst the link to *kendang bebarongan* drumming is clear the musical outcome could be perceived otherwise and for an uninformed listener the connection may not be detectable.

Audio 3.1 Improvised performance of Layered DS Cell vocabulary

Dynamic Rotations

One of the most striking features of Balinese *gamelan* music is the extreme contrasts in dynamic range. This can be heard consistently throughout the repertoire of the *gamelan bebarongan* in the form *angsels* (strongly articulated dance movement and/or musical rhythm).[16] There are many varieties of *angsel*, however the common features that are shared between them are: they are cued by the *kendang*, often in response to the dance, and usually consist of the ensemble playing at a loud volume.[17] Video 3.4 displays the contrasting dynamic range within the *gamelan bebarongan* ensemble through the use of *angsel*.

Video 3.4 Example of *gamelan bebarongan* dynamic range in the form of *angsel*

16 Tenzer, *Gamelan Gong Kebyar*, 449.
17 Tenzer, *Balinese Music*, 69-70.

As a means to continue to develop the Layered DS Cell vocabulary, I began to systematically incorporate dynamic shifts which were prompted by the dynamic contrasts appearing in *gamelan bebarongan* repertoire. As the vocabulary was being developed for solo drumset, I could choose to change dynamic levels freely and spontaneously and was not bound by an external cue, to determine when change would occur. Despite this opportunity to change freely I desired a more systematic approach. The process began as a series of exercises that involved cycling a predetermined cellular sequence at a soft volume whilst applying sequences of loud dynamics that would shift or "rotate" from one limb to the next. As an early example, a single cell from the Layered DS Cell vocabulary was chosen to be performed as a fixed repeated cycle. As such three of the limbs; left-hand, right-hand and right-foot were active in this repeated cycle irrespective of any dynamic alterations and therefore in a default state of a soft dynamic level. Loud dynamics that rotated systematically throughout the repeated cycle were then assigned to each limb. At any given time, only one limb was loud whilst the other two remained soft. A preliminary application of this involved the right-hand loud for one round of the cycle, then the left-hand loud for one round of the cycle, followed by the right-foot loud for one cycle. For a complete resolution of the cellular sequence to occur it would require three repetitions due to the "three-point dynamic rotation." This can be seen in Figure 3.1, supported by an annotated performance of the example in Video 3.5.

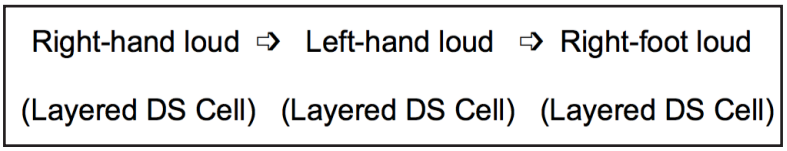

Figure 3.1 Dynamic Rotation example

Video 3.5 Annotated performance of Figure 3.1

In order to extend the Dynamic Rotation process, I began to explore contrasting relationships between fixed cellular sequences and dynamic rotation rates. Initially, a two-cell combination was selected and repeated as a continuous cycle, with a systematic three-limb dynamic rotation applied to each individual cell. This process created phasing relationships between the two variables: cellular sequential rate and dynamic rotation rate. With this additional element of complexity, an overall sense of ambiguity and intrigue was experienced. Figure 3.2 displays this process. Note the following abbreviations in terminology: RH = Right-hand, LH = Left-hand, RF = Right-foot and Layered DS Cell = DS Cell. Arrows are also included in the Figure to indicate cyclic resolutions of each parameter (cell rate and dynamic rotation rate). A recorded performance of the Figure 3.2 sequence can be viewed in Video 3.6.[18]

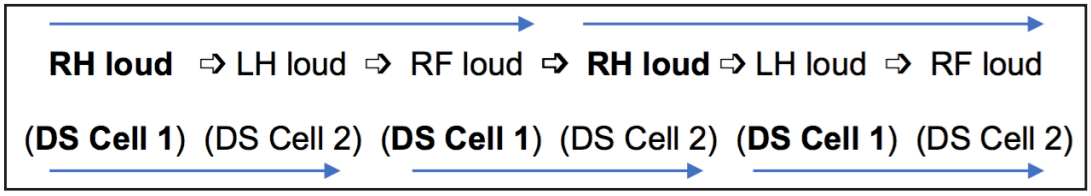

Figure 3.2 Three-point dynamic rotation with two-cell cyclic sequence

Video 3.6 Recorded performance of Figure 3.2

For the purposes of further demonstrating the complexity and versatility of the Dynamic Rotation process an additional example is provided: displayed in Figure 3.3 and demonstrated in Video 3.7. This example also features phasing relationships between the cellular and dynamic rate in the form of a three-cell cyclic sequence with a four-point dynamic rotation.

18 Note that drumset orchestrations are non-specific and the procedures outlined in this chapter are orchestrated in a variety of ways.

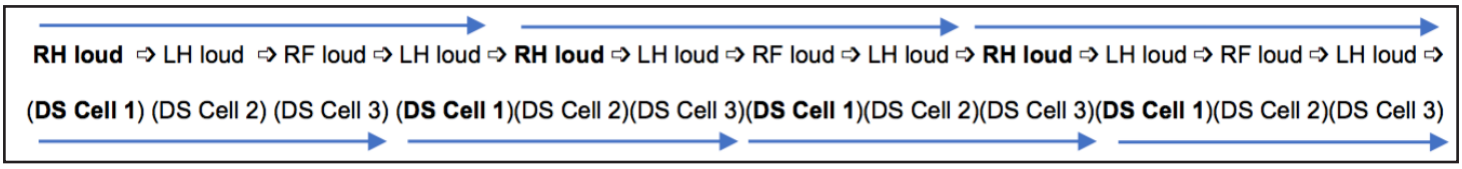

Figure 3.3 Four-point dynamic rotation with three-cell cyclic sequence

Video 3.7 Four-point dynamic rotation with three-cell cyclic sequence.

Another application of the Dynamic Rotation process developed during this period involved the omission of any one limb, resulting in a two-limb rotation. Doing this meant I was able to utilise the omitted limb to perform rhythms outside the Layered DS Cell vocabulary. A demonstration of this approach can be seen in Video 3.8 with the left-hand omitted, resulting in a two-limb: right-hand/ right-foot rotation. Following this, the left-hand is added, and can be heard improvising a set of rhythmic variations outside of the Layered DS Cell vocabulary.[19]

19 This left-hand vocabulary was generated by rhythmically compressing six-note *kendang bebarongan* cells in groupings of five, rather than six. Although interesting, it is a process that I have chosen not to prioritise in this chapter.

Video 3.8 Two-limb dynamic rotation with improvised left-hand rhythmic variations

3.4 Category 3 procedures

Blindfold Sensory Constraint

This final category of transformational procedures is the most radical and involves processes which emerged in response to *kendang bebarongan* drumming coupled with non-musical modalities. Category 3 procedures are characteristically more complex than preceding categories and multi-staged in their design. They are also experimental in nature and required a willingness to continue exploring and extending in order to establish a clear outcome. Additionally, Category 3 procedures, more than the other categories, represent a phase of significant development and personal transformation on the drumset.

During this period, I was reflecting upon a particular aspect of my *kendang* practice; the use of a mirror in order to monitor physical positioning of the hands. I questioned this approach and began conceptualising methods to counteract the use and reliance on the mirror. At this time, I was coincidentally reading the book *Peak* by Anders Ericsson and Robert Pool and was intrigued by the principles of "deliberate and purposeful practice."[20] Of particular interest was the discussion of "blindfold chess." This form of chess involves one, or both, of the players not being able to see the chess board and therefore playing entirely by memory.[21] It is called "blindfold chess" even though there is no actual blindfold involved.[22] Ericsson and Pool explain that "blindfold chess" offers one of the most dramatic examples of what is possible to accomplish with purposeful practise."[23] He asserts that this type of development can contribute to neurological changes and heightened awareness.[24]

20 Anders Ericsson and Robert Pool, *Peak: How all of us can achieve extraordinary things* (Vintage, 2016).
21 Ericsson and Pool, *Peak*, 51.
22 Ericsson and Pool, *Peak*, 51.
23 Ericsson and Pool, *Peak*, 51.
24 Ericsson and Pool, *Peak*, 51.

Along with reading *Peak* was a podcast featuring drummer Simon Barker who, in reference to his long distance running practice, explains that when becoming tired during long runs he would close his eyes.[25] According to Barker this would allow him to activate his core and establish a more sustainable form.[26]

Prompted by a desire to "wean" myself off using the mirror, as part of my *kendang* practice, I was inspired by the remarks and conceptual insight of Ericsson, Pool and Barker and wondered how this could inform my drumset practice. Whilst reflecting on a series of recordings during this development period I began to observe a disconnect between what I was hearing and what I was feeling on the drumset. Consistently, what seemed to "feel" good whilst at the instrument, was not necessarily "sounding" good on the recordings, or at least how I imagined. Why was this happening? What sense or senses were being used to guide the performance? Sight, hearing, touch, or combinations of these? How do these senses interact? And could they alter the outcome if controlled or isolated?

Although an actual blindfold is not used in blindfold chess I was curious about its use as an experiment. Having some familiarity with performing on the drumset with my eyes closed, albeit unconsciously, I chose to test these two approaches:

1. Wearing an actual blindfold.
2. Eyes closed with no blindfold.

Conceptually, the use of a blindfold will be termed a "sensory constraint" as the sense of sight is literally removed, or "constrained." The use of constraints in the development of music is not necessarily a new idea and parallels exist in various forms of scholarship. Gander, in his account of developing a personalised polyrhythmic idiolect for the drumset designed a model of musical constraints which facilitated "…a gradual escalation of interpretive license in the organisation of rhythmic content and expressive timing."[27] Australian trumpeter Phil Slater established a taxonomy of constraints by responding to the outdoor environment in Australia, allowing the natural landscape to guide how the trumpet would be played.[28] In Bali, Herbst observed that vocalists of the technically demanding dance-drama *arja* would practise at full volume whilst at the ocean until their voices were hoarse.[29] Additionally, *arja* vocalists would swallow a drink of fresh red peppers to intensify the sensations in the throat to develop a strong voice.[30]

25 Simon Barker, interview by Andrew Ford, *The Music Show*, ABC, May 29, 2016. https://www.abc.net.au/radionational/programs/musicshow/simon-barker/7449038
26 Barker, *The Music Show*, 2016.
27 Gander, "Developing a Polyrhythmic Idiolect," 48.
28 Phil Slater, "The Dark Pattern: Towards a constraints-led approach to jazz trumpet" (Ph.D., University of Sydney, 2020).
29 Herbst, *Voices in Bali*, 25.
30 Herbst, *Voices in Bali,* 25.

I began practising whilst wearing a blindfold as an open experiment and observed some immediate differences compared with playing with the “eye’s open” and “eyes closed” approaches. A diary entry from February 2018 provides some preliminary insight:

> *…a very bizarre feeling with it (blindfold) on. Experienced a sense of physical unbalance and disorientation. These feelings weren’t present with the eyes closed without the blindfold.*

The feelings of disorientation and imbalance were insightful and led me to continue with the experiment despite being unsure of what it would offer. As time passed, and with persistence, the feelings of imbalance began to resolve. The practice eventually placed me in a more mentally and physically grounded state with my core feeling activated and the weight of the body firmly settled into the drum stool. A heightened awareness and sensitivity to sound production also emerged. I became more attuned to the quality and clarity of the sound and as a result the upper dynamics in the Dynamic Rotation exercises were more punctuated and defined.

The process continued to evolve and offer additional layers of awareness. In a diary entry from March 2018, the blindfold constraint revealed insights into spatial organisation, natural body movement and their relationship to sound production:

> *Later, I observed that with the blindfold on I began to strike and fall quite naturally and this highlighted a potential spatial/physical issue with the placement of the snare drum. With the blindfold on I tended to strike the drum as if it was further away from my snare drum position at the time. This was brought to my attention through reflecting on a recording (where the blindfold was being worn) where I noticed the snare didn’t sound as full/deep as I perceived and intended it. An adjustment of snare position was made. This highlighted a potential problem between natural body movement, fall, direction, trajectory and instrument positioning. It’s letting the body guide the choice more than the visual: engaging with the material through body/ physical awareness.*

Following this, adjustments were made the spatial organisation of drumset components, particularly the snare drum, to accommodate the natural movement, fall and trajectory of the body. The process was progressively documented, including a series of pre-experiment and post-experiment observations, to ascertain any further changes. A “before/after” montage of the experiment can be seen in Video 3.9.

Video 3.9 Before/after of Blindfold Sensory Constraint process

The Video 3.9 montage provides tangible insight into the transformation that occurred throughout the blindfold experiment.[31] Whilst comparing the “before” and “after” portions of the video we can see the overall “look” of playing the instrument has changed. There is an apparent difference in overall posture, represented by the deeper seating position, which may be a result of engaging or activating the core of the body. The upper-body also seems more stable, with less sympathetic movement, resulting in an overall relaxed appearance. This can be further seen in the elbows, which appear almost “hanging”, rather than being held up, as displayed in the “before” portion of the video. This “hanging” quality and overall postural change were contributing factors in what I felt to be the global removal of physical tension.

At a more micro-level the movement rate of the drumsticks is at a higher velocity post-blindfold experiment. The sticks momentarily seem to “settle” after striking the instrument and then lift for the next note at, potentially, the last possible moment. By waiting longer to play the next note the feeling of a physically more efficient form emerged, a feature that is further evidenced in the sustained aforementioned upper body posture. In the “before” portion of the video, lifting to play each note seems to occur much earlier than what appears in the ‘after’ portion. Prior to the blindfold experiment the space between the notes was occupied not only by a slower movement rate, seen most clearly in the shifts between high-tom and ride cymbal, but also a possible holding of the body in a position for potentially longer than it needs to be. By waiting later to lift for the next note, as in the “after” segment, the body appears to remain in a sustained relaxed state. This ultimately resulted in what I observed to be sharper sonic articulation.

31 The research throughout this section is not concerned with physicality in the form of absolute proof of the bio-mechanical changes throughout the blindfold process (and other procedures). The scope of this study however does allow insights through personal experiential observations and is presented under these terms accordingly.

With a heightened sense of sound production, spatial and physical awareness I recognised that I was able to tend to areas of music such as fast tempo playing, rhythmically intricate phrasing and improvisation with more clarity and focus. This heightened state became particularly obvious when the blindfold was removed, revealing the learning that had taken place throughout the experiment. The blindfold as a sensory constraint allowed a way forward that was originally unclear. Through persistence, documenting my observations, reflecting on recordings and responding to feelings in the body I would argue that I was able to fundamentally change the way I play the instrument.

Inward Elliptical Sweep

The final Category 3 process to be discussed emerged in response to a conceptual and technical issue I was presented with on the *kendang*. In December 2017, I was practising some *kendang bebarongan* drumming with Yande in preparation for my competition performance. Yande advised that I needed to play the double mallet strokes, called *cedugan*, closer together and that the desirable sound is like the sound and rhythms that are generated by *pindekan* (Balinese word for “propeller” or “windmill”), displayed in Image 3.1. Yande went on to explain that many years ago, one of the great *kendang bebarongan* masters, Pak Wayan Jagra from Singapadu village, would often have students asking him to teach them how to play. Instead of teaching the students directly Pak Jagra would instruct them to sit in the rice field, listen to the *pindekan* and by doing this they would then learn how to play.[32]

Image 3.1 Picture of *pindekan* (Photo by author, Batubulan, Bali May 2018)

32 Pande Gde Eka Mardiana, interview by author, Melbourne, Australia, December 3, 2017.

Yande played me a recording of *pindekan* (Audio 3.2) and I immediately heard the connection to *kendang bebarongan* drumming he was referring to: double and multiple stroke combinations seemingly squashed through various circular velocities, not on any sort of metric/sub-division grid, yet rhythmically complex, unpredictable and like nothing I had heard before. Although the connection could be made to *kendang bebarongan* drumming it was not clear how to actually achieve what Yande was proposing.

Audio 3.2 Audio recording of *pindekan*

In response to Yande's thoughts, and the *pindekan* recording, a range of multi-staged experiments emerged and included:

1. Macro-literal response: learning to play the *pindekan* recording verbatim
2. Micro-technical response: the development of a "crushed" double stroke technique
3. Kinetic response: the use of a skipping rope to embody circular oscillations and engagement with non-musical modalities.[33]

Termed as a "macro-literal response" the first experiment involved learning to play the *pindekan* recording verbatim: the use of the term "literal" is specific to this activity and not to be confused with a literal application of Balinese drumming. A series of videos produced by American jazz drummer Dan Weiss provided an entry point for this activity. Weiss's videos, published on his personal YouTube channel, feature drumset realisations of various spoken word recordings including auctioneer Ty Thompson and a "FedEx fast talker" advertisement.[34] In addition to this video series Weiss released a drumset interpretation of spoken dialogue from the film "Glengarry Glen Ross" on his album *Timshell*.[35] Weiss's compelling and virtuosic drumset realisations provided the impetus to pursue a drumset interpretation of the *pindekan* recording. A diary entry from March 2018 offers insight into this experiment:

> *I listened regularly and a lot. I resisted the urge to break the track into segments as I wanted to get a sense of the whole thing first. I knew I had the memory skills to manage this amount of material…at least I thought so.*

33 An additional response to *pindekan* that was developed later in the project is described in Appendix 4 of this thesis.
34 Dan Weiss, YouTube channel, https://www.youtube.com/channel/UCKNQsJb_PjayoqHBjjZLhVA
35 Dan Weiss, *Dan Weiss Trio: Timshell*, Sunnyside Records, 2010, Compact Disc.

Following a period of substantial listening, an awareness of certain rhythmic passages emerged, however the vocabulary of the *pindekan* was unfamiliar and proved challenging to memorise.[36] The book *Peak* provided a possible explanation through the principle of "mental representations." According to Ericsson and Pool, mental representations are domain specific structures which employ long-term memory and allow expert performers to recognise and respond to patterns that would seem random to performers with less developed mental representations.[37] Ericsson's concept offered insight into the challenges I was experiencing: due to the unfamiliarity of the *pindekan* vocabulary, a broader structure and pattern recognition skill-set had not been established for the computation of all the new rhythmic information. Although some rhythmic phrases were able to be memorised I hypothesise that this was due to pattern recognition via "association" with other rhythmic vocabularies that I was familiar with, rather than patterns pertaining to *pindekan* vocabulary. Despite persistence and a likely explanation for the on-going perception of rhythmic "random-ness," a drumset realisation of the *pindekan* recording did not eventuate, however my efforts did lead to the development of further experiments.

The second experiment, termed as a "micro-technical response," was concerned primarily with the development of a "*pindekan* style" double stroke technique. The term 'technical" in this section pertains exclusively to drumming technique, rather than broader technical activity. Through my interpretation of Yande's thoughts, coupled with the *pindekan* recording, some key characteristics of the double stroke were established as a framework for development: the two notes of the double stroke needed to be close together, not strictly sub-divided, yet also slightly ahead of the beat along with a certain amount of attack that may be described as "hyper-articulate."

A series of procedures set out in Simon Barker's drumset responses to traditional Korean rhythm offered a useful conceptual approach. Of note is Barker's "Serial Amplification" process.[38] "Procedure 4" of Barker's amplification series includes the addition of a left-hand flam stroke.[39] Flam strokes however, as appearing in the 26-standard snare drum rudiments, are commonly played with two hands. Barker's unorthodox performance of the flam allows the stroke to be conceptualised as a single movement performed with one hand rather than two separate movements when conventionally performed with two hands. In response, a series of single-hand flam exercises were developed. A diary entry from March 2018 represents the conceptual thinking throughout this process:

> *This process was challenging, firstly because I couldn't yet hear what I was going for, but secondly, I struggled to conceptualise the double as anything other than two*

36 When beginning to learn Balinese music in 2003 I committed to learning without the use of notation and committed all the repertoire I learnt to memory. This extended into the projects I'm involved in as a drumset player, where new music is created, learnt and internalised without notation.

37 Ericsson and Pool, *Peak*, 58-63.

38 Barker, *Korea and the Western Drumset*, 66.

39 Barker, *Korea and the Western Drumset*, 67-69.

separate notes. I consciously made efforts to think, hear and play two notes based on a framework of thinking about them as one note: I began practising various flam combinations as they are two notes very close together but performed using a single motion, even though it's a single motion from each hand. I wanted to be able to get the same thing going, but with one hand. The flam combinations offered a sonic reference but also a physical reference that allowed for two notes to be played close together from a single motion.

As an extension, and to replicate the double stroke that appears in *pindekan*, I applied additional downward pressure when performing single-hand flam variations. Barker's "bounce/gather" technique also proved to be a practical technical aid during this period.[40] The little finger and ring finger are of significant importance in this technique and essential in controlling the distance between the two notes in the stroke. The combination of additional downward pressure whilst utilising these two fingers allowed for fine degrees of manipulation in the proximity between the two notes. This resulted in the development of a "crushed" (forced inwards by compression) double stroke, seen in Video 3.10, and represents the first outcome in response to Yande's thoughts and the *pindekan* recording.

Video 3.10 Crushed Double Stroke technique

The third and final experiment is presented under the term "kinetic response." Kinetic (relating to or resulting from motion) in this context refers to a process concerned with movement and motion beyond the domain of music. Although physical motion was involved in the previous response under the conceptual term "technical," I wish to differentiate between the two experiments on the basis that Experiment 2 involved musical principles, in the form of drumming technique, whilst Experiment 3,

40 Simon Barker, personal communication with author, Sydney, Australia, February 4, 2018.

even though the outcome was musical, stemmed from an activity entirely unrelated to music.

As part of my fitness regime I skip regularly. While attempting to memorise the *pindekan* recording, listening would occur in almost any situation and this included skipping. As I skipped I identified a connection between the sound generated by the rope spinning around my body and the sound on the recording. This initial connection was captured vividly in a diary entry from March 2018:

> *I skip regularly for fitness and experimented with skipping along with the pindekan track: similar sound, although a much more-steady rate due to the rope circulating around the body. In this way, I felt disconnected from the track. I then tried just spinning the rope with my hand without the running/jumping action usually associated with skipping. Doing this meant I could change the speed of the oscillations which was reminiscent of the pindekan track.*

I recognised the value in this activity, firstly as the movement in the wrists when spinning the rope felt similar to motions I employed to play the drumset and *kendang*. This developed into a warm-up routine prior to practising either instrument. Secondly, I recognised a connection between the circular oscillations of the skipping rope and the sounds on the *pindekan* recording. This prompted the question: Is there another way to work with the *pindekan* concept that I have not already tried? Another diary entry from March 2018 provides insight into this thought process:

> *I experimented with various spinning speeds for 20min sessions before listening to the pindekan track. Again, didn't notice anything different, although some of the more pronounced accents did seem more at the forefront of my awareness, therefore placing some of the detail in the background. I decided to continue with the rope spinning. Although this approach was quite experimental I was open to anything that would help me get inside the pindekan sound and therefore what this meant on the kendang and drumset.*

This act of spinning the skipping rope, featured in Video 3.11, was useful in that it prioritised motion in the form circular oscillations, similar to those in *pindekan*, over the rhythmic/sub-division detail: note the circular wrist motion in the video. Rhythmic detail was an aspect that I grappled with in the macro-literal response. The rope spinning routine therefore created an awareness of another element of *pindekan* that I was not able to access through the previous experiments.

Video 3.11 Skipping rope spinning example

As I continued with this activity I became aware of additional elements in the recording. This included the sound of the wind blowing to move the *pindekan* blades, which I previously regarded as a distraction from the rhythmic detail I was trying to memorise. Along with the circular oscillations when spinning the skipping rope, I recognised a further connection here between the sonic outcome of the rope spinning activity and the sound of the wind on the recording.

During this time, I was exploring the possibilities of the Dynamic Rotation process as a two-limb concept. As noted in the Dynamic Rotations section, the two-limb rotation allowed the third limb to perform rhythms outside of the Layered DS Cell vocabulary. As an experiment on the drumset I tried spinning the skipping rope with my left hand whilst maintaining a two-limb cyclic rotation with my right-hand and right- foot. A diary entry from March 2018 illuminates the apparent impracticalities of this experiment:

> *I considered spinning the rope in the left hand whilst my right side maintained the remaining rotation. This wasn't practical due to the limited size of my practice space, but also (I did actually try it) the rope wasn't free to spin due to the various parts of the drum set in its path.*

Despite this seemingly "failed" attempt at spinning a skipping rope whilst playing the drumset, it was a process that allowed the circular wrist motion used to spin the rope to be integrated into the drumset environment, even though in a crude and impractical way. The potential of integrated wrist motion was not an aspect of the experiment that I identified immediately, despite it being utilised as a warm-up routine, and at this stage of the process I was still unsure of what the overall outcome might be. I

was compelled to continue though, and felt confident that the process would lead to something. The fact that I was making different yet also meaningful connections to *pindekan*, particularly compared to Experiment 1, was encouraging and inspired me to proceed.

This led to a period of identifying and connecting with other "things" within my daily life that I felt embodied similar circular oscillations to *pindekan*. These "things" included: helicopter rotors, pendulum waves (circular motions producing linear type wave shapes), traffic light signal crossing sounds, sprinkler in the backyard; four outlets distributing water at various heights/rates with a certain amount of unpredictability, playing games of cards with four people, washing machine with clothes spinning inside. The list went on. I was developing a heightened awareness of various circular oscillating "things" appearing in many situations of my daily life. What did this almost obsessive "hyper-awareness" mean? How could this be brought into my drumset playing? What is the next step?

A practise session on the drumset shortly followed where I asked myself, almost subconsciously, "what if I make the rope spinning movement, except with the stick in my hand, across the left side of the drumset?" What emerged was a unique playing technique involving a rapid left-hand swooping motion producing a cluster of sonic cohesion between the hi-hat to the snare drum which embodied the circular oscillations that I was engaging with in *pindekan*. I experienced an immediate realisation, an epiphany, that "something" had come out of all the energy devoted to this experiment. This outcome, assigned the term "Inward Elliptical Sweep" can be seen in Video 3.12, in the form of a montage, allowing a variety of performance angles to be viewed. Video 3.13 provides additional footage, showcasing the technique in the context of a live performance. The term Inward Elliptical Sweep represents a distillation of the primary elements of the technique including direction, motion, velocity, pressure and acceleration. As we can see in Videos 3.12 and 3.13, the left-hand creates a rapid "inward" motion towards the body's core, in the form of an "elliptical" shape, at a swift "sweep" like rate across the hi-hat and resolving onto the snare drum.

Video 3.12 Inward Elliptical Sweep montage

Video 3.13 Inward Elliptical Sweep in performative-action

A diary entry from April 2018 captures a range of observations in the form of a “post-experiment” experiential reflection:

> *Following this (establishment of the Inward Elliptical Sweep technique) I continued with the rope spinning and observed additional changes in both my drumset and kendang playing. Some changes included an increase in sound clarity and access to more power with less effort. I also made the connection between how I’m lifting off the drums after striking and the parallels this has with spinning the skipping rope: the energy required to spin the rope is all upward. Regardless of which way the rope is being spun. Because the wrist is moving in a circle there is a downward motion,*

but only as a result of the energy directed towards the upward motion essential in keeping the rope spinning. There is therefore no energy required for the downward motion. In fact, if there is the rope will no longer spin. The amount of energy required for the upward motion forces (without effort) the rope to the downward direction. This is significantly different to many approaches and techniques to play a drum where deliberate energy is clearly assigned to the downward motion of moving the stick to strike the instrument.

The reflective commentary in the diary entry highlights the additional outcomes of the kinetic response experiment that extended beyond the resultant "Inward Elliptical Sweep." technique. Although the development of the technique was a significant outcome in itself, the experiential observations highlight broader technical transformations on the instrument in the form of sound production via access to additional power with less physical effort and efficient use of energy through the development of a technical approach involving circular oscillations and velocities. The skipping rope experiments also illuminate the multi-stage procedural thinking that stemmed from a seemingly simple prompt from Yande regarding the connection between double strokes on the *kendang* and Balinese windmills.

The prompt, in the form of Yande's advice that an adjustment was required in my *kendang* playing, was accepted and respected, and the connection between the drumming and *pindekan* was apparent, yet the instruction for "how" to actually realise this on the instrument was non-existent and unclear. The multi-stage experiments allowed me to self-generate my own response, however the outcomes were largely unknown and required me to "trust the process" that I had created and committed to.[41] In this way, I would argue that more was potentially learnt through following my own self-generated path than what might have been learnt if Yande simply told me exactly "how."

Although outcomes and realisations did emerge through each of the three staged experiments, the rope spinning experiment was the least conventional in its approach, yet the most transformative. This is a parallel with the blindfold constraint process and a unique aspect of Category 3 procedures in the Spectrum of Influence model. Along with the blindfold constraint, the Inward Elliptical Sweep process was transformative in my overall approach to playing the drumset and therefore changed my relationship to the instrument. I will now shift into the second part of this chapter and describe the development of a taxonomy of categorised processes pertaining to the Spectrum of Influence model.

41 Simon Barker, "About Music, "YouTube video, posted by "sydneycon," Septemeber 24, 2015. https://www.youtube.com/watch?v=gz6uHO2XstQ In this online lecture Barker and emphasises the commitment (time and energy) required to develop new and personalised drumset vocabulary and to "trust the process."

3.5 A taxonomy of categorised processes

The range of transformational processes described thus far, as mapped onto the Spectrum of Influence model: “Category 1: Internal,” “Category 2: Composite” and “Category 3: External,” demonstrates the varying degrees of influence that conceptual prompts within *kendang bebarongan* have had on my drumset practice. Table 3.2 shows the Spectrum of Influence Model (presented earlier as Table 3.1) reproduced but with sections of text in bold typeface to indicate the processes discussed so far. As we can see, additional procedures exist within each category of the model which have not yet received analytical commentary. The Crushed Double Stroke is an exception, and although the development of this process was described within the context of Category 3 procedures, in response to *pindekan*, it was later developed and incorporated into the Layered DS Cell vocabulary. On this basis, the Crushed Double Stroke will receive additional commentary and contextualised as “cross-categorical” development.

The other remaining processes will be contextualised in a similar manner and include: Category 1: *Cedug* EWE’s and Category 2: “Inverted *ngutang gedig*.” These procedures, along with the Category 3 Crushed Double Stroke, were initially conceptualised as isolated techniques, however were all contextualised within the Layered DS Cell vocabulary. These processes will therefore be discussed from this perspective.

As I was developing the Layered DS Cell vocabulary certain combinations were identified for their potential to form the basis of solo drumset compositions/improvisations. The need for additional and contrasting material arose and I was faced with the decision of whether to add further cells to the vocabulary, or develop what was already established without additional cells. I chose the latter and explored a range of *kendang bebarongan* conceptual prompts, emerging within my *kendang* practice, to guide this process. The emergent outcomes were assigned the following terminology in reference to how they relate to the Layered DS Cell vocabulary:

1. Expanded: *Cedug* EWE’s
2. Contracted: Inverted *ngutang gedig*
3. Embellished: Crushed Double Stroke.

"Spectrum of Influence" **Procedural Parameters Guiding Transformation**		
Category 1: **"Internal"**	**Category 2:** **"Composite"**	**Category 3:** **"External"**
Most simple, clear and transparent transformation with potentially recognisable elements of Balinese drumming vocabulary. Processes: - **Self-Generated Physically Efficient Cells** - *Kempur* gong played with foot pedal - *Cedug* EWE's	Moderately abstract, less literal and more complex. Containing elements of Balinese drumming combined with additional unrelated musical concepts. Processes: - **Decoupling Hand-Patterning** - **Dynamic Rotations** - Inverted *ngutang gedig*	Most radical departure from original source. Abstract, opaque and highly conceptual. Often emerging from engagement with non-musical disciplines. Processes: - **Blindfold Sensory Constraint** - Crushed Double Strokes - **Inward Elliptical Sweep**

Table 3.2 Highlighted procedures within the Spectrum of Influence model

Cedug EWE's

Rhythms played on the *kendang* with the *panggul* feature several characteristics that contrast with rhythms played exclusively with the bare hands. They are referred to as *cedugan* (often abbreviated to "*cedug*" or "*dug*"), which is an onomatopoeic term that is used orally in a range of communicative contexts, including pedagogical, compositional and self-directed learning. The rhythmic placement and vocabulary of *cedugan* are highly personalised and performed in an improvisatory manner like that of bare hand solo drumming. There is an overall feeling of unpredictability in the placement of *cedugan*, and this is one of the primary aesthetic criteria when assessing and determining the overall skill of a *kendang* player.[42] Rhythmic variation is therefore an essential requirement of *kendang bebarongan* drummers.

Another characteristic, pertinent to this discussion, is concerned with the articulation of double strokes.[43] *Cedugan* double strokes are characterised by the first note played soft and the second note played loud. In my undergraduate thesis, I termed bare hand doubles embodying this same

42 There are rules or *hukum* (Indonesian word for law) that aesthetically determine the placement of *cedugan* in relation to the gong structure. These are beyond the scope of the current discussion and are reserved for the "*Kendang* Response" chapter in this thesis. There is also a connection and relationship to *batu-batu* drumming (paired drumming with mallets). This was discussed in an interview with Yande and would be worthy of further investigation.

43 Although the discussion is limited to the use of double strokes, triple strokes do exist and are not uncommon, however maybe conceptualised with the same approach as performing double strokes. In a discussion with Yande I mentioned his use of triple strokes and to his surprise it was something he was not acutely aware of.

conception of articulation as “EWE’s” (End Weight Emphasised doubles).[44] As an adaptation of this concept, *cedugan* double strokes will be termed as “*Cedug* EWE’s.”[45] Video 3.14 displays an improvised demonstration by Yande featuring a variety of *cedugan* rhythms on the *kendang* highlighting the *Cedug* EWE articulation.

Video 3.14 Yande demonstrating *cedugan* rhythms and technique on the *kendang*

In response to *cedugan* double strokes as played on the *kendang* and as a means to further develop the Layered DS Cell vocabulary I applied “*Cedug* EWE’s” to each of the four layered drumset cells. In accordance with the low tone on the *kendang* when playing *cedugan*, EWE doubles were assigned to a possible sonic equivalent on the drumset: the floor tom.[46] Although orchestration was not a priority in the discussion of previous drumset processes, for the development of *Cedug* EWE’s it was an essential component of the overall outcome.[47] Video 3.15 displays an annotated performance of *Cedug* EWE’s as applied to each of the four cells that comprise the Layered DS vocabulary. Note that the vocabulary of cells will be presented in their original layered form then “expanded” to include *Cedug* EWE’s. Although *Cedug* EWE’s are applied to an already established process, in the form of Decoupling Hand-Patterning, the process is assigned to Category 1 in the Spectrum of Influence model due to its “potentially recognisable elements of Balinese drumming” in the form of EWE doubles, varied rhythmic placement and sonic equivalency.

44 Adam King, “Kendang Tunggal,” 17.

45 The flexibility and non-exclusive aspect of the “EWE” term allows it to be applied to both bare hand and stick drumming. The addition of the prefix *cedug* is used as an indicator in the context of stick drumming.

46 As part of this process I actually attempted to match the tuning of the low tone on the *kendang* to the floor tom tuning. Various elements were considered including pitch, decay/sustain and shell resonance of the drum. Although an insightful process it is beyond the scope of the study, however would warrant further inquiry.

47 The *Cedug* EWE process was originally prompted by a simple question: “what if the right hand plays a low sound?”

Video 3.15 Demonstration of *Cedug* EWE's applied to Layered DS Cells

Inverted *ngutang gedig*

The next additional process to be discussed is the Category 2 procedure titled "Inverted *ngutang gedig*." This process involves "contracting" elements of the Layered DS Cell vocabulary and like the *Cedug* EWE's was also prompted by a concept within *kendang bebarongan* drumming. *Ngutang gedig* (Balinese words for "to discard, to throw away" and "to hit, to attack") is a concept and term that was introduced to me by Yande and translated by him as "remove some *pukulan*."[48]

In the context of *kendang bebarongan* drumming, as demonstrated to me by Yande and as I interpreted it, *ngutang gedig* involves the removal of the first note of an EWE double stroke. By "discarding" the first note of an EWE the often continuous sixteenth note density of the rhythmic patterns becomes "broken" or *langah* (Balinese word for "scarce, rare, not many").[49] There is however clear purpose and intention in the employment of *ngutang gedig* that extends beyond the seemingly surface level resultant rhythmic outcome. *Ngutang gedig* is a strategy that *kendang* players may tactfully utilise to sustain physical efficiency in the event that the often, continuous rapid tempo, becomes physically demanding.[50] I use the word "tactfully" in reference to more experienced

48 Pande Gde Eka Mardiana, interview by author, Melbourne, Australia, December 3, 2017. *Pukulan* (Balinese word for "hit") in the context of Balinese drumming typically means "pattern." However, in this particular case the meaning is specific and *pukulan* refers to each individual stroke within a pattern and is expressed and represented by the term *gedig*. A somewhat different definition of the term compared with that adopted by Hood and Mashino , who both interpret *gedig* to mean "the musical groove in improvised *kendang* performance…" See Made Hood, "Finding Your Gedig: Revivalism in Balinese Improvised Paired Drumming," in *Performing Arts in Postmodern Bali: Changing Interpretations, Founding Traditions*, edited by: Kendra Stepputat, (Shaker Verlag, 2013), 225 – 256; Ako Mashino, "The Body as Intersection: Interaction and Collaboration of Voice, Body and Music in Balinese Arja," in *Sounding the Dance, Moving the Music*, edited by: Mohd Anis Md Nor and Kendra Stepputat, (Ashgate, 2017), 96-108. As noted earlier Balinese terminology, and meaning, can vary widely and this is another insightful example. For the purposes of this study however, I am aiming for clarity in the definition of terms and consciously elect to avoid creating potential confusion by offering multiple meanings of terminology.

49 The term "*langah langah*" was used to explain the resultant rhythmic outcome through use of *ngutang gedig*: Yande, interview by author, Melbourne, Australia, December 3, 2017.

50 I observed this to be particularly obvious in less proficient and beginner *kendang bebarongan* drummers and therefore not as obvious in highly proficient drummers.

and proficient *kendang* drummers as the concept is somewhat contradictory to the overall rhythmic aesthetic which preferences a “filled in” and “dense” rhythmic texture rather than sparse.[51]

Ngutang gedig was offered to me by Yande as a device that could potentially assist me in the issues I was experiencing at that point in time on the *kendang* concerning physical efficiency and maintaining the fast tempo. As a way to explore and understand *ngutang gedig* for myself I devised a drumset response that incorporated the concept by “contracting” double strokes into single strokes that appear in left-hand rhythms of the Layered DS Cell vocabulary, in the same manner that occurs when playing the *kendang*. Video 3.16 displays a drumset demonstration of *ngutang gedig* applied to the first cell from the Layered DS Cell vocabulary. As can be seen, via the annotations, the cell is demonstrated in its original layered form followed by the removal of the first note of each of the left-hand double strokes.

Video 3.16 *Ngutang gedig* drumset application to the first Layered DS Cell

In order to further explore, and contribute, to the possibilities of *ngutang gedig* I “inverted” the assignment of the removed note in a double stroke to be the second note rather than the first. Whilst experimenting with this approach in the context of the Layered DS Cell vocabulary, the removal of the second note of “all” left-hand double strokes was an outcome I experienced and determined to be unsatisfying when reflecting on a developmental recording.

In response to this issue I experimented with “inter-cellular” sequences involving the removal of the first note within a left-hand double stroke, “Original *ngutang gedig*,” followed by the removal of the second note within a left-hand double stroke, “Inverted *ngutang gedig*.” The reverse, or mirroring, of this process was also explored: the removal of the second note within a left-hand double stroke, “Inverted *ngutang gedig*,” followed by the removal of the first note within a left-hand double stroke,

51 I Ketut Gede Rudita, interview by author, Batubulan, Bali, May 9, 2018.

“Original *ngutang gedig*.” Video 3.17 features an annotated drumset demonstration of the inter-cellular variations of “Original” and “Inverted *ngutang gedig*” applied to the first and fourth cells from the Layered DS Cell vocabulary. Note that cells are presented in original layered form followed by the “Original *ngutang gedig*” and “Inverted *ngutang gedig*” sequential applications.

Video 3.17 Inter-cellular variations of “Original” and “Inverted *ngutang gedig*” procedure

Crushed Double Strokes

The final process to be featured in this section is the cross-categorical development of the Crushed Double Stroke. Originally developed as a Category 3 procedure in response to *pindekan*, the Crushed Double Stroke was later applied to Layered DS Cell vocabulary in the form of an “embellishment” or rhythmic ornament. It will however remain mapped onto the Spectrum of Influence model as a Category 3 procedure due to its developmental origins.

As described in the Inward Elliptical Sweep section, Crushed Double Strokes comprise two notes played close together via physical compression, yet are conceived of as a singular motion, rather than two separate motions. The development of the “Inverted *ngutang gedig* process,” in the context of the Layered DS Cell vocabulary, therefore provided a pathway for the application of an additional element, such as the Crushed Double Stroke, that would embellish and contrast with the *ngutang gedig* process. Video 3.18 displays an annotated drumset demonstration of Crushed Double Strokes applied to the first and second cells of the Layered DS Cell vocabulary. In order to illuminate the developmental pathway, cells are presented in original layered form, then contracted via “Inverted/Original *ngutang gedig*,” followed by embellishment via the application of Crushed Double Strokes.

Video 3.18 Developmental pathway demonstrating applied Crushed Double Strokes

3.6 The spectrum of influence model in action

The performances presented as a conclusion to this chapter in Videos 3.19, 3.20 and 3.21 represent a musical contextualisation of the transformational procedures discussed throughout this chapter as mapped onto the Spectrum of Influence model. These performances are presented as creative practical outcomes in the form of three "Improvisational Areas" that showcase the vocabulary through the lens of three distinctive sonic frameworks. The musical performances presented in this section are distinct from the preceding analytical commentary concerned with detailing individual transformational procedures in that they receive little analytical commentary and intended as stand-alone creative works which demonstrate the Spectrum of Influence model in "performative action."

In this section I do however wish to highlight the sonic frameworks or drumset orchestration choices that contributed towards the "identity" of each Improvisational Area. The concept of orchestration was intentionally omitted in previous sections of this chapter as the transformational processes were determined to be flexible in orchestration, and orchestration was therefore a secondary component to the overall procedural development. However, for the purposes of generating a repertoire of musical pieces that could be performed, orchestration was considered and became more foreground in the decision making during this stage.

The primary goal of this development period was to explore the sonic possibilities of the procedural vocabulary. With this as a guiding conceptual approach I chose to create distinct, yet limited, drumset orchestration options or "sound worlds" in order to realise the performative potential of the full range of transformational procedures. This outcome can be seen below in Table 3.3 and displays the "sonic framework" mapped onto to each of the three Improvisational Areas.

The reader will observe the limited and "minimal" approach to drumset orchestration most

vividly through the various combinations of drums; skin sound sources, and cymbals/gongs; metal sound sources:

- "Area #1": two skin sound sources and two metal sound sources
- "Area #2": three skin sound sources and no metal sound sources
- "Area #3": three skin sound sources and two metal sound sources.

Table 3.3 also displays the transformational procedures utilised in each Improvisational Area. The processes, mapped under each area's sonic framework, as "Active Procedures" highlight the procedural consistencies and differences and are presented in the following mode of classification:

- Processes exclusive to each Improvisational Area are in bold typeface
- Processes shared within Improvisational Areas are in plain typeface.

An anomaly exists within Table 3.3 in the form of "*Kempur* gong played with foot pedal" which is listed as a distinct drumset orchestration in the sonic framework of Improvisational Area #3, however it is also included as an "exclusive process" under the same Area. It is an anomaly as it is a procedure that has yet to receive commentary despite the fact that it appears in the Spectrum of Influence model. This process is somewhat unique and has been reserved for discussion until now as it serves as an orchestration choice, in the use of a *kempur* (Balinese gong) as a metal sound source, yet a transformational procedure was necessary for the gong to be played with a drumset foot pedal.[52]

52 The *kempur* is a particular type of gong that is defined by its size, tuning, its role in the ensemble and the type of ensemble the gong is part of. The type of *kempur* can also vary depending on these factors. For example, the *kempur* that I own, that is used as part of my drumset, is an *angklung kempur* or *kempur batel* as, due to the gong's size (40cm) and tuning, it is intended for use in the corresponding ensembles: *gamelan angklung* and *gamelan batel*.

	"Improvisational Area #1"	"Improvisational Area #2"	"Improvisational Area #3"
Sonic Framework	• Left and right-side hi-hats • Bass drum • Low-tuned snare drum • *Reyong* (small Balinese gongs)	• Floor Tom • Bass Drum • High-tuned snare drum with snares off	• Floor Tom • Bass drum • High-tuned snare drum with snares on • Splash cymbal placed on snare drum • *Kempur* gong played with foot pedal
Active Procedures	• Self-Generated Physically Efficient Cells • Decoupling Hand-Patterning • Dynamic Rotations • **Inward Elliptical Sweep**	• Self-Generated Physically Efficient Cells • Decoupling Hand-Patterning • Dynamic Rotations • **Inverted *ngutang gedig*** • **Crushed Double Strokes**	• Self-Generated Physically Efficient Cells • Decoupling Hand-Patterning • Dynamic Rotations • ***Cedug* Ewe's** • ***Kempur* gong played with foot pedal**

Table 3.3 Mapping of Sonic Frameworks and Active Transformational Procedures onto Improvisational Areas

In the context of Balinese music this type of gong is typically played with a *panggul* (mallet) held in the hand. As part of this study I designed and built a customised stand to house the *kempur* and to accommodate the attachment of a drumset foot pedal, enabling me to play the *kempur* with my left-foot.[53] The outcome of this process can be seen below in Images 3.2 and 3.3. In addition to the design and assembly of the stand a *kempur* mallet was modified and crafted onto a bass drum beater shaft, allowing the gong to be struck with its "correct" beater.[54] Due to the *kempur* being a recognisable element in Balinese music this process is mapped onto the Spectrum of Influence model as a Category 1 procedure.

53 The design was modelled on a similar stand built for Simon Barker by Sydney drummer and cymbalsmith James Waples and is a topic of discussion in Barker, *Korean and the Western Drumset*.

54 A substantial amount of experimenting with a variety of beater options was undertaken during this period and the *kempur* mallet tip was determined (unsurprisingly) to be the most appropriate and satisfying sound. Gongs from Bali consistently use specific mallets, differing in size and material, that correspond with particular types of gongs according to size and role in the ensemble.

Image 3.2 *Kempur* stand and beater modification (Photo by author)

Image 3.3 *Kempur* stand in playing position on the drumset (Photo by author)

Performances of each Improvisational Area will serve as a conclusion to this chapter and can be viewed below in Videos 3.19, 3.20 and 3.21.

Video 3.19 Improvisational Area #1

Video 3.20 Improvisational Area #2

Video 3.21 Improvisational Area #3

In this chapter I established a taxonomy of categorised developmental processes on the drumset, represented as the Spectrum of Influence model. These processes were in response to a range of technical and conceptual areas pertaining to my development as a practitioner of the *kendang bebarongan* style and represent how this experience has informed my identity as a drumset performer. In the next chapter I continue with an additional and contrasting drumset response stemming from interviews conducted in Bali during fieldwork in May, 2018.

Chapter Four
Project Three – Response to Interviews: "Learning from the Stick"

4.1 Overview

In the previous chapter I set out a range of categorised transformational processes, represented in the Spectrum of Influence model, in response to conceptual, technical and vocabularic areas associated with my own personal development on the *kendang*. The core of this process involved exploring these areas in creative and often highly personalised ways that offered insights into both Balinese drumming, namely *kendang bebarongan*, and drumset performance whilst illuminating the self-generated modality concerned with learning via the creative process.

This chapter continues this trajectory in the form of additional creative action on the drumset, however the research method is contrastingly different. The knowledge that emerged from this period is therefore presented as its own chapter under its own terms. Although a range of transformational processes was indeed established that would be complementary to the Spectrum of Influence model, I wish to create distinction between these areas based on the variation in research method, through the formalised inclusion of interviews, and the fact that the research developed chronologically: "post-Project Two."

The formalised inclusion of interviews in this chapter sees interview dialogue and commentary presented distinctly in the form of embedded videos. Presenting the commentary in this way was determined to be the clearest mode of communicating interview content as it retains the expression of the speaker's voice; at times through vocalised *kendang* rhythms in addition to the tone of the overall delivery, coupled with physical gestures/demonstrations; synonymous with the act of drumming.

Although this chapter, presented under the conceptual title "Responding to Interviews: Learning from the Stick," is self-contained and significant in its research insights, it also serves as a link from the drumset focused Chapter Three into Chapters Five and Six, which sees the project transition and culminate in the form of a response on the *kendang*.

4.2 Interviews in Bali

In May 2018, I conducted a series of interviews in Bali with six *kendang* players with varying levels of skill and experience in *kendang bebarongan* drumming (see Chapter One for a full list of interview participants, dates and locations). In preparation for the interviews I researched a range of questioning styles and was particularly struck by the approach of Joe Wong in his podcast series "The Trap Set."[1] Through his interviews with a range of prominent and often progressive drumset practitioners I observed how Wong, also a composer and drummer himself, was able to consistently

1 "The Trap Set with Joe Wong," Joe Wong, accessed February 11th, 2018, https://www.thetrapset.net/

and tactfully lead the discussion towards what I felt to be deeply personal and conceptual areas. This was reflected in Wong's often introverted demeanour, his experience as a drummer, and his thoughtful questioning that focused on periods of early development and overall personal experience that allowed interviewees sufficient space and time to express their thoughts and opinions.

Nicholas Gray's scholarly contributions on Balinese *gender wayang* also offered a useful starting point in preparation for the interviews in Bali.[2] In *Improvisation and Composition in Balinese Gender Wayang*, Gray's chapter titled "What Player's Say" situates comments from his teachers as front and centre in the discussion and as Gray describes: "…as an overview, is slightly impressionistic (the player's descriptions): I leave my teacher's comments 'hanging in the air'."[3] Although Gray's approach is oriented more towards musical/compositional techniques and regional identity rather than individuality, it is a parallel to Wong's interview style in that personal opinion and experience are prioritised.

My original line of questioning comprised a range of questions concerning drumming patterns/rhythms and specific playing techniques, however upon reflection I felt these questions were being answered through my own learning and playing experience and resolved that throughout my fifteen years of *kendang* playing, verbalised questions related to such matters often proved to be problematic and created more questions rather than answers. In response to this issue, Wong's captivating interview style, and Gray's prioritisation of player experiential knowledge, I decided to shift my focus towards designing a series of questions surrounding the playing history and personal experience and opinions of the *kendang* players I interviewed.

4.3 Practitioner-to-practitioner discussions

As set out in the opening commentary of this thesis, in addition to my role as a researcher I am, as of 2020, a creative and performing musician. This has been an aspect of my professional and personal life for more than twenty years. The majority of those years were devoted to development on the drumset, however fifteen years of that time involved a sustained commitment and engagement with Balinese music, both in Australia and in Bali, which still continues as of 2020. I did not therefore enter this project "fresh" or without prior experience. In fact, as a researcher I was in a fortunate position where the experience and skills I had already acquired as a practitioner could be developed and expanded upon. I was also not "looking" for a research topic, and instead created a research situation that was the next step in my artistic goals as a drumset and *kendang* player. In this way, and in the context of this project I situate myself as a "researching practitioner."

Whilst taking these implications into account, the interviews conducted during this research period, featured throughout this chapter, and chapters to follow, are conceptualised as "practitioner-

2 Gray, *Improvisation and Composition in Gender Wayang.*
3 Gray, *Improvisation and Composition in Gender Wayang*, 79.

to-practitioner" discussions.[4] I do however introduce the "practitioner-to-practitioner" discussion concept with some "dynamic variance" as I openly acknowledge my experience and overall expertise in Balinese drumming is not like that of the project's "practitioner" participants (*kendang* players of Balinese origin). As a research method though, in accordance with Gray's "What Player's Say" approach, I choose to strategically position myself also as a "player" in the practitioner- to-practitioner conversational conceptual framework.[5] In consciously doing so I hypothesise that my experience and level of proficiency on both the drumset and the *kendang* allowed for a different type of discussion that would have taken place had I not had this background and experience.

4.4 Discussion with I Wayan Merta

In previous chapters my mentor and collaborator Yande was a key figure in "prompting" many of the outlined processes, offering his thoughts and advice when practising together, during casual conversations and through formalised discussions. This chapter sees the introduction of Yande's teacher I Wayan Merta (appearing in Image 4.1, and referred to as "Merta" from here on) as a pivotal figure in the discussion to follow. Merta offered a range of unique and highly conceptual thoughts in response to my questions surrounding *kendang bebarongan*. In this chapter I highlight a selection of Merta's responses and how they informed creative action on the drumset.[6] Additional commentary pertaining to discussions with Merta appears in Chapters Five and Six.

Image 4.1 Practitioner-to-practitioner discussion between I Wayan Merta and the author (Photo by Yande, Sanur, Bali May 2018)

4 Of the six *kendang* players that participated in these discussions five were well aware of my history and capabilities as a *kendang* player and at times throughout the discussions would ask my thoughts and perspective on any given topic. This was particularly the case in the discussion with I Wayan Merta.

5 Gray, *Improvisation and Composition in Gender Wayang,* 79.

6 The discussion with I Wayan Merta was approximately 2 hours in duration in which many topics were covered. The relevant areas have been included in this chapter however a full list of topics and associated questions can be viewed in Appendix 5 of this thesis.

During the early stages of this next development period, I was reconceptualising aspects of my *kendang* playing surrounding stick technique. In the discussion with Merta he offered some generous and positive thoughts about my *kendang bebarongan* playing from a performance I had done just three days prior to our meeting. Merta observed that although the placement of *cedugan* was aesthetically satisfactory and tasteful, the overall stick technique was "…a little rough and not optimal."[7] I was of course curious, perhaps somewhat obsessively determined, to know exactly what was "rough" about my technique and then of course what "optimal" actually meant.

Throughout our discussion Merta regularly emphasised the connection between the mind and the body, the mental and the physical, and the challenge this presents to many *kendang bebarongan* drummers. Video 4.1 displays Merta's initial thoughts regarding this which was in response to my question "according to you, what is most difficult about *kendang bebarongan* drumming?

Video 4.1 I Wayan Merta explaining connection between the mental and physical

Of significance in Video 4.1 is Merta's assured statement that decisions, implying a process of technical/creative development, must be made for how music conceived of "mentally" must then be realised "physically" on the instrument. It is a profound thought that challenges the notion of "if you can sing it, you can play it." This is of course not discounting the process of vocalising the music being learnt, or created, however Merta asserts that the two processes; singing and playing, are in fact distinct, and that to be able to physically play what is in the mind, or developed using the voice, requires a process of decision making, and "knowing" one's own strokes (drum), to therefore arrive at a physical manifestation on the instrument itself.

7 I Wayan Merta, interview by author, Sanur, Bali, May 13, 2018. The aesthetic placement of *cedugan* referred to here is termed and conceptualised as *pangus*, meaning matching, appropriate and that *cedugan* are placed according to the rules of *kendang bebarongan*. The fundamental rules maybe be simplified and summarised as left-hand strokes placed prior to the sounding of the *kemong*, and *cedugan* strokes placed prior to the sounding of the gong. *Pangus* also refers to the *kendang* player's ability to appropriately synergise with the movements of the *Barong*.

Merta contends that an understanding, in addition to knowing one's own strokes, also requires an understanding of one's own strength and power. According to Merta this understanding also applies to *kendang tunngal* (bare hand solo drumming without a stick) however he maintains that developing this understanding becomes increasingly difficult in *kendang bebarongan* due to the utilisation of the *panggul* (stick).[8]

> *We need to know our own strength, and power, and understand what we can do. It's not only kendang barong, but all types of kendang tunggal (bare hand solo drumming), if you don't understand this you can't do it properly. This is the hard thing… and even more so when you've got a panggul (stick).*

In Video 4.2 Merta goes on to declare that the *panggul* is "our soul," or "our second soul," or "second power," suggesting the important and significant role that the stick has in individual musical expression within *kendang bebarongan*. Merta's vocalisations and animated demonstrative gestures offer considerably more than is communicated in his spoken delivery. These gestures capture and display rather authoritatively the practical reality of what happens, to many players, when "you don't manage to do that," conveying the difficulty of playing with the right hand on the skin (whilst holding the stick) and then moving to the stick playing position. The tension and imbalance this creates between the mind's intention and the body's often unwillingness is further highlighted by Merta's stressed onomatopoeic vocalisations of the stick stroke "*dug*." Note in the video (4.2) that Merta asks me on two occasions if I have experienced this mind/body disconnection, representative of the practitioner-to-practitioner dynamic.

Video 4.2 I Wayan Merta explaining and demonstrating the difficulty of shifting from hand on skin position to stick striking position

8 I Wayan Merta, interview by author, Sanur, Bali, May 13, 2018.

Merta continued to offer insight into the inherent difficulties of being able to physically play what is conceived of in the mind. In Video 4.2, Merta cites a particular technical development that not only displays his profound knowledge of *kendang bebarongan*, but offers a potential solution to the challenge of balancing the mental and physical aspects of *kendang bebarongan* drumming. Merta describes an important technical change that occurred between the older generation and current generation of *kendang bebarongan* drummers.[9] The description is supported by an elaborate demonstration of the technical change.

Of significance is the fact that the "older way" involved a "lift" from hand on skin position before striking with the stick. Merta's emphatic statement "and you haven't hit yet" expresses the technical dilemma associated with the lift, and expresses clear identification of a technical problem that has direct implications on physical efficiency and performing the music at speed. As described by Merta, the older way was the prescribed and accepted way of playing, and the transition to the current way of playing likely took time, yet also involved the curiosity and courage of a younger generation of *kendang* players to re-evaluate and question the established technical way and find their own solutions. In this way, the ongoing developmental nature of the tradition of Balinese drumming is evident.

The technical change as displayed in the concluding moments of Video 4.3 constitutes the right-hand shifting from the hand on skin position, to stick playing position, in a physically efficient single movement, therefore removing the problematic "lift." Merta's detailed demonstration of the older way represents an embodied familiarity with the previously more accepted way of playing. I propose that this level of familiarity and embodiment of the older way was necessary for the alternative "physically more economic" approach, and therefore technical solution, to be developed.

9 In an interview with I Ketut Gede Rudita on 9th May 2018, as a part of this project, he cited a particular event that represented a transition from older generation *kendang* players, and therefore the "older way" of playing, to a younger generation of *kendang* players who offered a new perspective on technical and creative approaches to *kendang bebarongan* drumming. This particular event according to Rudita was the 2005 *Barong* Festival which was captured on amateur video. A performance from the festival featuring Rudita on *kendang* can be viewed here: https://www.youtube.com/watch?v=AS1Na26QryI Yande also cites this event as a transitional moment, especially Rudita's technically advanced and complex rhythmic approach, in the development of *kendang bebarongan* drumming. Coincidently Rudita and Merta attended high school together and performed regularly as a *kendang* partnership during this time and beyond.

Video 4.3 I Wayan Merta explaining older stick playing technique style and its challenges

Merta regularly cited the *panggul* as a central point of focus and of important significance during our conversation through the lens of a variety of topics.[10] In our discussion concerning the use of energy in the context of *kendang bebarongan* drumming (displayed in Video 5.4) Merta returns to the significance of the *panggul*, this time offering insight into the stick's potential role as an aid for learning. At this point in the discussion Merta introduces a common Balinese expression called "*meguru panggul*," as a context for asserting how "understanding" the *panggul* is essential when learning to manage energy, strength and power (explained below).

In Video 4.4 Merta continues by explaining that before control of energy is achieved (whilst waving the *panggul*) several patterns need to be acquired to support this process. The fact that Merta is referring explicitly (via his waving gesture of the stick) to the *panggul* not only bolsters the significance of the *panggul* in this process, but by declaring that several patterns need to be learnt first reveals a progression and pathway that places pattern learning/acquisition prior to learning about control of energy. Of significance here is that this progression does involve the *panggul* as a consistent and central developmental component, yet the conceptual approach is contrastingly different.

10 A full list of the questions prepared for the practitioner-to-practitioner discussions can be found in Appendix 5 of this thesis.

Video 4.4 I Wayan Merta explaining the stick's connection to energy, power and breath with the expression *Meguru Panggul*

Merta's authoritative thoughts and demonstrations were compelling and overwhelmingly inspiring. The difficulties highlighted throughout Merta's commentary resonated with me as a *kendang* player in that I had indeed experienced the disconnect between my mind's intention (the mental) and my hands on the drum (the physical), via the problematic lift. The awareness of these difficulties highlighted by Merta served as a personal validation for the challenges I had confronted regularly throughout my development concerning this movement, yet without me being aware of them, or "why" such problems were even occurring.

The concept of the *panggul* contributing towards an understanding and a personal conception for how energy may be controlled was also illuminating. Contextualised within the framework of *meguru panggul*, it prompted a re-conceptualisation of what Merta refers to as a common Balinese expression, and although it is an expression I was already familiar with throughout my time learning Balinese music, I had not heard it expressed in the way communicated by Merta.

4.5 *Meguru panggul*

Meguru panggul (literally "teaching from the mallet/stick") is a concept currently represented in several scholarly accounts. Most notably in the work of Michael Bakan, I Wayan Sudirana, Nicholas Gray and Andrew Jocuns.[11] All four scholars, despite differences in contextualisation, contend that

11 Michael B Bakan, "Lessons from a World: Balinese applied Music Instruction and the Teaching of Western Art Music," *College Music Symposium* 33/34 (1993/1994): 1-22; Bakan, *Music of Death and New Creation*; Gray, *Improvisation and Composition in Balinese Gender Wayang*; Jocuns, "Semiotics and Classroom Interaction," 123-151; I Wayan Sudirana, "Meguru Panggul and Meguru Kuping," 40-44.

meguru panggul refers specifically to a mode of teaching of *gamelan* involving the mallet as the primary transmitter of musical information.[12] According to Bakan: "No music notation is employed, and the effectiveness of teaching is almost exclusively dependent on a holistic demonstration-and-imitation mode of transmitting musical knowledge from teacher to student."[13]

These scholarly accounts are insightful and useful as they provide a consistent and unanimous definition of the *meguru panggul* concept, however none mention *kendang bebarongan*, and all interpretations contrast with Merta's intriguing point of view. Is it possible that *meguru panggul* could be interpreted another way? From another perspective? Was Merta suggesting that the player him/herself could learn and therefore self-teach from the *panggul*? What else could learning from the *panggul* offer? How could "I" learn from the *panggul*?

4.6 Learning from the stick

According to his experience Merta was proposing that vital and important lessons can be learnt from the *panggul* in relation to energy control. These thoughts, along with Merta's knowledge of significant technical changes pertaining to hand and *panggul* playing positions provoked a range of self-reflective questions surrounding my own *kendang* playing, but also my drumset playing. In response to Merta's thoughts I altered my *panggul* position and technique on the *kendang*, including removing the problematic "lift," and as a result experienced a smoother transition from hand on skin position (whilst holding the stick) to stick playing position.[14] Although the *kendang* was the primary instrument for the exploration and integration of this knowledge, I was curious for how these concepts and thoughts may inform my drumset playing. A diary entry from January 2019 illuminates this initial thought process:

> *What about a response to this on the drumset? Gender technique is up/down: similar grip?[15] Currently there is no problem to solve on the drumset that requires this technique to be introduced. Could I therefore create a situation or some music*

12 Bakan, *Music of Death and New Creation*, 282-283.

13 Bakan, *Music of Death and New Creation*, 282.

14 The details and developments pertaining to this period of development on the *kendang* will be discussed and highlighted in Chapters Six and Seven of this thesis.

15 *Gende*r refers to a bronze keyed metallophone, in *slendro* tuning. The ensemble of which *gender* is part of typically comprises a quartet of these instruments and is mostly associated with its accompaniment of shadow puppet performances known as *gender wayang*. Two mallets are used to play a *gender* with a unique grip that is characteristic of the playing technique required to play the instrument. The grip allows the keys of the instrument to be struck with the mallet whilst the dampened with the wrist. Another type of *gender* is *gender rambat* which utilises the same playing technique, however is tuned to the *pelog* tuning system, rather than *slendro* and is part of two larger ensembles known a *semar pegulingan* and *gamelan pelagongan*. For additional information pertaining to *Gender* see Dibia and Ballinger, *Balinese Dance, Drama & Music*; Gray, *Improvisation and Composition in Gender Wayang*; Lisa Rachael Gold, *The Gender Wayang Repertoire in Theater and Ritual: A Study of Balinese Musical Meaning* (University of California, Berkeley, 1998); Brita Renee Hiemmarck, *Gender Wayang Music of Bapak I Wayan Loceng from Sukawati, Bali: A Musical Biography, Musical Ethnography, and Critical Edition* (A-R Editions, 2015); Rod Thomas Squance, "Balinese Gender Wayang Performance Technique: A Pedagogical System for the Non-Balinese Scholar," (DMA, University of Miami, 2007).

around this technique as a necessity? But, how to learn FROM the stick? The stick has to teach me something so the knowledge must come from that. Elements to consider: direction, angles, weight, trajectory, curvature and proximity to the instrument. The stick can solve technical challenges but could also guide the creative choices…

The diary entry provides insight into the beginnings of a pathway, via an intriguing line of self-questioning, to a conceptual approach to drumset playing that I had not yet encountered in my years of learning that sees two instruments; the drumset and *kendang*, potentially interact in a rather unique way. This led me to propose a preliminary, yet captivating question that formed the basis of the conceptual framework for this next period of development: Could I create a problem to solve on the drumset that helps me with an aspect of my *kendang* playing?

A podcast featuring American jazz guitarist, composer, educator and rhythmic crusader Miles Okazaki offered a useful starting point and context for this next stage of research.[16] During his discussion with Joel Harrison, also a guitarist and composer, Okazaki describes his engagement with the *kanjira*, a small lizard skin membranophone from the South Indian *Carnatic* music tradition.[17] Okazaki explains how the wrist movement of the leading hand and the pressure utilised by the non-leading hand required to play the *kanjira*, was similar to the movements and pressures employed when playing the guitar.[18] Of significant interest was Okazaki's aspirations and motivations to learn to play the *kanjira*. Okazaki describes how his intention was not to learn to the *kanjira* to the point where he could do performances of the traditional repertoire. Instead, he learnt the *kanjira* as a way to help him learn more about learning the guitar. Although my goals and motivations to learn the *kendang* contrasted with Okazaki's aspirations to learn to play the *kanjira*, his approach was both intriguing and inspiring.

4.7 *Kendang*/drumset interactions

The process began with a series of open experiments stemming from the questions: "Could I create a problem to solve on the drumset that helps me with an aspect of my *kendang* playing?" and "How could I learn from the stick on the drumset?". My intention here was that the musical language and vocabulary would be guided, and therefore emerge, through the line of questioning. The early stages involved a range of approaches which were documented in a diary entry from Jan 2019:

16 "Alternative Guitar Summit: Episode 4: Miles Okazaki," Podcast audio, https://alternativeguitarsummit.com/episode-4-miles-okazaki/

17 Madhumita Dutta, *Let's Know Music and Musical Instruments of India* (ibs Books UK, 2008).

18 "Alternative Guitar Summit: Episode 4: Miles Okazaki," Podcast audio, https://alternativeguitarsummit.com/episode-4-miles-okazaki/

Linear doubles with symmetrical/echoing sound sources (stick strike, three finger muted strike and cross stick) Initially didn't like the low drum tuning, but after another listen it could actually work.

*Scraping technique with improvised rhythm shifting between the sound source options: just single handed; rhythm too complex/long to add another limb. *Bracket the scraping technique though.*

James McLean/Dan Weiss movement idea: 2:3 polyrhythm and switching sides; because each limb is constantly moving it will make it hard to get to a faster tempo. As a sound, generally it didn't appeal to me. I thought it would create an opportunity to hear all the unison possibilities (muted/sustained etc). It was clear though that the muted finger strokes need to be clearer (an area for improvement on the kendang as well).

The diary entry provides a brief overview of the initial experiments. Although insightful, the entry is not intended to serve as an analytical description of "what" I did. What I do wish to highlight however is the learning that took place throughout this preliminary period. Although I was generally unsatisfied with the sonic outcome and overall potential of these three initial approaches, learning did take place in the form of identifying that more clarity was required from the "muted finger strokes" whilst the hands were in hand on skin position (displayed in Video 4.5). And as noted in the diary entry, this was an area identified for practise on the *kendang*, however it was also an area I felt could be pursued further in what was emerging on the drumset.

Video 4.5 Demonstration of muted finger stroke technique on the drumset

Through this initial process I was also able to identify the limitations of each approach. The challenge

of continually moving, by alternating between stick strikes and hand on skin strikes without pause, as noted in the third approach was particularly revealing and prompted the consideration for silences to be added to counter-act the physical demands imposed by this approach. Most importantly, I recognised what I was "not doing," or what I was missing, and that perhaps I had not prioritised, nor represented, some of the key concepts that Merta had highlighted throughout our discussion.

4.8 Movement efficiency with skin to stick shifts

What was I trying to do? I ruminated on this question for some time prior to deciding what the next step may involve. A diary entry during this period (February 2019) of reflection captures a pivotal moment:

> *What am I trying to do? Improve my efficiency in moving back and forth between hand on skin and stick striking. Putting it in simple terms and being clear about the purpose of this practice. What gets me to this area: two notes back to back: stick to hand, hand to stick with a silence in between, as it's difficult to maintain continual strokes. This idea gets a cool dip, smooth closure to the sound when moving from stick to hand.*

The above diary entry represents an epiphany, a break-through moment, a clear sense of "what" I was trying to do, arrived at only through constructively interrogating, documenting and refining the intention of the practice. What was I trying to do? I wanted to improve my efficiency in movement when shifting from hand on skin position to stick striking position…simple. As captured in the diary entry, I not only clearly identified the purpose of the practice but in doing so, through the modality of practice on the instrument, was able to find a solution and establish a set of working parameters in the form of:

- Two notes performed back to back, one after another; shifting from the stick striking the surface of the drum, to the hand striking the surface of the drum, with a silence in between.

Figure 4.1 exhibits the beginnings of an original short-hand notation system that was devised as a way of "self-communicating" possible combinations of the idea in the form of a visual representation. As we can see, four three-note cells are displayed, each containing combinations of a stick strike, a hand on skin strike and a silence. The inclusion of the silence in each cell was in response to the physical demands observed in the initial experiments set out in Section 4.7. The silence therefore provided a brief moment of "physical recovery," allowing the movement shift from stick strike position

to hand on skin position to be more efficient and sustainable.

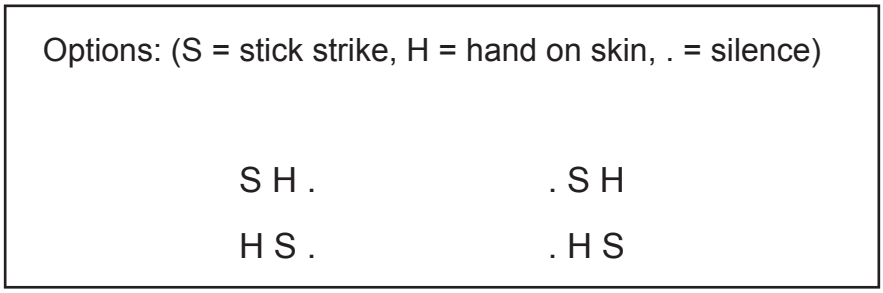

Figure 4.1 Short-hand notation system for self-communication

As a means to consolidate the procedural development thus far in this section, Video 4.6 displays a demonstration of the Figure 4.1 stick strike, hand on skin and silence options, performed by the left-hand on the snare drum followed by the right-hand on the floor-tom of the drumset. Note the inclusion of the hi-hat played with the left-foot as a reference for the starting point of each cellular option.

Video 4.6 Three-note cell combinations of a stick strike, a hand on skin strike and a silence

4.9 Cellular overlays and self-communicative notation system prioritising movement

In order to integrate my other hand into this process, whilst adhering to the established parameters (as set out in Section 4.8 above), I assigned the “stick strike, hand on skin, silence” cell (abbreviated to “S H . “ from here on), and its variants to both the right and left-hand in a systematic way. A diary entry from February 2019 serves as a brief document of this particular process and the possibilities it offered:

Overlaying combinations of these between the hands: travelling same direction, invert both, one the same the other inverted, and so forth. Lots to explore here. Interesting contrast with finger strikes.

To clarify the content of the diary entry: combinations of the S H . cells were subjected to an "overlaying" process between the two hands. This process involved the same three-note cell being assigned to each hand, then "off-set/displaced" by a single note, resulting in a layered texture featuring right-hand/left-hand unison strokes and silences within the cells now occupied by sound from the other hand. A short-hand notation presented in Figure 4.2 displays this process.

Right-hand	S H .
Left-hand	. S H

Figure 4.2 Stick strike, hand on skin, silence two-handed overlayed cell variant

Video 4.7 features a demonstration of the overlay process as presented in Figure 4.2, performed on the snare drum and floor tom.[19]

Video 4.7 Drumset demonstration of the stick strike, hand on skin, silence overlayed cell variant

At this stage the short-hand notation system, appearing in Figures 4.1 and 4.2, evolved into a set

19 Orchestration of this process was intentionally limited to the snare drum and floor tom. Although this sonic outcome was reflected upon and deemed personally satisfying, the decision of orchestration was based primarily on the spatial positioning of these two components of the drumset and how they represented the left-hand/right-hand spatial position on the *kendang*. The main difference being the side-side movement of *kendang* playing was now up-down on the drumset.

of symbols that prioritised the movement direction of each hand as they shifted from “stick strike position” to “hand on skin position” and vice versa. An extract from a handwritten diary entry (Image 4.2) displays the initial sketch of this emerging movement/direction-based notation system. As with the previous version of this notation system, as appearing in Figures 4.1 and 4.2, it was developed and utilised exclusively as a way to self-communicate, to visually explore the possibilities of the idea, and therefore not intended to serve as a transcription. In addition to the self-communicative function, the inclusion of handwritten sketches, rather than refined digitised notations, is for the purpose of conveying and examining process rather than producing a final outcome. The reader will observe that handwritten text notes also appear in each of the sketch images. These notes, along with the notated symbols, provide additional and significant insight into the process of creative development as discussed throughout this chapter.

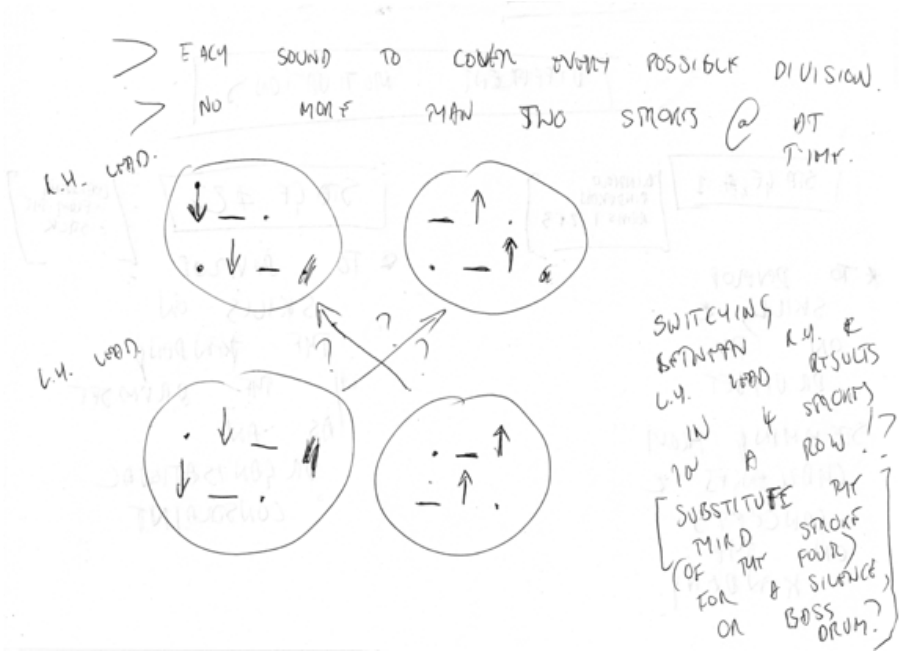

Image 4.2 Initial handwritten sketch of movement-based notation system

As can be seen in Image 4.2, four cells are presented contained within four separate circles, with each cell comprising a series of arrows, dashes, and dots. Within each circled cell there are two lines of notated symbols: the top line represents the right-hand and the bottom line represents the left-hand. Each of these lines is characterised by an arrow, dash and dot, ordered in a variety of ways. The arrows symbolise a stick strike and also the movement direction of the hand: downward arrows indicate the hand shifting from stick strike position to hand on skin position, and upward arrows indicate the hand shifting from hand on skin position to stick strike position. The dashes represent muted finger strokes performed in hand on skin position, and the dots represent silences. The top two circled cells in the image are led by the right-hand and the bottom two circled cells are led by the left-hand.

Of significance are the vertically organised left-side and right-side cells within Image 4.2. When viewed in this manner the two right-side cells are movement inversions of the two left side cells. This inversion of movement is represented by the direction of the arrows, indicating downward motion followed by upward motion respectively. Video 4.8 features a demonstration of these four cells, displaying the up/down directional motion and the right-hand/left-hand leading, both of which are key characteristics of this emerging vocabulary. An additional characteristic, also apparent in the Video 4.8 demonstration, is the pitch contour relationship between the floor tom (low tuning) and the snare drum (high tuning). As can be seen in the demonstration, cells led by the right-hand result in a low-high pitch contour and cells led by the left-hand result in a high-low pitch contour.

Video 4.8 Four cell variants highlighting upward/downward directional motion

In Image 4.2 there are also long arrows located and appearing in the centre of the four circled cells. These arrows indicate the consideration and potential of switching between cells, and in particular, switching between right-hand and left-hand leading. The question marks sitting alongside these long arrows represent the thought, and internal dilemma, of “how to do this?” or “how will this work?” These questions arose when observing that switching from any of the two right-hand lead cells to any of the two left-hand lead cells resulted in four-notes performed back-to-back, a moment that was also captured in text, as appearing to the lower right-side of Image 4.2. This is therefore a larger combination of multiple, back-to-back, sequential strokes than was established in my working set of parameters, which stipulates “two notes back-back.” A demonstration of switching between right and left-hand led cells, highlighting the problematic four-note multiple stroke sequence is displayed in Video 4.9.

Video 4.9 Switching between right and left-hand led cells with problematic four stroke sequence

This created a problem as I wanted to be able to switch from right-hand to left-hand lead, firstly for the performance of this vocabulary to be physically efficient and sustainable, yet also the switching process was aesthetically appealing in that it reversed the pitch contour between the floor tom and snare drum, a characteristic that was displayed in Video 4.8.

4.10 The toggle

In order to be able to switch from right-hand to left-hand leading in accordance with the established set of parameters, and therefore maintain movement efficiency, the solution required the insertion of a seemingly simple single note. This single note acts as a pivot point or "toggle."[20] The toggle, defined as a "command that is operated the same way but with opposite effect on successive occasions," in this case, the single note, functions like a switch in the following manner: when transitioning from right to left-hand led cells, a right-hand single-note toggle was required, and when switching from left to right-hand led cells, a left-hand single-note toggle was required.[21]

Video 4.10 features a demonstration of the toggle concept as described thus far. For the purposes of clarity, both right and left-hand led cells can be seen orchestrated on skin sound sources (floor tom and snare drum), and single–note toggles (simply referred to as toggle/s from here on) are orchestrated on metal sound sources (Balinese *kemong* gong and china cymbal). As a result of the distinct contrast in sound source distribution between cells and toggles as appearing in Video 4.9, toggles performed in this manner are termed as "Exposed Toggles" due to their more obvious

20 Godfried Toussaint, through a variety of publications including his *Geometry of Musical Rhythm* book discusses a concept he terms "toggle rhythms." Although Toggle Rhythms bare some similarities to my concept of a toggle, there are many apparent differences. To convey distinction and a clear point of difference I refer to my concept as a "Toggle" rather than adopting Toussaint's term "toggle rhythms." Godfried T Toussaint, *The Geometry of Musical Rhythm* (CRC Press, 2013).

21 *Oxford Dictionary of English*, 3rd ed., s.v. "Toggle."

or perceivable orchestrated realisation.[22]

Video 4.10 Demonstration of toggle concept featuring Exposed Toggles

As a way to systematically switch between right and left-hand led cells through the use of the toggle concept I designed an exercise, displayed in Image 4.3, that evolved into an improvisational framework, aptly titled “Stick to Skin.” The exercise was conceived of as four separate quadrants, represented in diary sketch form, appearing as Image 4.3, with each quadrant consisting of a layered three-note cell (right-hand top, left-hand bottom) performed twice followed by a toggle. Toggles (indicated by an enclosed rectangular border) signify the conclusion of each quadrant with visual division also provided through the use of vertical dashes, serving as quadrant markers. The exercise is notated across two lines with two quadrants per line. Individual quadrants will be referred to as Quadrants One, Two, Three and Four when navigating from left to right, top line followed by bottom line.

22 In McLean’s “A New Way of Moving” he outlines the development of an original improvisational procedure for drumset performance called “hide and reveal.” Parallels can be observed between McLean’s process and my “Exposed and Concealed Toggle” concept. Whilst these parallels do exist, the development of my toggle procedure emerged independently and therefore entirely self-generated. I do however wish to acknowledge this parallel, post-development of my toggle process, in the hope that similar concepts such as these will emerge through future research projects and that a scholarly collective will form that embraces and builds upon each other’s ways of working.

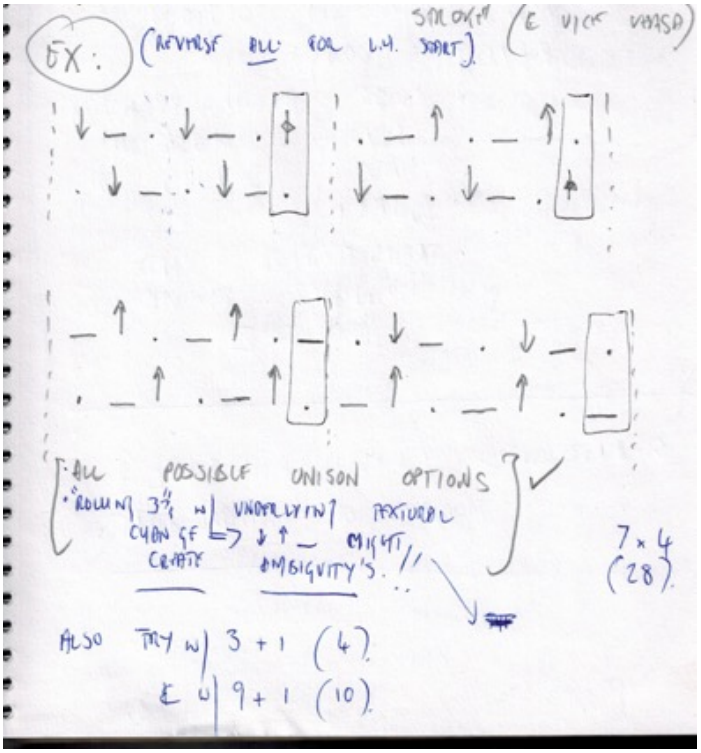

Image 4.3 Handwritten sketch of integrated toggle concept/exercise and improvisational framework

In accordance with the aforementioned leading-hand switching process, toggles in this exercise also represent a change/switch in leading hand. This occurs when transitioning from quadrant to quadrant with Quadrant One led by the right-hand, Quadrant Two led by the left-hand, Quadrant Three led by the right-hand and Quadrant Four led by the left-hand.

Toggles in this exercise, unlike the Exposed Toggle concept, contain a combination of stick strikes (indicated by a diamond symbol on a vertical line) and hand on skin finger strikes (indicated by dashes, as set out previously). The decision to indicate strike strikes in this manner was due to the fact that toggles performed in this way are movement-direction neutral. By this I mean, the stick strike toggle is not coming directly from (upward motion) or heading towards (downward motion) a hand on skin finger strike. This can be seen in Image 4.3 where each toggle is neighboured, to the left and the right, by a silence (indicated by dots).

The neutral movement-direction function of this toggle adds an additional element of physical efficiency to this vocabulary through the left-side/right-side adjacent silences, resulting in a single rhythmic attack, and therefore breaking the flow of double rhythmic attack sequences, characteristic of the preceding three-note cells. Although not stipulated explicitly in the developmental framework of this vocabulary, the use of a single rhythmic attack was permitted as the parameter of “two-notes back to back” was a constraint to enforce multiple sequential strokes of no more than two rather than being limited to only using two, or less.

The parameter “shifting from the stick striking the surface of the drum, to the hand and striking the surface of the drum, with a silence in between,” was however strictly adhered to. This can be

seen below in Figure 4.3 where both right-hand and left-hand lines maintain a strict and continual alternation between stick strikes and hand on skin finger strikes when navigating through cells and toggles. This process creates unique sonic events in Quadrants Two and Four which contain unison finger strikes and stick strikes respectively. Contrary movement directions are also contributing to this process with Quadrant Two comprising right-hand upward/left-hand downward movement directions, and Quadrant Four comprising right-hand downward/left-hand upward movement directions. Note that toggles are annotated in Figure 4.3 by the emboldened boxed letter T's.

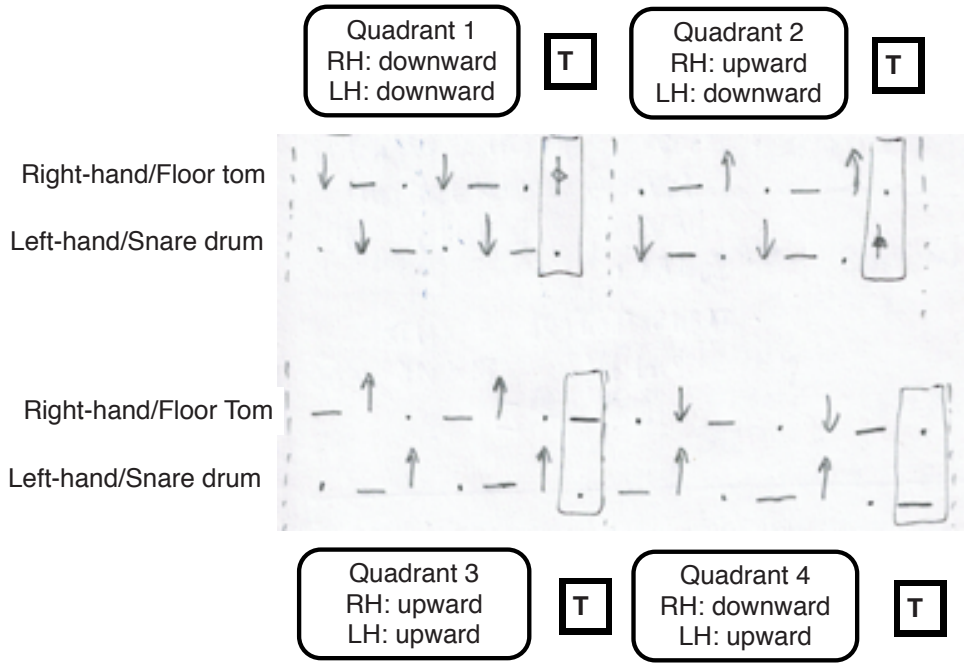

Figure 4.3 Annotated toggle exercise

Of further significance in this exercise is that toggles and cells utilise identical and corresponding sound sources in the following manner:

- Right-hand cells and right-hand toggles: floor tom
- Left-hand cells and left-hand toggles: snare drum.

This mode of orchestration contrasts sonically with the Exposed Toggle concept where metal sound sources were utilised to highlight toggles which therefore indicated perceivable switches from one leading hand to the other. In the exercise displayed in Image 4.3 and Figure 4.3 toggles performed on corresponding sound sources to cells are less obvious and therefore sonically obscured. As a result of this process toggles performed in this manner are termed "Concealed Toggles." Video 4.11 features an annotated demonstration of the exercise as appearing in Figure 4.3.

Video 4.11 Annotated demonstration of the Quadrant exercise featuring the Concealed Toggle concept

4.11 Research in performative action

As with the concluding video performances appearing in Chapter Three, this chapter also closes with the presentation of a creative work as a means to musically contextualise the developmental processes detailed throughout this section of the thesis. The performance, as appearing in Video 4.12, features the improvisational framework tilted “Stick to Skin” which stemmed from the exercise described throughout Section 4.10 in this chapter. Like the creative works presented in Chapter Three, “Stick to Skin” is intended to demonstrate the “learning from the stick” procedural outcomes in performative action and will therefore receive limited additional analytical commentary. I do however wish to highlight and summarise the more significant aspects of the framework as they pertain to the research set out in this chapter to assist the reader in engaging with the video content.

As can be seen in Video 4.12 “Stick to Skin” retains many of the foundational elements of the original developmental exercise, most notably in the form of the quadrant-based structural parameter. The four quadrants were treated as micro-structures for systematically and spontaneously applying rhythmic and textural variation. The primary variable employed in this manner consisted of the amount of cell repetitions prior to toggle events: in the original exercise, displayed in Image 4.3 and Figure 4.3, two repetitions of each cell occurred before each toggle, however in the “Stick to Skin” performance in Video 4.12 three repetitions of each cell typically occur prior to each toggle.[23] The inclusion of three cellular repetitions allowed the movement direction of each cell to be explored and developed through the process of movement-inversion, as shown in Image 4.2.

Finally, as an expansion of the original developmental exercise, combinations of both exposed and Concealed Toggles were utilised throughout the “Stick to Skin” improvisational framework

23 The allowance for sustained or prolonged cellular repetitions prior to toggle events was also a component of the “Stick to Skin” framework, however is not an aspect that I wish to highlight in the main text.

through the inclusion of the Balinese *kemong* gong and ride cymbal. The inclusion of these metal sound sources provided an additional textural component that contrasted with the continual pitch-contour rotations and resultant rhythmic ambiguity taking place on the skin sound sources: floor tom and snare drum.

Video 4.12 Stick to Skin

Chapter Five
Project Four (Part 1) – Kendang Response

5.1 Overview

In Chapter Four I set out a range of original developmental processes on the drumset in response to *kendang bebarongan* technical conceptions shared with me by I Wayan Merta during practitioner-to-practitioner discussion. The procedures that emerged throughout this research period followed the self-generated path of learning and creative action established in the Drumset Response focused chapter (Chapter Three). As we have seen, the previous two chapters resulted in procedural outcomes on the drumset through various prompts whilst simultaneously providing insights into *kendang bebarongan* drumming. However, the prompts that guided the development of this material were distinct and therefore presented as separate chapters. An additional point of difference is the "Learning from the Stick" processes in Chapter Four prioritised movement, physical motion and efficiency. Although motion-based processes did emerge prior to this, most notably in the form of the "Inward Elliptical Sweep" (discussed in Chapter Three), the movement-based "Learning from the Stick" approach established a self-generated mode of learning and creative development that sees the project transition and conclude with a dedicated response on the *kendang*.

As previously mentioned, I maintained daily *kendang* practise throughout the project. The underlying motivation for this practise was to prepare for my competition performance in Bali. However, although the competition performance and the associated preparation were significant in their role as motivating factors, the *kendang* practice for the purpose of the study was solely intended to inform technical and creative development on the drumset. It was therefore never intended that the project would include a dedicated focus on my actual *kendang* playing. I did however remain open to changes in the project which eventually led to a developmental focus on this instrument.

The competition itself was also not intended to function as a research outcome and conceptually its role was to also serve as the impetus for what ultimately emerged on the drumset through the associated preparatory process. I did however anticipate that what was learnt on the drumset, through engagement with *kendang bebarongan* concepts and my own self-generated approach, had the potential to inform my ongoing development on the *kendang* and therefore assist in preparing for the competition. In many ways, the drumset focused chapters had already revealed the beginnings of a highly personalised re-conception of my approach to *kendang* playing. What I could not anticipate however was exactly how transformative this endeavour might be. Through the self-generated methods set out in the previous chapters, along with an accumulating amount of confidence supporting such an approach, I was intrigued by the possibility of a *kendang* response and what this process might reveal.

In accordance with the project's established self-generated mode of development, the next three chapters set out a range of original processes for creative and technical development for the performance of *kendang bebarongan* drumming. Although the procedural focus and methodological approach remained consistent: practice and creative action on the instrument, responding to practitioner-to-practitioner discussion footage (spoken and visual), embedded evolutionary research questions and personal reflexive diary entries, the presentation format of the outcomes somewhat differs.

In the previous two chapters a series of creative works were presented as embedded videos in order to demonstrate the outlined processes in performative action. In contrast, the work in the next three chapters is contextualised in the form of an indicator schema that functions as a tool and model for self-assessing specific aspects of my *kendang* playing and is broadly categorised as:

- Understanding and Managing the Elements of Performance.

In addition to the self-assessment model, practical outcomes in the form of embedded videos are also presented progressively throughout the chapters. These outcomes serve as "artistic distillations/ manifestations" that pertain to each indicator area within the model (to be explained further below). In order to contextualise the work associated with the development of the self-assessment indicator schema, this chapter sets out a model for understanding *kendang bebarongan* performance from the drummer's perspective. This is followed by a self-audit of my own *kendang bebarongan* playing. To close the chapter, the process of resetting various technical elements of my *kendang* playing, modelled on the playing of Merta, will be explained.

5.2 Information processing in *kendang bebarongan* performance

In Chapter Two I described several key characteristics of *kendang bebarongan* drumming as they pertain to a performance of the *Barong* dance. These characteristics will now be categorised according to elements that the *kendang* player is in control of, and elements that the *kendang* player is not in control of, and appear in Figure 5.1. The purpose of this categorisation is to provide context for the self-generated procedural development that follows which further categorises these elements in the form of "mechanics and motions," and "understanding and managing the elements of performance."

As we can see, the *kendang* player (assigned the top/centre box within Figure 5.1) is responsible for several elements of the performance that are considered fundamental skills and therefore expected to be prioritised. These elements (explained in Chapters Two and Three) feature a range of technical and aesthetic principles and are termed "internally generated determinants" as the

kendang player determines how these will be realised.

The box labelled "Dancer/Barong" displays the elements of performance that the dancer is responsible for and therefore in control of. Categorised as "primary external stimulus," these elements are the most important external and environmental factors that the *kendang* player must respond to within a performance.[1] From the perspective of the *kendang* player these elements function as "sensory inputs" in the form of movement cues (from the legs, body and/or head) and auditory cues (jaws clacking/snapping together) and are displayed accordingly as a communicative link between the dancer and *kendang* player. Conversely, the drummer's response (rhythmic, dynamic or temporal) is also communicative and termed as a "sensory output" that the dancer processes as confirmation that the sensory input (from the *kendang* player) has been received.

On the right side of Figure 5.1 the box labelled "Gamelan Ensemble" displays the variety of ways that the *gamelan* responds to dynamic and rhythmic cues (sensory outputs) generated by the *kendang*. These responses also serve as sensory inputs for the *kendang* player as confirmation that the *kendang* sensory output has been received by the *gamelan*. As these inputs are received after (sometimes only micro-seconds) the sensory input from the dancer has been received they are termed and categorised as "secondary external stimulus."

It is important to note that these paths of multi-sensory input/output from the dancer to the *kendang*, back to the dancer, from the *kendang* to the *gamelan* and back to the *kendang* often happen in an instant.[2] An example of this can be viewed in Video 5.1, highlighting the rapid input/output exchanges. These along with the internally generated determinants that the *kendang* player must continually generate, and be responsible for, highlight the significant amount of information processing that occurs at almost every moment of a performance of the *Barong* dance. It is therefore evident that *kendang bebarongan* drumming is a high-level art-form requiring a remarkable level of skill and focus.

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1 Some of the terminology in this section has been adopted from the fields of "skills acquisition" and "competitive sports." In particular Jay Dawes and Mark Roozen, *Developing Agility and Quickness (NSCA Sport Performance)* (Human Kinetics, Inc., 2011); Jane E Clark, "On Becoming Skillful: Patterns and Constraints," *Research Quarterly for Exercise and Sport* 66 (1995): 173-183; Keith Davids, Chris Button, and Simon Bennett, *Dynamics of Skills Acquisition: A Constraints-led Approach* (Human Kinetics, 2007). In some cases, this terminology remains unchanged and in other cases modified to be more appropriate in the context of music performance. It was necessary to adopt such terminology to express the various performative aspects of *kendang bebarongan* drumming as "fundamental skills" as they relate to movement and various environmental factors.

2 Those familiar with conventions of *gamelan* performance may note the absence of visual cues (*gaya*) from the *kendang* player in my Information Processing model. *Gaya* is certainly an aspect of performance often associated with the *gamelan gong kebyar* and also *gamelan beleganjur*. From my experience learning and performing *kendang bebarongan*, *gaya,* in the way that appears in the aforementioned ensembles, is not given priority in the performance of *kendang bebarongan* drumming. This is further supported and confirmed by my various mentors and collaborators. It is the therefore the clarity of dynamic and rhythmic cues that I wish to highlight and that reign supreme in this form of drumming.

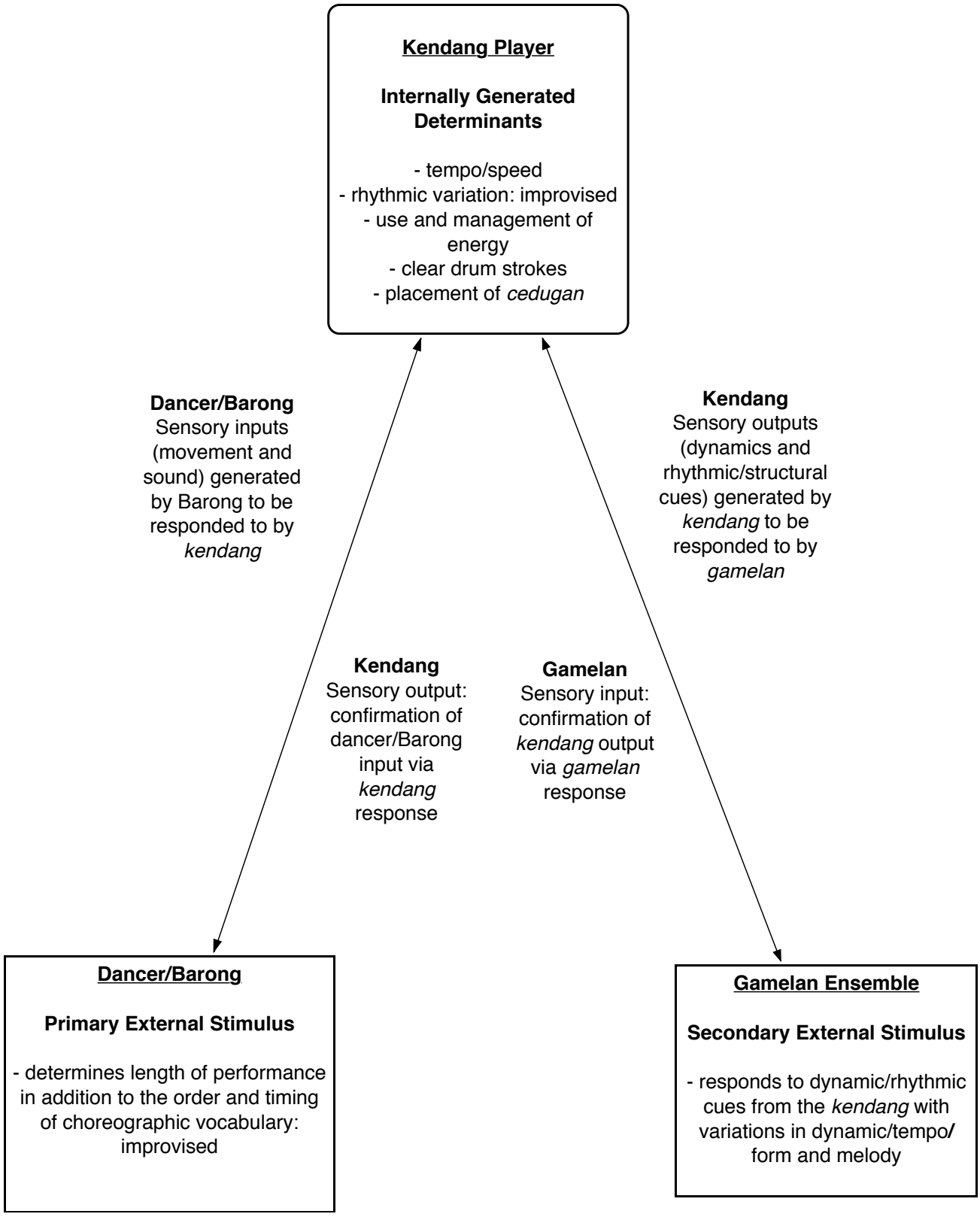

Figure 5.1 Information processing from the drummer's perspective in *kendang bebarongan* performance

Video 5.1 Performative example highlighting sensory input/outputs/information processing

5.3 Pre-experiment self-audit

Before proceeding with a discussion detailing the self-generated processes for my own personal development on the *kendang*, I offer an overview, or rather a "self-audit," of my level of performative skill prior to embarking on this developmental period. This audit is intended to establish a baseline of performance ability prior to the "*Kendang* Response" development period. In addition to highlighting various tangible technical aspects, supported by embedded video demonstration, I describe the associated personal insecurities that I felt had contributed to the way I played up until commencement of this research phase.

It must be emphasised that the practise and performance of *kendang bebarongan* drumming by a non-Balinese person is rare and in fact to my knowledge, and the knowledge of my Balinese counterparts, is and has been non-existent as of 2020.[3] This is likely due to the large amount of technical skill required to play the drum, the fact that it is solo drumming and not paired drumming (a more common pursuit among non-Balinese practitioners) and also the required fluency of a complex dance movement vocabulary in order to appropriately accompany and respond.[4] According to Merta learning *kendang bebarongan* is a long process that takes many years.[5] Yande also impressed upon me the amount of "hard work" and commitment that would be required when initially expressing

3 There are known examples of non-Balinese people playing and performing *kendang tunggal* drumming (bare hand drumming without the stick). One of these examples is represented in the literature: Tenzer, *Gamelan Gong Kebyar*. At a conference that I attended in 2017 I had the opportunity to ask Tenzer about *kendang bebarongan* drumming. It was soon made apparent that this was not an art-form he had concentrated on. Beyond the literature, Wayne Vitale (director of the *gamelan* troupe *Sekar Jaya*) has also developed performance skills in *kendang tunggal* drumming and perhaps serves as a more prominent non-Balinese practitioner due to his role in *Sekar Jaya* but also as an occasional contributor to Balinese music scholarship.

4 It is certainly more common for non-Balinese musicians and enthusiasts to pursue the double/paired drumming forms such as those associated with the repertoires of the popular *gamelan gong kebyar* and *gamelan semar pegulingan* ensembles.

5 I Wayan Merta, interview by author, Sanur, Bali, May 13, 2018.

interest in learning the art-form and eventually embarking on this project.[6]

The self-audit will be presented according to the following aspects of *kendang bebarongan* performance:

- Pattern Acquisition and Pattern Playing
- Sound Production
- Playing at Tempo
- Ability to Respond to Dance Movement Cues.

Pattern Acquisition and Pattern Playing

Up until January 2019 my *kendang bebarongan* rhythmic vocabulary consisted of patterns shared with me by Yande. An example of Yande demonstrating one particular pattern sequence as I learnt it is displayed in Video 5.2. I was therefore essentially playing Yande's vocabulary, albeit with occasional subtle variations, when I would perform. This was something I did not question and without thought, accepted this as the standard pedagogical model, particularly as it had been common-place in other areas of my *kendang* and *gamelan* playing throughout my years of learning.[7] A personal strength with this mode of pattern acquisition was my ability to quickly and efficiently compute, memorise and retain the patterns that were prescribed. A weakness however was a lack of knowledge to be able to vary these patterns and improvise in a way that I felt was aesthetically acceptable. Following a performance of mine at Pura Samuan Tiga, Gianyar, Bali in May 2018 Yande observed how at times I seemed "locked" or "stuck" in one particular pattern and unable to vary the rhythm as required. Together we concluded that this was due to not knowing how to vary the rhythmic pattern but also feeling unsure of when and what the dancer would do next. Despite identifying these two particular problematic areas a clear method for addressing them was not determined, other than the suggestions "you must change," "don't be afraid to be wrong," and also that more experience was required.[8]

6 Pande Gde Eka Mardiana, interview by author, Melbourne, Australia, December 3, 2017. Of note here is that I had played *kendang bebarongan* prior to the commencement of the project including performances in Melbourne, Australia. However, it was not the primary focus of my *kendang* practice, which leading up to the commencement of the project primarily comprised various forms of paired drumming (*gamelan gong kebyar*, *gamelan beleganjur* and *gamelan geguntangan* repertoires).

7 Historically *kendang bebarongan* vocabularies were highly regional and particular villages and districts were known for their "signature" styles. There were certain players that were considered key exponents of these regional styles. An example of this is Pak I Wayan Jebeg, whose playing was of the "Gianyar" style. Regional vocabularies are largely non-existent nowadays and *kendang* players, particularly of the more elite level, create their own individual signature styles.

8 Pande Gde Eka Mardiana, personal communication with author, Batubulan, Bali, May, 2018.

Video 5.2 Yande demonstrating a pattern sequence that I learnt

Sound Production

Sound production here refers to the clarity of each individual stroke as produced by the *kendang* player. These strokes broadly comprise contact with the drum skins using various combinations of palms, fingers and stick to produce particular sounds (some of which were described in Chapter Two).[9] The ability to perform clear and distinct drum strokes was an aspect of *kendang bebarongan* drumming that all six *kendang* players who participated in the practitioner-to-practitioner discussions agreed upon and regularly emphasised.[10] With regard to my own playing, I had developed a certain amount of clarity that I had worked hard to achieve and was rather proud of.[11] An example of this can be viewed in Video 5.3 (note the clear percussive attack of the left-hand palm strokes). What I did lack in this area however was an upper dynamic range that would sonically "cut" through the volume of the *gamelan* in order to clearly relay movement cues from the dancer. There was a certain "crack" in upper dynamic left-hand accented slap strokes that I identified in almost all of the *kendang* players I had seen in Bali. I was envious of this and desperately wanted to be able to do it, however found myself regularly tensing up at moments when I needed to play this stroke which would often result in the sonic outcome being somewhat underwhelming and at times personally embarrassing.

9 From this point on I intentionally refrain from using the commonly used onomatopoeic syllables typically associated with Balinese *kendang* playing. The reasons for this choice are due on a focus on movement rather than sound, and will become apparent throughout this and the following two chapters.

10 I Gde Made Indra Sadguna, I Wayan Sudiarsa, I Wayan Sudirana, I Ketut Gede Rudita, I Wayan Merta and Pande Gede Eka Mardiana, interviews by author, Bali, May, 2018.

11 The clarity of my strokes was often a topic of discussion during practise sessions with other *kendang* players present and keenly looking on. Comparisons to other *kendang* players would often be openly made in the form of declarations that my strokes were clearer than another one of the drummers in attendance. Whilst it was a momentary validation and boost in confidence it also contributed to my self-consciousness and overall insecurities concerning this aspect of my drumming.

Video 5.3 Example of author's sound production (Video by Gung De, Batubulan, Bali, May, 2018)

Playing at Tempo

Playing the music at the prescribed tempo (described previously in Chapter Two) was an area of practise and performance that I had become accustomed to throughout my years playing Balinese music. Although I could play the *kendang* at the appropriate tempo for the *Barong* dance, I was often playing at, or very close to, my absolute maximum speed. I therefore had no "tempo headroom" and consistently experienced accumulated physical tension in longer length performances, which was something I had not accounted for in my practice. This was partly due to the often, shorter length preparatory rehearsals. An oversight that I accept responsibility for, however also an aspect of *kendang bebarongan* that is typically developed via the experience of performing.[12] This was especially apparent in the aforementioned Pura Samuan Tiga performance where the *Barong* dance performance was just shy of 35 minutes in length. An excerpt from this performance is featured in Video 5.4 and highlights the tempo that needed to be sustained for the half hour (plus) duration.

12 The primary reason for performing in Bali was to develop such skills. All six drummers interviewed as part of this study cited performance experience as being essential to the development of *kendang bebarongan*. There is an Indonesian expression (shared with me by Yande in the context of *kendang bebarongan* performance) used to express the important role of performance experience in Balinese music: *jam terbang* (Bahasa Indonesian for "flying time"). Personal communication with Yande Batubulan, Bali, May, 2018.

Video 5.4 Excerpt from the author's performance at Pura Samuan Tiga, Gianyar, Bali May 2018

Ability to Respond to Dance Movement Cues

The expression "thrown into the deep end" is perhaps the best way to describe my transition from playing *kendang bebarongan* without the dance to playing with the dance. I had attended many performances over the years (ceremonies, tourist performances and *lombas*) and was familiar with some of the *Barong*'s choreographic vocabulary, however not to the extent where I felt prepared to perform. On one occasion early in the project, Yande and I attended an event in Ketewel, Bali where we watched a *Barong* dance performance. Whilst watching Yande would tell me what movements had just occurred so I could make connections between these and the appropriate *kendang* response. I was then asked to tell Yande the movements as they occurred. The next day a dancer was invited to my practise session and with no further instruction I was playing along with the dance. At this stage I did feel much more familiar with the choreographic vocabulary, however when actually playing my responses often felt "reactive" and "last minute." Although I had years of experience improvising as a drumset player I found it incredibly challenging to improvise on the *kendang* with an external element (the dance) determining (change) what would be next. Absent was the mental clarity I had when playing without the dance and the experience very quickly became overwhelming, frantic and tense. An excerpt from a *Barong* dance rehearsal in Kesiman, Bali May 2018, displayed in Video 5.5, captures one of the first few times I had rehearsed with a dancer. *Barong* dance enthusiasts may note the haphazard *kendang* response at 27 seconds in.[13]

13 The dancer in the video is Gung De, a *kendang* student of Yande's and winner of several *lomba kendang barong* events. Immediately after we rehearsed Gung De could sense some of my disappointment that I had missed some of his movement cues. He very kindly re-assured me that I was doing incredibly well and that it is very common to miss some of the cues in this particular section of the dance (featuring the *Goak Macok* melody).

Video 5.5 Excerpt from a *Barong* dance rehearsal in Kesiman, Bali May 2018 featuring the author (Video by Yande, Kesiman, Bali, May, 2018)

5.4 A preparatory technical reset: learning from the stick

In accordance with the prioritisation of movement, featured in a range of developmental processes described throughout this thesis, the re-conceptualising of my *kendang* playing began as preliminary and preparatory "technical reset" pertaining to various motions associated with *kendang bebarongan* stick technique.[14] This process was informed by thoughts and demonstrations shared with me by Merta stemming from the "Learning from the Stick" developmental period. This technical reset functions as a summarised "primer" before embarking on a detailed discussion of the various self-generated processes associated with the development of the "Self-Assessment Indicator Model" (mentioned in the opening commentary of this chapter).

Right-Hand Skin to Stick Shift

In Chapter Four, Merta shared his thoughts with me concerning the problematic lift associated with the right-hand shifting from stick playing position to hand on skin playing position.[15] Upon reviewing

14 The implications of this task are expressed and contextualised suitably by Davids, Button and Bennett in their contributions to the dynamics of skill acquisition discipline: *The ability to evaluate technique qualitatively is perhaps the most important quality for practitioners to possess. This difficult skill demands an awareness of the broad biomechanical principles of movement and an understanding of whether the learner is exploiting these principles optimally.* Further to this, the same authors provide a categorised checklist of characteristics that suggest a required change in technique. The two most pertinent to my *kendang* playing may be summarised as:
1. Poor retention of technique: evidenced in the regression of my technique ability whilst not being in Bali.
2. Uneconomic movement patterns: evidenced through my limited dynamic and tempo headroom, particularly in longer length performances

Of significance in the second criteria is the characteristic "uneconomic movement patterns." Through the work in the "Learning from the Stick" chapter I was becoming convinced that some of the issues identified in my *kendang* playing may be related to movement rather than sound.

15 The content appearing in this thesis related to both *kendang* and drumset playing is based on right-handed playing. This is the case with my playing on both of these instruments and is therefore presented from this point of orientation. I do acknowledge that left-handed players do exist on both instruments, however it is not that common.

my aforementioned performance at Pura Samuan Tiga I identified the presence of a significant lift required when shifting from stick playing to hand on skin playing positions. An excerpt from that performance can be seen in Video 5.6. Note the down-ward pointed position of the tip of the stick whilst in hand-playing position and the subsequent lift required to shift into stick playing position.

Video 5.6 Excerpt from Pura Samuan Tiga performance displayed problematic stick lift

To eliminate the problematic lift, I utilised a mirror as a visual sensory feedback device, allowing the position of the stick to be accurately monitored whilst practising. The goal of this practice was to keep the stick in relatively the same position when making the stick to skin shifts, therefore making this shift as physically efficient as possible. This was informed by Merta's thoughts yet also his demonstrations throughout our discussion. An excerpt of one particular demonstration, appearing in Video 5.7 displays Merta's embodiment of the potential efficiency accessible through the omission of the problematic lift.

Video 5.7 Merta's demonstration of the physically efficient skin to stick shift

In Merta's demonstration I observed how he consistently maintained the stick in a horizontal position whilst in hand on skin position. I also noticed Merta's hand whilst gripping the stick in the stick playing position and how he consistently utilised the little, ring and middle fingers. Upon reflection, I noted that my index finger was a more primary component of my stick grip and therefore implemented this adjustment as another aspect of the preparatory reset process.

As I practised I would recall Merta's demonstration, aiming for a similar horizontal stick alignment whilst monitoring the position via the mirror reflection. The early stages of this experiment are displayed in Video 5.8. The demonstration in this video was recorded from the player's perspective: as seen from my point of view via the reflection of the mirror. Note the absence of the problematic lift, as shown in Video 5.6, and the employment of the little, ring and middle fingers whilst gripping the stick.

Video 5.8 Stick to skin shift with the three-finger stick grip

An additional element considered throughout this process was the position of the right side of the *kendang* in proximity to the right shoulder and right elbow. This adjustment meant that the right side of my body was now completely in line with the right side of the *kendang*, therefore removing any additional and potentially unnecessary movements or held positions that may impinge upon the efficiency of the now physically efficient skin to stick shifts.

The key areas and quantitative criteria, for ensuring physical efficiency, that emerged throughout the right-hand skin to stick shift preparatory technical reset stage are summarised as:

- Shifts from hand on skin position to stick striking without having to lift the stick
- Horizontal position of stick is maintained whilst shifting back and forth between finger/hand and stick playing

- Stick grip utilises the little, ring and middle fingers
- Shoulder and elbow remain in-line with the right-hand side of the *kendang*.

Right Hand Finger Playing Whilst Holding the Stick

A standard playing technique of *kendang bebarongan* drumming involves playing right-hand drum strokes with the three-fingers (little, ring and middle) and thumb whilst supporting the stick.[16] The three-fingers are generally reserved for playing single strokes, whilst the thumb is utilised in combination with the three-fingers to perform double strokes, typically in a thumb to three-finger sequence.[17] Upon reviewing my performance at Pura Samuan Tiga I observed that my right-hand index finger was extended straight across the skin of the drum. This can be seen clearly in Video 5.9. The extended finger position felt reasonably stable whilst performing rhythms with the three-fingers, however, as we can in Video 5.9 the stick appears unstable and often flailing recklessly.

Video 5.9 Excerpt from Pura Samuan Tiga performance highlighting extended right-hand index finger

In a reflective discussion with Yande following this performance he proposed an adjustment of the right-hand index finger involving an approximate 90-degree bend from the second joint of the finger, thus forming a near right-angle finger position (displayed in Image 5.1).

16 Practise sessions with various teachers in Bali from 2007 - 2018: I Wayan Tama, I Wayan Darya and Pande Gde Eka Mardiana and as demonstrated by the six *kendang* players that participated in the practitioner-to-practitioner discussions.

17 The three-finger may also be used to perform double strokes without the use of the thumb. For the purposes of this study and for consistency I adopted the thumb – three-fingers double stroke method.

Image 5.1 Proposed index finger bend

The revised finger position allowed the tip of the index finger to be in contact with the skin, rather than the whole finger as seen my previous approach. As a result, this finger position functioned effectively as an anchor, or fulcrum, for which the three “striking” fingers, and thumb, could securely pivot from. The three fingers felt liberatingly detached and independent from the rest of the hand: free to move whilst being firmly grounded. An example from the index finger fulcrum development phase can be viewed in Video 5.10. Note the position and angle of the index finger and the anchored finger-tip.[18]

18 The reader may observe that when playing the little finger drum stroke “*cung*” that an extension of the index finger was required. This was necessary to perform this stroke with the desired clarity. Part of the development process was developing the skill of shifting between these two positions, however is not an aspect of the research that I wish to highlight in this section.

Video 5.10 Demonstration of angled index finger

In addition to the angled index finger's role in anchoring the hand and allowing the three striking fingers to move independently from the rest of the hand, the fulcrum provided additional support for the stick during moments when the rest of the hand was actively playing. As can be seen in Video 5.10 (above) the index finger fulcrum provides a ledge for the stick to rest on whilst the thumb functions as a stabiliser to balance the stick in order to maintain the horizontal position. This allowed the horizontal stick position to be maintained in a relaxed manner, free of tension so that physical energy could be devoted to the playing required by the now detached and independent three striking fingers.

The key areas and quantitative criteria that emerged throughout the right-hand finger playing whilst holding the stick preparatory technical reset stage are summarised as:

- Pivots from angled/bent index finger
- Index finger tip remains consistently in contact with skin
- Stick is supported by thumb and is free of tension
- Stick is consistently supported in a horizontal position.

Right Hand Unaccented Stick Strike

Throughout this preliminary development period I recalled Merta's observation about my stick playing technique that it was "a little rough and not optimal."[19] Merta's embodiment of the removed problematic lift was apparent in many of his demonstrations during our conversation together and provided an area of focus that improved my overall physical efficiency when shifting from hand on

19 I Wayan Merta, interview by author, Sanur, Bali, May 13, 2018.

skin and stick playing positions. I began to ask myself: in what other ways could my stick technique be more optimal? I reviewed some of Merta's demonstrative footage, however this time with the audio muted. The intention here was to engage with the movement rather than the sound which proved to be a particularly effective method in refining the two previously described techniques.

When observing one of Merta's demonstrations I was struck by the economy of his stick movement when striking the drum. This can be viewed in Video 5.11. As can be seen, the stick travels in a direct line away from the drum and then back towards the drum on the same line.

Video 5.11 Merta's demonstration featuring economic stick movement

This contrasted with my stick playing/striking path which at times included a range of curves, twists and wobbles (displayed in Video 5.12) which I determined to be not only unnecessary but were also likely inhibiting the overall efficiency of the stick strike.

Video 5.12 Author's performance featuring curves, twists and wobbles in the stick strike movement

By utilising Merta's economic stick striking path as a visual model, I set out to eliminate the aforementioned curves, twists and wobbles, and establishing an embodied direct and efficient striking path. My intention here was to develop a stroke, like that of Merta's, that followed a straight and direct line with both the outward and inward motions of the strike whilst retaining the horizontal placement of the stick when in hand on skin position. In addition to retaining the horizontal hand on skin position I wanted the stick to remain adjacent to the skin whilst in this position. An example of this process can be viewed in Video 5.13. Note that like the right-hand skin to stick shift technique, the engagement of the little, ring and middle fingers as a primary component of the stick grip was also adopted.

Video 5.13 Right hand unaccented stick strike developmental process demonstration

The key areas and quantitative criteria that emerged throughout the right-hand unaccented stick strike preparatory technical reset stage are summarised as:

- Stick strike path displays a direct and straight line with both outward and inward motions
- Stick movement/motion is free of any twists/wobbles or other inconsistent movements that don't represent a direct and straight path
- Stick remains close and adjacent to the skin when not striking
- Stick grip displays active engagement and support of little, ring and middle fingers.

In this chapter I established a model for viewing *kendang bebarongan* performance from the *kendang* player's perspective, followed by a pre-experiment self-audit. I then concluded with a discussion detailing the process associated with a *kendang bebarongan* technical reset modelled on the *kendang* playing of Merta. The next chapter sees the practice transition into an entirely

self-generated approach, resulting in the formation of a set of specific self-assessment indicators pertaining to the aforementioned “understanding and managing the elements of performance.”

Chapter Six
Project Four (Part 2) – Kendang Response

6.1 A self-generated path forward

Throughout the 15 years I had spent travelling to Bali to practise and perform music I began to observe some repeated patterns of learning and their effect on my overall progression. These consisted of a rapid progression whilst in Bali followed by a slow progression or even decline in progress when back home in Melbourne, Australia. I attributed this to a few factors including not being surrounded by high-level exponents, not having physical daily practise sessions with an experienced mentor and not having a performative context where I could gain the much-needed performance experience (as outlined above) that is essential to developing the necessary skillset as a *kendang bebarongan* drummer.

In the field of dynamical systems, situations such as these are termed and categorised as "environmental constraints." According to Jane E. Clarke, "…environmental constraints arise in both the physical and sociocultural environments of the mover."[1] In the same publication E.S. Reed refers to such sociocultural environmental constraints as the "field of promoted action."[2] When acquiring the skills required to accompany the *Barong* dance as a *kendang* player, Bali would be considered the optimal sociocultural environmental constraint.

As the project progressed and potential dates for my competition performance were discussed, I reflected on the aforementioned pattern of learning and asked myself the compelling question: how do I prepare for this high-level performance, isolated from the "on-ground" Balinese experience, from my home in Melbourne, Australia?

My geographical home-base presented an alternative situation that was arguably not the ideal sociocultural environment. The fact that I was also doing this in isolation (on my own and unassisted) further contributed to the apparent "less than optimal" environmental conditions. However, in the context of this research project I became curious about the possibility of applying the self-generated approach developed thus far, and began to consider and re-conceptualise my environmental constraint as a potential path forward to create my own field of promoted action. In response, this chapter sets out a range of self-generated strategies for technical and creative development on the *kendang*, and addresses some of the most fundamental aspects of *kendang bebarongan* performance.

1 Clark, "On Becoming Skillful," 175. In this case the "mover" is a generic term and applies to any movement-based skill.

2 E.S Reed (1993) as in Clark, "On Becoming Skillful," 175.

6.2 The indicator model

As noted previously the Self-Assessment Indicator Model that emerged throughout this development period is concerned with a range of aspects pertaining to *kendang bebarongan* performance and categorised accordingly as "understanding and managing the elements of performance." As can be seen in Table 6.1 there are a variety of sub-categories listed below the "understanding and managing the elements of performance" heading. These sub-categories function as "indicator areas" which represent the primary research questions to be addressed throughout this chapter. As the chapter progresses, a list of specific "indicators" will be mapped onto each indicator area. The indicators function as a set of personalised criteria for assessing my playing in relation to areas of performance identified previously in the self-audit, described in Chapter Five. Most notable in the Table 6.1 model is the re-framing of almost all aspects of my *kendang bebarongan* practice (as described in the previous chapter).

Understanding and Managing the Elements of Performance
Sitting Position/Posture
Speed
Power
Agility

Table 6.1 Self-Assessment Indicator model displaying indicator areas

When embarking on this period of research, I recalled two rather significant aspects of the preparatory technical reset process that allowed me to pursue a corresponding procedural path:

- Each stage/step involved processing limited amounts of information
- There was a notable absence of the use of the auditory sense.

These two developmental parameters are revealing in that the amount of information processing was limited and constrained, therefore allowing focused attention on only one (sometimes two, but no more) adjustment at a time. Perhaps most significant though was the absence of attention devoted to sound production. At no time throughout the preparatory reset development period was I concerned with the "sound." It was only through focusing on very particular movements and processing limited amounts of information via non-auditory sensory feedback (sight and touch) that

significant technical progression occurred. Despite the omission of a focus on sound, the sonic outcome of my playing improved dramatically.[3] I embraced this mode of development as I moved into this next phase of development, allowing the use of limited information processing and sensory feedback constraints to guide the self-generated process.

6.3 Understanding and managing the elements of performance

Sitting Position/Posture

As mentioned previously a performance of the *Barong* dance can vary in duration and at times can be up to 35-40min in length. Given this length and the fact that the *kendang* is actively playing the majority of the time, a comfortable seated position and posture are essential and potentially foundational before considering other elements of the drumming. Throughout my development as a *kendang* player I would regularly practise yoga for overall physical flexibility, but primarily so that my legs could sit flat on the floor whilst supporting the *kendang* on my lap. This was important to allow the stick to move freely without the knee getting in the way. Despite my determination to "flatten" my legs, I could not get them as close to the ground as many Balinese drummers could. I previously accepted this as a compromise, however when pursuing *kendang bebarongan* skills at an elite level I needed an alternative solution.

This process began with a slightly unorthodox configuration of my legs. As we can see in Image 6.1 my left leg is "stacked," sitting on top of the right leg: Balinese drummers typically sit with both legs contacting the ground with the right leg sitting in front of the left leg. The re-configuration of my legs allowed the stick to move freely without any body part inhibiting its movement during playing, whilst still retaining the aforementioned right-side *kendang*/body alignment. This appeared to be a suitable solution, however it meant that the *kendang* was sitting higher in relation to the rest of my body due to the stacked leg approach. Consequently, I experienced this to be problematic as it required my arms to be held in a slightly (albeit noticeable) higher position then what I was previously accustomed to.

3 More detailed commentary concerned with the sonic outcomes of this research will appear later in the chapter.

Image 6.1 Stacked leg configuration

Out of sheer coincidence I had injured my sitting bones during this time whilst exercising. So that I could continue practising, the sitting bones required additional support as they healed, involving the use of a small cushion. The utilisation of the cushion was effective in raising my bottom off the ground and therefore elevating the rest of my overall posture, offering a relaxed yet grounded feeling. This allowed my arms to sit/hang comfortably and remain fully relaxed without resisting the natural forces of gravity. In addition to this I noticed my tendency to look sideways, or in a range of directions that I felt contributed to held tension in the neck. To remedy this, I established the habit of positioning my head in the forward-facing direction whilst playing. This adjustment resulted in a posture that was relaxed and free of tension that formed a foundational playing position for additional indicator areas to be pursued. An example of the developed sitting position and posture can be seen in Video 6.1. The specific indicators that pertain to this indicator area are presented as Table 6.2.

Video 6.1 Developed sitting position/posture demonstration

Indicator Area	Indicators
Sitting position/posture	• Can sit comfortably with a straight back, relaxed neck and shoulders with head facing forward • Legs are configured (stacked one on top of the other) so they are as flat as possible allowing the drum to balance freely without physical assistance • Drum can be positioned on the legs so that the right skin/drum rim remains aligned with the player's shoulder • Demonstrates seating position so that the stick can move freely without any physical obstacles in its path

Table 6.2 Sitting position/posture indicators

Speed

This next indicator area sets out of range of strategies I developed for managing the characteristic and relentless fast tempo of the music. As mentioned in the self-audit discussion in the previous chapter, this was an aspect of my playing I struggled with and was generally uncomfortable playing fast for long durations of time. The list of specific indicators that emerged during this development period are displayed in Table 6.3.

As can be seen in Table 6.3, the indicator titled “maintains a varied improvisational flow free of any hesitation and ‘tongue-tying’ inhibitors,” refers to a feeling of my hands “tripping” up on themselves in the midst of generating a varied improvisational flow, therefore impacting on my ability to maintain the drumming at the intended speed. The process related to this indicator stemmed from the preliminary questions: What exactly is making the tempo difficult to manage? What is holding things back? In response, I began to observe that at times my hands would fumble and lose the co-ordinated physical flow between what my mind had intended to play and what actually came out through the hands. It was evident there was a mind/body disconnect. To address this, I practised alternating between vocalised patterns and played patterns on the *kendang*. A demonstration of this process can be viewed in Video 6.2.

Indicator Area	Indicators
Speed	• Understands and actively takes advantages of breaks in the music/drumming to physically dis-engage and recover • Understands and actively selects patterns, when required, which allow for physical relief whilst maintaining the tempo and intensity of the music • Maintains a varied improvisational flow free of any hesitation and “tongue-tying” inhibitors • Understands and actively engages in strategies which represent physical recovery and relief

Table 6.3 Speed indicator area with mapped indicators

Video 6.2 Demonstration of singing/playing method

To remain within the improvisational aesthetic of the drumming, patterns were not pre-determined and I aimed to create variations on the initial pattern rather than generating patterns that were unrelated to each other. This can be seen in Video 6.2 where I retained the same rhythmic theme, yet spontaneously extended its overall duration. The practice was structured systematically in a call/response manner where I would vocalise a pattern and then perform that same pattern on the *kendang*. Points of "tripping up" or becoming "tongue-tied" were identified as I practised and repeated as a means to remove the inhibiting portion of the pattern. This practice also resulted in each pattern realised twice: vocally and then on the *kendang*. The mental load of continually generating patterns was halved through the application of this process resulting in a slowed-down rate of computation, yet still simulating the performance environment by improvising the patterns and changing consistently, unless a tongue-tying inhibitor was identified.

This method proved to be useful, however there were certain patterns, cells or hand combinations that required closer scrutiny of my technique and therefore an alternative solution. One particular pattern, a standard within *kendang bebarongan* vocabulary (displayed in Figure 6.1 and demonstrated in Video 6.2) was consistently demanding at the desired tempo and failed to respond to the aforementioned vocalising/playing method. The letters in bold typeface in the figure indicate sub-division (sixteenth notes/4 divisions per-beat) and represent the beat/pulse of the music (usually played by the instrument *kempli* within the ensemble). As can be seen, the first two accented left-hand strokes, indicated by arrows above the letters, are "off-beat," whilst the third and fourth accented left-hand strokes are "on-beat." This off-beat/on-beat alternation in paired accents is a primary characteristic of the pattern. In Video 6.3 the pattern is displayed and highlighted using left-hand accented strokes and appears immediately before a series of right-hand stick strikes.

Video 6.3 Demonstration of problematic left-hand pattern/cell

Figure 6.1 Problematic *kendang bebarongan* pattern

As can be seen in Figure 6.1 the pattern comprises a total of ten rhythmic attacks. In response to the performative challenges I was experiencing I devised a method involving rhythmically transposing the pattern into a quintuplet sub-division, displayed in Figure 6.2.

Figure 6.2 Rhythmically transposed problematic pattern

A demonstration of the rhythmically transposed pattern can be viewed in Video 6.4.

Video 6.4 Rhythmically transposed problematic pattern

The process of transposing the pattern into the quintuple sub-division removed the off-beat/on-beat hierarchy present in the original version of the pattern. This offered an alternative perspective on the pattern and also placed it in a rhythmic space that I was already familiar with through my experiences in performing South Indian *Carnatic* music. Perhaps most revealing in the transposition process was the fact that I could almost immediately play the pattern more comfortably in the quintuplet sub-division at the corresponding sixteenth note sub-division tempo.

In order to explore the possibilities of the rhythmic transposition approach additional technically problematic cells/patterns were identified and subjected to this process. As a result, I devised a series of "rhythmic chants," or chant-like musical spaces that filtered in other aspects of my *kendang* playing that served as both technical developmental environments but also represented creative and musical outcomes independent of the primary practice goals. The first of these chants can be viewed in Video 6.5. This chant expands upon the aforementioned quintuplet sub-division pattern (Video 6.4) and incorporates, what I experienced to be, technically demanding multiple, back-to-back *Cedug* EWE's (described in Chapter Three).

Video 6.5 Quintuplet Chant 2

As can be seen, “Quintuplet Chant 2” combines the problematic idiomatic left-hand accent pattern, mentioned earlier, and the technically demanding back-to-back *Cedug* EWE’s in a way that the organisation and placement within the quintuplet sub-division is varied yet regular in the “playing load” that each area receives. The development of Quintuplet Chant 2 proved to be especially effective in resolving the technical issues related to these particular patterns and cells when performing at the desired speed.

Throughout this process I also observed how my left-hand was “held” when playing: the wrist appeared to be continually supporting the rest of the hand. I became curious about the idea whether or not this was necessary and if relaxing or dis-engaging the wrist might improve my ability to comfortably manage the rapid speed of the music. This experiment involved resting the thumb of the left-hand on the rim of the *kendang* (displayed in Image 6.2).

Image 6.2 Left-hand thumb/rim position

By resting the thumb on the rim in this manner it functioned as a pivot point and allowed my wrist to be measurably dis-engaged and the energy involved in striking the skin of the drum to stem entirely from the fingers.

"Thumb Rim Chant", displayed in Video 6.6 represents the practical outcome related to this process. The "rear view" of the performance in the video highlights the dis-engaged wrist, the use of the thumb as a pivot point and the consequent re-distribution of the striking load to the fingers of the hand. As can also be seen in Video 6.6, "Thumb Rim Chant" features an additional rhythmic transposition from the quintuplet sub-division to the sextuplet sub-division. The intention of the variation in rhythmic density in this chant was to increase the overall physical load and therefore "speed load" through systematic intervals between the two sub-division areas. Note the moments of pause in between sub-division changes: these were treated as brief periods of physical recovery comprising conscious relaxing of the whole upper body and represent the first indicator mapped onto the "speed" indicator area: "understands and actively takes advantages of breaks in the music/ drumming to physically dis-engage and recover."

Video 6.6 Thumb Rim Chant

The Thumb Rim Chant experiment proved to be particularly useful in embodying additional relaxation in the left-hand and functioned as an effective strategy that I could draw upon to manage the overall speed of the music. The implications of this experiment consequently provided an embodied awareness of how to dis-engage in moments of playing when the left-hand was "airborne," and therefore not physically resting on the rim of the drum. Interestingly, although sound production was not a focus throughout this development period I was impressed with how these experiments were contributing to a noticeable improvement in this area.

In response to the Thumb Rim Chant experiment, a series of practise drills were designed

to further dis-engage the left-hand. This stemmed from an observation that the overall “look” of my playing appeared to be, at times, a little sluggish and lacklustre. I therefore wondered if the fingers of my hand could spend more time on the skin before striking, potentially suggesting that in these micro moments the fingers could be disengaged, therefore resulting in less overall “held” time away from the surface of the drum. Although this idea made sense conceptually, the challenge was designing a process that was measurable and quantifiable.

The first experiment involved the use of a physical constraint in the form of a tyre tube. This process can be viewed in Video 6.7. The intention of the tensioned tyre tube was that it would add resistance to both my left and right-hand finger strikes, continually pulling my fingers towards the skin of the drum whilst I continued to play. An embodied sense of waiting to lift my hand away from the drum to strike to minimise the amount of resistance from the tyre tube was the underlying concept of this experiment. It was therefore intended that my body would develop a more physically efficient left-hand movement with an in-built micro dis-engaging technique.

Video 6.7 Tyre tube experiment

The second experiment employed an external auditory constraint as an additional way to develop embodied micro disengagement. This was in the form of song that featured a shuffle groove. The characteristics of the shuffle pertinent to this experiment were the triplet based sub-division and the resultant swing feel that stems from this. A range of songs with shuffle grooves were explored, however the songs “Green Onions” by Booker T and the MG’s and “Heatwave” by Martha and the Vandellas were adopted as the primary auditory constraints due to their variances in tempo and overall consistent groove.[4] The concept of this experiment involved the right-hand playing on-beats alternating with the left-hand playing off-beats. This can be viewed in Video 6.8.

4 “Green Onions”: https://www.youtube.com/watch?v=_bpS-cOBK6Q “Heatwave”: https://www.youtube.com/watch?v=XE2fnYpwrng

Video 6.8 Shuffle groove experiment

As can be seen, the shuffle groove divides the beat/pulse of the song/s into a long-short ratio that contributes to the "swung" feeling, characteristic of the music. This contrasts with the typically "straight" rhythmic feeling within *kendang bebarongan* drumming which sees an equal division of the beat. The long-short distribution of sub-division within the shuffle groove provided an accurate auditory reference that allowed the hand playing off-beats to remain on the surface of the drum for a slightly longer duration before lifting to strike the drum. The process therefore allowed for a preparatory micro dis-engagement of the fingers before striking.

Although waiting to lift the hand before striking was the primary driving component of this experiment as a means to embody further physical relaxation and dis-engagement, the process revealed a considerable increase in velocity of the left-hand finger strikes. This increase in velocity was particularly apparent with the inward direction of the left and right-hand finger strikes, resulting in the overall transformation of this aspect of my playing into what I term: physically efficient rapid oscillations. Consequently, as I played, I felt that playing at the prescribed speed of the music was now comfortable, and allowed for what I also experienced to be additional "tempo headroom." I concluded that the rapid oscillating/high velocity finger strikes were a development of a playing articulation that provided a gateway into playing at fast tempos through a process of building the speed into the articulation. To consolidate the crytalisation of the various aspects of this articulation and the resultant research output I term this technique as an "Asymmetric Hyper Attack." "Asymmetric" refers to the long/short ratio of the stroke; namely the micro moment of waiting to lift the hand before striking. "Hyper" refers to the charged and brisk quality of the stroke and implies quickening and liveliness. Finally, "Attack" refers to the actual strike, which involves an onset, or encounter, as a result of thrust and drive. A demonstration of the outcome of this process, in the context of an improvisational flow can be viewed in Video 6.9.

Video 6.9 Demonstration of rapid oscillation finger articulation

As a result of these experiments a series of additional indicators pertaining to this area of performance emerged and are summarised as follows:

- Pivots from the thumb
- Thumb remains relaxed and physically dis-engaged and in close proximity to the top of the drum rim
- The four fingers demonstrate rapid oscillations when striking: indicated by high velocity inward movement
- Wrist evidences physical dis-engagement with an appearance of the fingers hanging vertically.

The processes described thus far detail a range of strategies to assist in managing the speed of the music that accompanies the *Barong* dance. Throughout this period of development, I also began to identify a selection of patterns or cells, according to the level of physical efficiency required to perform them, that I could draw upon in moments of fatigue as an additional speed management strategy. The potential of this approach was identified when re-transposing the quintuple chant space back into the sixteenth note sub-division in combination with the now rapid oscillating left and right-hand finger strikes. Initially the re-transposition back into the sixteenth note sub-division was to assess the effectiveness and validity of the quintuple transposition process, however it soon became apparent that the previously identified problematic pattern (displayed earlier in Figure 6.1) was not only technically resolved but now an area I could access in moments of fatigue and when I also wanted to inject additional intensity into the music.

Another example of a technique that also proved to be effective in this manner was the Crushed Double Stroke (described in Chapter Three) combined with the *Cedug* EWE articulation (also explained in Chapter Three). “Chant 4” provides an example of this and can be viewed in Video 6.10. As an area that could be accessed in moments of physical fatigue the crushed double stroke was organised as a cellular sequence comprising: left-hand strike - crushed double stroke - right-hand stick strike (in that order as annotated in Video 6.10). In addition to the physical relief that this cell provided it was also an area that created satisfying tension and additional intensity. I felt this was due to the hyper-articulation of the Crushed Double Strokes but also the three-stroke phrase structure of the cell (left-hand - crush double - right-hand stick). Within the 4-sub-divion per beat framework, a sense of polyrhythm or counter-rhythm was projected.

Video 6.10 Crushed Double Stroke as a speed managing strategy in Chant 4

In addition to the above mentioned three-stroke phrase appearing in Chant 4, a variation comprising left-hand strike - left-hand strike - Crushed Double Stroke (with *Cedug* EWE articulation) was also adopted as a cellular structure that could be accessed during moments of physical fatigue. This can be seen in Video 6.11 in the context of a chant space that was developed as a means to explore the physical implications of a variety of cells featuring a range of stick articulations (open/resonant and muted/non-resonant).

Video 6.11 Crushed Double Stroke technique as a speed managing strategy

The process of integrating the Crushed Double Stroke into my *kendang* vocabulary is unique and significant in the context of this research as it was developed on the drumset in response to Yande's thoughts and suggestions surrounding *pindekan*. The developmental path of this concept is an aspect of the project that I wish to highlight, in that the initial thought stemmed from a Balinese concept, yet was developed and realised on the drumset and now integrated into my *kendang* playing. It therefore represents the development and emergence of a personalised *kendang bebarongan* vocabulary, which for a non-Balinese practitioner is currently, as of 2020, as I am aware, unheard of.

Power

The term "power" in the following discussion refers to the upper range/loud dynamic levels and the associated physical energy required throughout many moments of *kendang bebarongan* performance. As mentioned in the self-audit discussion in the previous chapter, playing at these upper levels of volume was an aspect of my playing that I felt was being inhibited by physical tension and at times, feelings of insecurity and apprehension. This section, aptly titled "power," details a range of self-generated developmental strategies, designed to remedy and resolve these particular issues. The discussion pertains to specifically to two primary technical areas:

- Left-hand accented stroke
- Right-hand accented stick strike.

The development of the left-hand accented stroke will be described first. A preliminary practice experiment was designed to reduce the previously identified embodied tension and improve the overall physical efficiency of my left-hand accented strokes. The outcome of this experiment can be seen in Video 6.12 with the inclusion of annotations. Termed as “Resonant Rebound/Recoil Chant,” this developmental space involved the following key goals:

- Implement a straight and direct line of the outward and inward motions of the left-hand
- Implement an embodied outward motion of the strike that created as much distance between the hand and the skin of the drum with the intention to build additional physical “headroom” into the motion of the stroke
- Develop a feeling of rebounding off the skin of the drum, rather than pressing into it (a technical approach that I felt contributed to physical tension)
- Triggering resonance of the drum as a means to gauge the amount of recoil and rebound.

Video 6.12 Annotated Resonant Rebound Chant

Although the experiment involved an auditory component, it was not the overall sound quality that I was concerned with. It was simply resonance as a means to measure the amount of rebound or recoil.

The Resonant Rebound/Recoil Chant provided insight into the movement range that may be required to increase power whilst retaining physical efficiency with the left-hand accented stroke. However, I felt that my left-hand was spending a considerable amount of time away from the drum whilst in between strokes. This suggested that the left-hand was in a “held” position for longer than needed and therefore potentially accumulating unnecessary physical tension that may have impinged upon the capacity for more power.

In response to the directional motions (outward/inward) associated with the Resonant Rebound/ Recoil Chant, I implemented an upward pre-stroke "lift," as an alternative to the outward motion, whilst still retaining the aforementioned recoil. The intention of this practice was that the lift would facilitate the use of gravity to develop a more physically efficient left-hand stroke. This approach can be seen in Video 6.13. Note the quintuplet sub-division, which served as a rhythmic constraint consistently applied to this developmental area. This was established previously, in the "speed" indicator area as a creative and developmental space free of physical tension that allowed for rhythmic transposition back into the characteristic *bebarongan* sixteenth note sub-division.

Video 6.13 Left-hand pre-stroke lift

The role of gravity in the execution of this stroke was an aspect of the practice that I was compelled to explore further. Although the pre-stroke lift improved the overall efficiency of my left-hand accented stroke I was intrigued by the idea of generating more velocity, and therefore power, to realise the potential of this approach. This was based on procedural outcomes established throughout the left-hand unaccented stroke in the aforementioned discussion concerning speed, particularly the thumb utilised as a pivot point. I began conceptualising the highest position of the pre-stroke lift as a physical pivot point of orientation from where I could then allow my hand to drop onto the skin of the drum and at rate that was potentially faster than gravity. The point of orientation involved the thumb of the left-hand to be in a position of approximately 15-20 cm above the top rim of the drum at an angle of approximately 45 degrees (displayed in Image 6.3).

Image 6.3 High position pre-stroke lift

Video 6.14 provides a demonstration (at three different rates of speed: reduced, original and faster) of the above mentioned process including relevant positional annotations.

Video 6.14 Thumb orientation point

The use of the thumb as an orientation point from which to fall at a speed greater than gravity was assisted by an additional process. This involved the fingers of the left-hand being propelled into the air during the pre-stroke lift. To enable this, I consciously physically disengaged the fingers below the point of the wrist. As a consequence, the upward propulsion resulted in the fingers of the left-hand landing at a height greater than that of the thumb pivot point (displayed in Image 6.4).

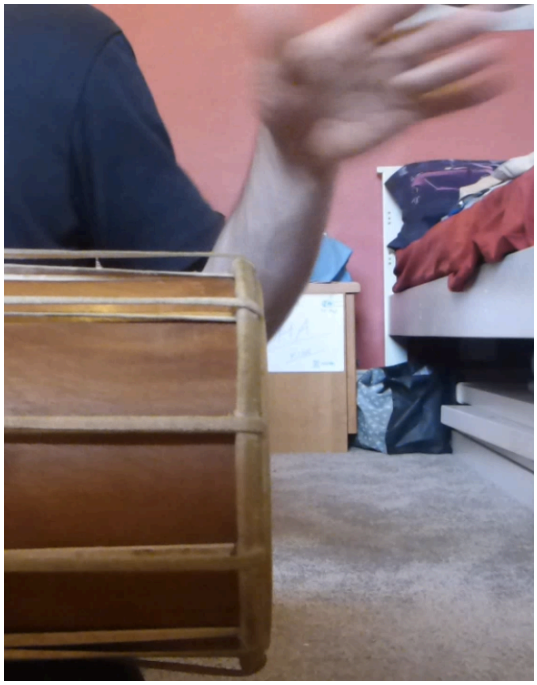

Image 6.4 Finger position as a result of upward propulsion

Throughout this process I recalled the “Inward Elliptical Sweep” drumset procedure described in Chapter Three and noted the similarities and parallels to the emerging *kendang* left-hand technique. In addition, and as a compliment to the disengaged fingers, upward propulsion and thumb pivot point, I consciously implemented the embodied Inward Elliptical Sweep motion as performed on the drumset. The combination of these various physical procedures significantly increased the velocity of the downward motion to complete the accented stroke. The implications on the overall physical efficiency and power generated by this approach became even more apparent upon increasing the tempo of the quintuplet chant space. The final outcome of this developmental phase can be seen in Video 6.15. Note the inclusion of annotations to support the aforementioned hand positions, pivot points and inward ellipses.

Video 6.15 Quick drop stroke/Inward elliptical sweep left-hand accented stroke

The list of specific indicators that emerged during this development period are displayed in Table 6.4.

Indicator Area	Indicators
Power: Left-hand Accented Stroke	• Pivots from the thumb • Thumb remains relaxed and physically disengaged • Striking path forms an ellipsis with maximum velocity reached on the inward/downward curve • Thumb used as a pivot point in the ellipsis reaching a height of approx. 15-20 cm at an estimated 45-degree angle from the top rim of the *kendang*

Table 6.4 Left-hand accented stroke power indicator area with mapped indicators

I will now describe a range of self-generated processes pertaining to the development of the right-hand accented stick strike. In accordance with the positional elements, movement ranges and use of physical pivot points, coupled with clear and measurable procedural outcomes for increasing velocity and therefore overall power in the left-hand accented stroke I became curious as to how these principles may benefit the power of my stick playing.

The process began with a movement range extension of the outward motion of the right-hand accented stick stroke by utilising the little finger of the right-hand as a pivot point. When pivoting from the little finger, the outward motion of the stroke at the intended extended movement range was gauged by the exposure/visual display (through the use of a mirror) of the little, ring and middle fingers of the stick grip at a perpendicular position to the drum skin/rim. This process can be viewed in Video 6.16. As can be seen the little finger pivot point allows for a measurable extended movement range but also increased velocity on the inward motion of the stroke, representative of a boost in overall power. Note the economy of the stick strike path that retains a straight line on the inward/outward motions and is free of any wobbles, twists and other inconsistent movements that may interfere with this path.

Video 6.16 Little finger pivot point

Based on the little finger pivot point procedure and the potential movement range this offered a range of research questions emerged that guided further development of the right-hand accented stick strike. The two most notable questions comprised: how can I train my hand to move further out? And, how can I be sure that it's actually moving that far? In accordance with the self-generated focus of the study, this line of questioning prompted a potential solution and original learning strategy in the form of utilising a second *kendang*. The use of a second drum as a developmental tool is to my knowledge unheard of and represents the type of learning that is possible in the context of an imposed environmental constraint.

In response to the aforementioned research questions the second *kendang* was employed in order to accurately gauge the desired extended movement range of the stroke. The drum was initially to my right-hand side in the same front facing position as the primary *kendang* on the legs (displayed in Image 6.5).

Image 6.5 Initial second *kendang* position

The use of the second *kendang* allowed for a measurable and focused sensory target point through the tip of the stick making contact with the drum therefore confirming the intended movement range. This process is displayed in Video 6.17. Note the increase in the velocity of the inward motion of the stroke and the rapid outward recoil, both essential components for achieving power in my playing.

Video 6.17 Second drum with stick tip sensory process

The stick tip sensory touch process through the use of a second *kendang* proved to be useful for increasing overall power in the right-hand accented stick stroke. To further expand the movement range, the position of the second *kendang* was altered to be placed perpendicular (90-degree angle) to the primary *kendang* (displayed in Image 6.6).

Image 6.6 90 degree second *kendang* position

The revised position of the second *kendang* can also be seen clearly in Video 6.18. In addition to this we can see that the perpendicular position of the second drum forces the right-hand to “open-up” more at a greater angle than that of the aforementioned adjacently positioned second drum. The sensory connection made with the second *kendang* was also deliberately timed with the intention to produce a “flam-esque” quality between the secondary and primary drums. This, in combination with the perpendicular position and the little finger pivot point means the tip of the stick strikes the second *kendang* at potentially the last possible moment in the movement, therefore resulting in maximum velocity of the primary *kendang* stroke.

Video 6.18 Stick-grip release procedure

In addition to this process of generating increased velocity, a “stick-grip release” procedure was built into the practice in order to physically program the removal of any accumulated tension within the stroke. This can also be seen in Video 6.18. A diary entry from September 2019 captures some insightful thoughts concerning this process:

The release of this stroke is allowing the stick to curve towards the shoulder and relieves the stick hand of the energy just used to perform the stroke. At times the stick will need to move back/forth, in/out rather than the up-curve release. The second drum (kendang) is used to develop this, with the rhythm emerging through the movement and then placing it in the context of tempo.

Of significance in this diary entry is the "up-curve release" description, which when coupled with viewing Video 6.18, correlates with the aforementioned "Inward Elliptical Sweeps." In this situation, the direction of the stroke is in opposition: upward rather than downward, however the same distribution of energy is utilised to perform the stroke and equally contributes towards the generation of velocity and therefore power. To distinguish between the two approaches yet unite them conceptually, the "up-curve stick grip release," will be termed as an "Upward Elliptical Sweep."

Of further significance in the above diary entry is the observation that the rhythmic outcomes of the procedures associated with the use of the second *kendang* emerged through movement. By this I mean, the primary developmental focus was the prioritisation and conception of movement and not rhythm and therefore not music. An example of the refinement of this approach emerged in the development of the chant space "Double Drum Stick Chant," featured in Video 6.19.

Video 6.19 Double Drum Stick Chant

Double Drum Stick Chant features a variety of movement based procedures and was designed specifically to progressively increase the physical load of the movements. The intention here was to develop movement shift fluidity whilst maintaining the embodiment of power established in the aforementioned double drum processes. As can be seen in Video 6.19, Double Drum Stick Chant

comprises three distinct parts or movement areas, indicated via annotations in the video.

The first part consists of flam-esque double drum strokes that target direct, focused and efficient outward/inward motions. Note that these are organised in a triplet or three-beat sub-division. The intention here was to refine and "close the gap" between the flam strokes rather than focus on the speed of the continuous non-flam outward/inward motions.

The second part of Double Drum Stick Chant comprises a sequence of left-hand unaccented strokes, a *Cedug* EWE and double drum accented stroke followed by an Upward Elliptical Sweep. This chant is characterised by a muted stroke on the second *kendang*. The purpose of this was to establish a clear sensory target point prior to the proceeding double drum accented stroke and subsequent/resultant Upward Elliptical Sweep.

The third and final part of Double Drum Stick Chant consists of left-hand unaccented strokes followed by double drum accented strokes that conclude with Upward Elliptical Sweeps. As can be seen in Video 6.19, these left-hand/right-hand stroke combinations are structured as systematic phrase length reductions that see the time between Upward Elliptical Sweeps and left-hand unaccented strokes become progressively shorter. The intention with this part of the chant was to teach my body to generate powerful right-hand accented stick strokes with varying rates of frequency using the stick grip release as a means of physical recovery, even if only a micro-second in duration.

The final chant space developed throughout this research period, tiled "*Barong* Double Drum Chant," (featured in Video 6.20) emerged as a means to "wean" myself off the use of the secondary *kendang* and accurately assess the effectiveness of the double drum experiments. In addition to this, *Barong* Double Drum Chant was designed to integrate the range of physical principles via the utilisation of the second *kendang* into a musical context closely associated with the *Barong* dance. The intention here was to gauge the amount of power, yet also overall speed that was now accessible via this approach. As can be heard, the most obvious and transparent element of *Barong* dance music integrated into this chant space is the 8-beat *Baris* melody: The *Baris* melody is one of the two standard melodic options for the first ensemble segment of a *Barong* performance. It immediately follows the *pengawit kendang* introduction (described in Chapter Two).[5]

5 The other melody that may appear in the opening ensemble section is sixteen-beats in length and titled *Topeng*. For further information concerning *gamelan* melodic varieties see Tenzer, *Gamelan Gong Kebyar*.

Video 6.20 *Barong* Double Drum Chant

In order to accurately assess the embodied power and also potential speed capability of the double drum research phase, two distinct movement environments were established (indicated via annotations in Video 6.20). These two movement areas feature right-hand stick playing and can be seen linked together by the aforementioned rhythmically re-transposed quintuplet left-hand cell. Determined as now physically tension free, the bridging left-hand sequences in the chant were two-fold in their purpose:

- To facilitate physical recovery of the right-hand stick playing
- To facilitate embodied transitions between right-side and left-side playing (simulating the realities of the *Barong* dance performance environment/context).

The first movement area in *Barong* Double Drum Chant features variations of characteristic *Barong* dance rhythmic cues. As can be seen in Video 6.20, although the movement range of the stroke is fully extended (exposing the little, ring and middle fingers as indicators), the stick does not actually make contact with the second *kendang*. The chant was also developed and recorded without the use of a mirror for visual sensory feedback to monitor the movement range. This provides insight into the potent implications of the double drum experiments and tangibly documents and presents the physical transformation and resultant embodiment of power.

The second movement area features an additional variation of a characteristic *Barong* dance rhythmic cue, in the form of a continuous yet cellular eighth note rhythm. Variations of this cue are typically used as a transition into the section of the music and dance choreography titled *opak*

lantang (a term meaning long *angsel*).[6] *Opak lantang*, and the preceding eighth note rhythmic cue involve playing at the upper range of speed yet also require the longest periods of sustained power. It is therefore potentially the most physically demanding aspect of a performance of the *Barong* dance.[7] With this in mind the variation of the eighth note *opak lantang* rhythmic cue, seen as the second movement area in Video 6.20, served as an appropriate choice to ascertain the development of embodied power with the additional constraint of rapid speed. In contrast to the first movement area of *Barong* Double Drum Chant, this area involves intentional contact with the second *kendang*. The purpose of this was to train my body to move at the intended range via systemic transitions of contacting and not contacting the second drum (displayed in Image 6.7)

Image 6.7 Contact and non-contact outward stick positions

Throughout this process a parallel was identified with the aforementioned left-hand unaccented stroke development procedure where the speed was achieved through the high velocity of the articulation. The right-hand accented stick stroke, as seen in the second movement area of Video 6.20, embodies similar principles. The overall power of the stroke was increased substantially through a range of specific movements due to the high velocity of the stroke. As an additional outcome, like that of the left-hand unaccented strokes, the high velocity of the stick articulation also allowed the rapid speed of the music to also be accessed in a physically efficient manner.

The list of specific indicators that emerged during the right-hand accented stick stroke development period are displayed in Table 6.5.

6 In other ensembles such as the popular *gamelan gong kebyar* and *gamelan beleganjur*, the term *angsel lantang* is more commonly used.

7 Pande Gde Eka Mardiana, personal communication with author, Batubulan, Bali, May, 2018.

Indicator Area	Indicators
Power: Right-hand Accented Stick Strike	• Stick strike path displays a direct and straight line with both out and in motions • Stick movement/motion is free of any twists/ wobbles or other inconsistent movements that don't display a direct and straight path • Pivots from the little finger with both the outward and inward motion of the accented stick strike • Stick pivots to an almost perpendicular position in proximity to the skin/drum rim visually displaying the little, ring and middle finger grip • The inward motion of the stick strike is at a rapid speed achieved by pivoting from the little finger • Final accented stick strikes within musical phrasing conclude with an Upward Elliptical Sweep and release of stick grip

Table 6.5 Right-hand accented stick stroke power indicator area with mapped indicators

In this chapter I set out the development of a range of self-generated strategies and resultant mapped indicators, pertaining to the "understanding and managing the elements of performance" indicator areas: "sitting position/posture," "speed" and "power." The following chapter continues in a similar manner, briefly re-visiting the *kendang bebarongan* Information Processing model set out in Chapter Five before embarking on a detailed discussion of the final indicator area: "agility."

Chapter Seven
Project Four (Part 3) – Kendang Response

7.1 Understanding and managing the elements of performance continued

Agility

The final indicator area to be discussed is "agility." The term agility (the ability to move quickly and easily, ability to think and understand quickly)[1] conceptually reframes the aforementioned "ability to respond to dance and movement cues," as set out in the self-audit discussion in Chapter Five. This reframing allows for a more generalised, yet more inclusive, conception of this aspect of *kendang bebarongan* performance, allowing a multi-dimensional construct to be established. It includes the ability to respond to dance and movement cues, but also encompasses more broader principles such as moving and thinking with quickness and ease.[2] Like the previously described indicator areas of sitting position/posture, speed and power, the development of agility is primarily concerned with improving *kendang bebarongan* performance ability yet also provides a set of transferable solutions that, when conceived of in this manner, may be applied to a range of other drumming practices.

As presented and described in the Information Processing model in Chapter Five (Figure 5.1), responding to dance and movement cues of the *Barong* is only one aspect of performance that requires a *kendang* player to be agile. To reiterate the amount of information that *kendang* players continually and simultaneously process, in addition to responding to dance cues, they must:

- Determine the tempo of the music
- Generate an almost continual improvised rhythmic flow
- Produce clearly defined drum strokes
- Relay dance movement cues, via dynamic/rhythmic/structural drumming cues to the *gamelan* ensemble
- Mentally process/confirm that these cues have been received.

As described in Chapter Five, this information (in the form of sensory inputs/outputs) is processed and generated through a range of internal and external stimuli. Due to the improvised nature of many aspects of *kendang bebarongan* performance, namely drum patterns and the ordering/timing of

1 *Oxford Dictionary of English*, 3rd ed., s.v. "Agility."

2 This relates closely to the Balinese word and concept "*Elah*." *Elah* as it pertains to *kendang bebarongan* performance means to play without physical or mental burden, to play with ease. This was a topic discussed with Rudita, Merta and Yande during the practitioner-to-practitioner discussions (in Bali, May, 2018) and has the potential for further research.

dance choreography, spontaneous and split-second decisions by the *kendang* player are continually required and often relentless. The re-conceptualisation, and resultant consolidation, of these aspects of performance in the form of agility therefore prompted a range of research questions that guided this final, and possibly most radical, phase of technical and creative development on the *kendang*.

Out of all the indicator areas described thus far, the development of agility posed the most extreme environmental constraint: namely in that I did not have access to a dancer that I could practice with in a way that would enable me to develop this salient skillset. In Bali, *kendang* players are fortunate (due to their environmental constraint) that they have dancers to practice with, and that they are likely to receive opportunities to perform regularly.[3] Performance experience is recognised and valued as a vital aspect of the *kendang bebarongan* developmental process. Of the six *kendang* players that participated in practitioner-to-practitioner discussions, all of them expressed the important role that performance experience plays.[4] Performance experience is elegantly referred to as "*jam terbang*" (Indonesian for "flying time").[5] Whilst in Bali, I accumulated many hours of flying time, both in rehearsal and performance, however performance opportunities of the calibre that I desired and needed in Melbourne, Australia were non-existent.[6] As Yande would continually remind me: I just needed more experience.[7] How could I develop this most important skillset, firstly without a dancer to practice with, and secondly without regular opportunities to perform?

Yande's suggestion was to practise with videos of *Barong* performances as a way to simulate the performance experience.[8] This method of practice was adopted and engaged in regularly, yet as I observed, I was not improving. The practice however was not in vain. Two key issues were identified that I felt prevented improvement. The first issue was that I could quickly memorise the choreography on the videos. This meant I was not responding spontaneously to the dancing and therefore did not simulate the reality of an actual performance situation. The second issue was my responses were still re-active and riddled with mental and physical tension, all of which were identified as problematic factors set out in the self-audit discussion in Chapter Five.

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3 There are a variety of performance opportunities and contexts for *kendang bebarongan* performance in Bali: religious ceremonies, tourist performances, secular competitions and arts festivals. As mentioned previously the length of these performances are dependent on context. Merta provided a profound example of regular performance opportunity during our discussion together, stating that he would accompany 5-6 *Barong* dancers in a row, particularly early on in his development. I Wayan Merta, interview by author, Bali, May, 2018.

4 I Gde Made Indra Sadguna, I Wayan Sudiarsa, I Wayan Sudirana, I Ketut Gede Rudita, I Wayan Merta and Pande Gede Eka Mardiana, interviews by author, Bali, May, 2018.

5 Pande Gde Eka Mardiana, practise session with author, Batubulan, Bali, May, 2018.

6 From the years 2003 – 2009 I consistently performed (and often directed) with several community based Balinese *gamelan* groups in Melbourne, Australia. Whilst the first few years were positive and proved to be fruitful, the last couple of years unfortunately proved to be detrimental to my personal development. This was due to the lack of skill of the groups: the repertoire was performed well under tempo, was often incomplete, and riddled with habitual technical errors that made personal progress unrealistic and the overall experience frustrating and unsatisfying.

7 Pande Gde Eka Mardiana, personal communication with author, Batubulan, Bali, May, 2018.

8 These videos were in the form of You Tube clips yet also videos of Yande's own performances that he would share with me. The videos of Yande's performances (used with permission) functioned as both dance choreography practice tools and also models for *kendang bebarongan* performance expectations.

In response to these issues I designed a range of strategies, concerned with developing the skill of agility in the context of *kendang bebarongan* performance. The practice was staged in the following manner:

1. The development of a relaxed response to external stimuli – moving and thinking with ease
2. The development of a quick response to external stimuli – moving and thinking with quickness.

The process of developing a relaxed response will be described first. The initial approach in developing a relaxed response to the *Barong's* choreography involved adding text sub-titles of each movement into the videos I was practicing with. An example of this is displayed in Video 7.1.

Video 7.1 Practice video example with sub-titles

As can be seen, the sub-titles appear a few seconds before the actual movement occurred. The intention of this was to reduce the amount of anticipatory tension by receiving a preparatory prompt of the approaching movement.[9] Although this method proved to be useful, the task of entering the sub-titles was laborious and lengthy. I also found myself quickly memorising the choreographic sequences, revealing the limitations and shortcomings of this approach. Throughout this process though, I observed how there were varying levels of anticipatory tension linked to specific dance movements. For example, I felt somewhat comfortable with the *Barong's* more vigorous movements including full body shakes, exaggerated left/right steps, jaw clacking and walking/parading, however it was the more delicate and finer movements that were troublesome. One such movement that was identified as being particularly problematic was *seledet* (Balinese word for: to look at through a

9 For further information regarding anticipation and the various ways of categorising anticipation see Dawes and Roozen, *Developing Agility and Quickness*.

corner of the eye, to steal a glance at). An example of the *Barong* executing the *seledet* movement is featured in Video 7.2.[10] Note the rapid rotation of the *Barong's* head from the left and right sides back to the centre.

Video 7.2 Example of *seledet* dance movement

As can be heard, the *seledet* movement is underscored, in a precisely timed manner, by an accented left-hand stroke. Articulating this stroke in alignment with *seledet* was challenging for me in that the *Barong's* movement is consistently sudden with little to no preparation time.

Seledet is typically placed on the second sixteenth note within the final *kempli/kajar* (horizontal gong mounted on a stand, used to perform a steady beat) beat, prior to the sounding of the large gong (as can be heard in Video 7.2 above). A micro-pause proceeds the left-hand accented stroke with a number of possible drum pattern options resuming following the strike of the large gong. Despite this placement providing a sense of certainty, the position of *seledet* can subtly vary. It can also occur within any given cycle of the melody. *Seledet* also appears most frequently within the first melody of a *Barong* performance.[11] With these factors combined, the anticipatory tension I experienced surrounding the underscoring of this movement often impacted negatively on my confidence during this segment of the performance and at times for the sections that followed.

In response to this issue I devised a strategy that would enable the development of a relaxed left-hand stroke response to the *seledet* movement (displayed in Video 7.3). The strategy involved the following elements:

10 For additional information across other forms and genres of Balinese dance concerning *seledet* see Dibia and Ballinger, *Balinese Dance, Drama & Music*; Tenzer, *Gamelan Gong Kebyar*.

11 The two most common melodies are *Baris*, which is 8-beats in length, and *Topeng*, which is a 16-beat melody (both mentioned previously in the notes in Chapter Six). Both melodies are set to the 4-beat metric/gong structure *bapang*. For further information regarding melody types/lengths and metric/gong structures see Tenzer, *Gamelan Gong Kebyar*.

- Limited rhythmic patterning options to reduce the overall improvisational/mental load
- Employment of left-hand unaccented strokes to underscore *seledet*
- Flexible placement of the underscoring/*seledet* stroke.

Video 7.3 *Seledet* left-hand relaxed response strategy

As we can see, the demonstration of this strategy comprises limited rhythmic patterns in the form of left-hand unaccented cells. The intention with this aspect of the practice was to reduce the mental load of having to continually generate an improvisational flow and as a result reduce the amount of overall tension: cells however were rotated systematically to facilitate some element of pattern variation. Note that one of the cellular options is the aforementioned re-transposed quintuplet cell. This provided an opportunity to integrate and contextualise the personalised vocabulary I had developed, yet this choice also facilitated monitoring of the indicator areas pertaining to left-hand unaccented stroke playing. In Video 7.3 the left-hand unaccented stroke used to underscore the *seledet* movement can also be seen applied to other dance movements. Again, this was to reduce the overall amount of information processing with the purpose of responding with ease, irrespective of the specific dance movement.

Additionally, the selected left-hand unaccented cells also resulted in flexible placement of underscored *seledet* left-hand strokes. Throughout my practice sessions with Yande I was offered a specific fixed hand-pattern sequence that facilitated the underscoring of *seledet* (displayed in Figure 7.1)

Figure 7.1 *Seledet* underscoring hand-pattern

Despite this providing a seemingly clear solution, the hand-pattern was limited to only one possible rhythmic placement: the second sixteenth note of the beat just prior to the sounding of the large gong. An example of this is displayed in Video 7.4.

Video 7.4 *Seledet* with fixed underscore by *kendang*

This proved to be problematic for me in that the fixed *seledet* hand pattern required a shift out of the preceding improvisational flow. I therefore experienced a disconnect between the improvisational flow I was generating and the fixed hand-pattern to underscore *seledet*. Furthermore, due to the split-second reflex often required to underscore *seledet*, the fixed hand-pattern would often be required to commence before the *Barong* had actually performed the *seledet* movement. In response to this issue, the aforementioned strategy, as displayed in Video 7.3, sees the underscoring of *seledet* integrated into the improvisational flow, therefore eliminating the previously apparent disconnect and facilitating a reflexive response that was more appropriate to the actual timing of the *Barong's seledet* movement.

I will now describe the process of developing a quick response. Following the aforementioned research period concerning the embodiment of a relaxed response to the *Barong's* dance choreography, I set out to establish a range of strategies that would facilitate the development of a quick response. Upon reflecting on the previous method (practising with video performances) of learning how to respond to the *Barong's* movements, I reduced this aspect of performance to what I felt was the primary skill that needed to be developed: responding to external stimuli. This was somewhat simulated in the video practice method, however by quickly memorising the choreographic sequence in the videos, I could knowingly anticipate the response which led to a situation of predictability. I therefore required a practice environment that would facilitate an "unknowing" of what

would be next, generated by something externally, which did not necessarily need to be the specific dance movements. A rather intriguing and initially puzzling research question emerged which guided this final phase of the project: is there a way to randomly organise the external stimuli that would allow for the development of a quick response?

In response to this question a range of highly personalised strategies were conceived of and staged in the following manner, with the purpose of exploring and generating varying levels of randomly timed external stimuli:

1. The use of an interval timer
2. The development and use of a coding software program
3. The combined use of interval timers and coding software program.

The first stage of this development phase involved the use of an interval timer. The interval timer (aptly titled “Interval Timer”) I used, was a free app downloaded to my phone that allowed for two separate time ranges to be programed along with the desired number of “sets” of these paired time ranges.[12] In the Interval Timer app these separate time ranges are termed as “work” and “rest” and were designed in this manner to be used within the context of physical exercise. I had used the app as intended as part of my fitness regime however, I then repurposed the interval timer for use in a contrasting context.[13] A screenshot of the Interval Timer’s main display is shown in Image 7.1.

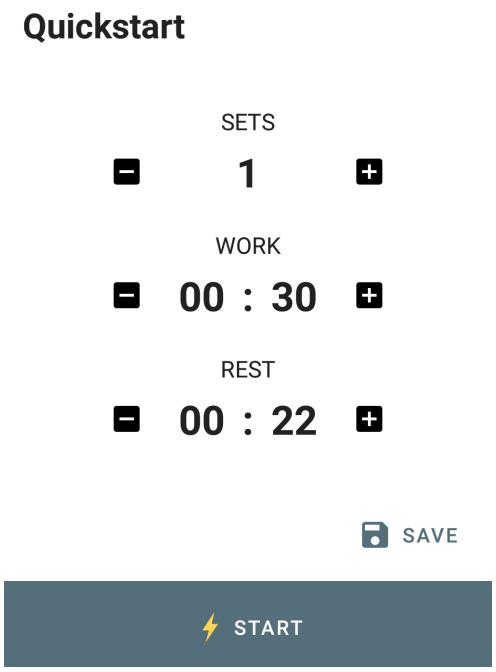

Image 7.1 Interval Timer main display screenshot

12 Link to app: https://play.google.com/store/apps/details?id=cc.dreamspark.intervaltimer&hl=en_IE

13 The use of interval timers in the context of musical instrument practice is not a new idea, however the way I have utilised it in this research is a method that I’m currently and otherwise unaware of.

The Interval Timer experiment involved setting two different time ranges in the app using the “work” and “rest” parameters. Two different *kendang* cells were then assigned to each of these time periods. At the conclusion of each timer range the app would signal a “beep” in the form of an auditory cue that would externally indicate the change to the next *kendang* pattern. This process can be seen in Video 7.5. Although a range of pattern combinations were explored, Video 7.5 features the aforementioned re-transposed quintuplet cell in a combined unaccented/accented form. Shifting between unaccented and accented modes is commonplace within the *kendang bebarongan* performance context. This aspect of practice was therefore two-fold: firstly, a deliberate simulation of the performance environment and secondly to explore combinations of patterns and cells that were previously identified as areas of physical and mental tension.

Video 7.5 Interval Timer experiment

As can be heard, the drumming is accompanied by the 8-beat *Baris* melody (described previously). The “beep” of the interval timer can then be heard at various points throughout the demonstration, indicating the change of *kendang* pattern. The concept of using the interval timer was that the timing ranges (in seconds) were not co-ordinated exactly with the timing and tempo of the melody. Because of this lack of exact synchronisation, the interval timer beep would appear at any point in the melodic cycle. This facilitated a certain amount of unpredictability as to when the external stimulus sounded in relation to the melody.

The shortcomings of the Interval Timer method however were soon identified. Because only two timing ranges were possible in the app, I quickly developed a sense for when the change would occur, through my short-term memory of the assigned timing distances. I concluded that the external stimuli, in the form of the interval timer beeps, were not at all random in their timing distances and was therefore compelled to design a method that would facilitate completely random timing

distances. How about using two interval timers?

The utilisation of two interval timers (same app on two separate phones) in this manner allowed for four different timing ranges to be set, and because they were operating simultaneously the timing of the beeps were completely random and suitably unpredictable. Video 7.6 features a demonstration of the two interval timer approach.

Video 7.6 Two interval timer method demonstration

During this period of development, I increased the number of cells to change between. The intention here was to introduce a greater mental load into to the practice that reflected the realities of an actual performance situation. As can be heard in the Video 7.6 two interval timer demonstration, there are a total of three cells: the previously described re-transposed quintuplet cell, plus two six-note cell variants, both common staples within *kendang bebarongan* vocabulary. As can be heard, each cell is played as an unaccented version followed by an accented version, indicated in the demonstration via annotations. This therefore provided a total of six cells due to the unaccented/accented variants. The cells were performed systematically and sequentially from 1- 6 and then repeated in that same order.

The accented variants of each unaccented cell were incorporated into the practice as a way of simulating the unpredictable rhythmic placement and underscoring of the aforementioned *seledet* dance movement. As a result of the six cell variants coupled with the randomised timing distances provided by the two interval timers it was completely unpredictable when change would occur. However, I was still in control of the sequence of the chosen cells. In a performance of the *Barong* dance the externally determined (by the *Barong*) timing between *kendang* patterns/cells is constant and often relentless, however this can also be coupled with the externally determined ordering of *kendang* patterns. How could I simulate this situation? How could I design the practice to be more

unpredictable, yet with such specific requirements? It became apparent that what I was seeking to establish was a practice environment that involved a handing over of control, in the form of timing distances/ranges and pattern/cell ordering, to the external stimuli. I soon identified that the practice environment I required needed to become more unpredictable, unstable and potentially highly volatile. The vision was clear, yet how would I actually achieve this?

This second stage of development involved the use of online computer coding software to design a program that could randomly generate time distances/ranges and that would also be able to randomly order *kendang* patterns. This emerged in response to a game that appears on the Chrome computer browser when there is no internet connection.[14] An example of this game is displayed in Video 7.7.

Video 7.7 Chrome browser no-internet game

The game is what is a commonly known as an "endless runner game." As we can see in Video 7.7 a variety of objects (cacti etc.) emerge from the right-side of the screen and the dinosaur must then jump over these objects in order for the game to continue. The type of object, the speed in which it travels and the proximity of each object relative to the next as they appear on the screen is unknown to the game player. These parameters were particularly relevant to my practice needs, which prompted a question for this next stage of development: what if the objects represented *kendang* patterns? As intriguing as the idea was, it was physically not possible to play the game and the *kendang* at the same time. Could I therefore design my own game that was specific to my practice needs?

I discussed the idea with my son, who was familiar with computer coding and game design. He directed me to the free community based online program "Scratch," which led to the development

14 The game has many titles, however is often referred to as the "Google Dinosaur Game."

of a practice-game prototype that I called “Drumming Randomiser Experiment.”[15] An example of the Drumming Randomiser Experiment (referred to as DRE from here on) game can be seen in Video 7.8.

Video 7.8 Drumming Randomiser Experiment game example

As we can see, circles emerge from the right-side of the screen and contain a number. In practice, *kendang* patterns/cells were assigned to each number so that each time that number appeared, the corresponding *kendang* pattern was played. The design of the game facilitated a number range of 1- 10, so therefore a maximum of ten possible *kendang* patterns. The speed in which the circled numbers travelled across the screen was also variable, with a timing range of 1 -30 seconds. The coding of the game was configured so that the sequence of circled numbers and timing ranges (both pre-selected by the game player) would be independent from each other and most importantly, generated randomly. A demonstration utilising the DRE game is displayed in Video 7.9.

15 A link to the Scratch site: https://scratch.mit.edu/about

Video 7.9 Demonstration utilising the DRE game

As displayed by the supporting annotations, three *kendang* cells were selected (each from previously described indicator areas and associated chant spaces) and assigned accordingly to the numbers 1, 2 and 3. Although the game is not visible in the demonstration, the annotations reveal the potential of the game in the form of randomly sequenced patterns/cells and the duration in which they appear on the screen. The DRE game method proved to be useful in developing agility with a greater level of determinants stemming from the external stimuli. However, as the circled numbers travelled across the screen I could anticipate when the next number would appear and would prepare accordingly, even though I was unaware of what the number, and therefore assigned *kendang* pattern/cell would be. Could the game be modified so that I had no way of knowing when the circled numbers would change?

This question prompted a modification of the DRE game, of which the final version is displayed in Video 7.10. As we can see, the circled numbers are located in the centre of the screen and change randomly from one number to the next without warning. This version of the DRE game also includes “sliders” on the main display to alter a variety of settings. Previously such alterations involved a modification of the game’s code. The top left-hand corner of the game display features sliders for setting the time ranges: minimum 1- 5 seconds and maximum 5 -30 seconds. The selected time ranges determine the rate in which the circled numbers change. The rates of change are random, yet no less than the selected minimum time and no greater than the selected maximum time. The slider in the top right-hand corner of the display involves the range of numbers that appear within the circle in the centre of the screen. These range from 1 -12. In practice, individual *kendang* patterns/cells were assigned to each number. Although the number range allowed for a maximum of twelve patterns/cells, I typically explored a range of three – six. The final slider, below the number range

slider on the right-side of the display, titled “freestyle,” functioned as a type of “wild card” where any pattern/cell, or combinations of, could be played. The freestyle possibility facilitated both spontaneous pattern selection and therefore pattern variation each time the freestyle circle appeared, placing further demand on the overall mental processing load.

Video 7.10 Final version of the DRE game

The final version of the DRE game yielded further results through the various modifications. The refined display and integration of slider functions allowed a more flexible and user-friendly approach, and overall my response time became “sharper” due to the unpredictability and completely random timing of the circled numbers, now in the centre of the screen. Despite the progress I had made in developing a quick response, I still felt there was more to be explored. The DRE game functioned especially well in providing randomised external visual stimuli. This is certainly a parallel with the *Barong* dance where many of the stimuli are indeed visual (described earlier). However, there also exists external auditory stimuli, most notably in the form of clacking jaws. An example of this can be viewed in Video 7.11.

Video 7.11 Example of *Barong* clacking jaws

How could I incorporate external auditory stimuli into the DRE game practice environment? What if I combined the interval timer method with the DRE game? It was an intriguing, yet also rather radical idea. I decided to employ the aforementioned left-hand non-accented and accented approach as the developmental focus for the initial stage of this experiment. This was based primarily on the need to develop more quickness in shifting between left-hand focused cells, and the associated accent placements, as pertaining to the split-second response and varied rhythmic placement required to underscore the *seledet* movement. In order to facilitate the requirements relating to the underscoring of *seledet*, and establish a framework for practice, I selected the same three cells as appearing in the Video 7.6 demonstration of the two interval timer method. The framework for the development of quickness and agility is displayed as Table 7.1.

Cell #1	Cell #2	Cell #3
Interval Timer “beep” Round one: 1st duration Round two: 2nd duration	Interval Timer “beep” Round one: 2nd duration Round two: 1st duration	Interval Timer “beep” Round one: 1st duration Round two: 2nd duration
DRE Numbers (randomised order and duration) ① - unaccented ② - accented variant 1 ③ - accented variant 2	DRE Numbers (randomised order and duration) ① - unaccented ② - accented variant 1 ③ - accented variant 2	DRE Numbers (randomised order and duration) ① - unaccented ② - accented variant 1 ③ - accented variant 2

Table 7.1 Combined DRE game/Interval Timer quickness/agility developmental framework

A demonstration of this developmental framework in action can be seen in Video 7.12.

Video 7.12 Demonstration of DRE game/Interval Timer quickness/agility framework

As displayed in the Table 7.1 framework (read from left-to-right), the Video 7.12 demonstration features systematic interchanges between the three cells, with duration determined by interval timer beeps. At the same time the DRE game is generating randomised (order and duration) circled numbers, with a number range of 1 – 3. For this experiment, an unaccented version of each cell was assigned to the circled number 1, whilst an accented variant of each cell assigned to the circled number 2 and a second accented variant of each cell assigned to the circled number 3. The framework also utilised the interval timer setting of two possible timing ranges. These were set at two different lengths. Any sense of the length of the interval time ranges was consequently obscured. This was primarily due to the attention required to respond to the random circled number changes, yet also as a result of the two possible timing ranges operating simultaneously with the three cell sequences. This presents a rotational process between the interval timing ranges and amount of chosen cells, completely obscuring any sense of when the interval timer beeps would occur.

The experience of utilising the quickness/agility framework in practice was satisfactorily unpredictable and adhered to the requirements of developing an appropriate responsive skillset to accompany the *Barong* dance. Despite the complete randomness associated with the practice, I did not feel tense or overwhelmed and the experience did not feel at all wild or chaotic. I felt focused and strangely in control. This confirmed sense of control was somewhat contrary to the considerable amount of unpredictability that was central to this practice, however I no longer felt like I was "following" the circled number changes (equating to movements by the *Barong*) or waiting for them to change. By accepting and embracing the certainty of continual change my responses were no longer re-active. In many ways, I felt like I was in control even though I was not aware of what and when things would change. In my discussions with both Yande and Merta, they both expressed how they would give the impression that they are leading the changes in *Barong* dance choreography through their *kendang* playing, even though the *Barong* is actually determining the changes.[16] Through practising and exploring the quickness/agility developmental framework in the manner described, I felt I had acquired a clear sense of what both Yande and Merta were impressing upon me.

It is apparent that the multi-staged aspect of the process: video sub-titles, interval timers, DRE game first version, DRE game final version and then combined DRE game with interval timers allowed for quickness and agility to be progressively developed. The removal of physical and mental tension, retained throughout all phases of the experiment, was a vital aspect of the process. The removal of such tension, set out as the first stage of the agility development process: "developing a relaxed response," was pivotal in that it facilitated an embodiment, or physical re-programming

16 Pande Gde Eka Mardiana and I Wayan Merta, interviews by author, Batubulan and Sanur, Bali, May, 2018. In a more casual conversation with Yande he expanded upon this idea by stating that he tries to "dominate" when accompanying the dance, by being so assertive with his playing that the dancer sometimes can be convinced that Yande is in control. According to Yande this is especially the case with less experienced *Barong* dancers.

of the way I responded to external stimuli. It therefore established a valuable technical foundation for gradual amounts of external stimuli to be introduced whilst still retaining a relaxed response. The experiment thus brought together two primary states of performative action, both operating continuously and simultaneously: an internal state of stability; a relaxed response, and a constant state of instability; requiring a quick response. This procedural and conceptual outcome is therefore termed as "Turbulent Dexterity." "Turbulent," referring to the continual interchange and resultant unstable state via randomised external stimuli, whilst "Dexterity" refers to the ability to think both quickly yet also effectively.

Following this research phase, I became curious as to whether or not the quickness/agility developmental framework and concept of "Turbulent Dexterity" could assist my *kendang* playing in the situation where the *kendang* player performs without the *Barong*. In the context of the *Barong* dance the most obvious of these is the opening *pengawit kendang* (described previously in Chapter Two).[17] As mentioned in Chapter Two, the *pengawit kendang* comprises the following salient features:

- Features the *kendang* playing entirely solo (without *gamelan* ensemble)
- Features improvised left-hand focused patterning
- The left-hand focused patterning forms extended phrases segmented by right-hand stick strike variations.

Table 7.2 displays an additional practice framework in the contrasting *pengawit kendang* context.

17 There is also the rich instrumental repertoire associated with performances of the *Barong* dance. This repertoire is termed generally as "*tabuh bebraongan*" with the word *tabuh* referring to instrumental song or song without dance. *Tabuh bebarongan* typically open a performance of the *Barong* dance and function as a prelude.

Cell #1	Cell #2	Cell #3
Interval Timer "beep" Round one: 1st duration Round two: 2nd duration	Interval Timer "beep" Round one: 2nd duration Round two: 1st duration	Interval Timer "beep" Round one: 1st duration Round two: 2nd duration
DRE Numbers (randomised order and duration) ① - unaccented ② - accented variant 1 ③ - accented variant 2 ④ - *cedugan* variation 1 ⑤ - *cedugan* variation 2 ⑥ - *cedugan* variation 3	DRE Numbers (randomised order and duration) ① - unaccented ② - accented variant 1 ③ - accented variant 2 ④ - *cedugan* variation 1 ⑤ - *cedugan* variation 2 ⑥ - *cedugan* variation 3	DRE Numbers (randomised order and duration) ① - unaccented ② - accented variant 1 ③ - accented variant 2 ④ - *cedugan* variation 1 ⑤ - *cedugan* variation 2 ⑥ - *cedugan* variation 3

Table 7.2 *Pengawit kendang* contextual application of DRE game/Interval timer quickness/agility developmental framework

As can be seen in Table 7.2, this version of the framework incorporates the above mentioned salient features of the *pengawit kendang*. The most apparent of these is represented and displayed in the "DRE Number" section of the Table which sees the inclusion of three additional circled numbers: 4, 5 and 6. Each of these circled numbers was assigned a right-hand stick strike *cedugan* variation. A demonstration of the Table 7.2 *pengawit kendang* developmental framework in action can be viewed in Video 7.13. As can be seen, the three right-hand stick strike *cedugan* variations offered a range of ways to conclude varied durations of left-hand focused cellular activity (represented by DRE Numbers 1,2 and 3). Consequently, it increased the complexity but also highlighted the potential of the framework and reinforced the concept of Turbulent Dexterity. Additionally, by practising in this manner, I was also introduced to cellular combinations and stick strike phrase conclusions that I might not otherwise have arrived at via more conventional practice methods. By engaging with this framework in this contrasting context, the process therefore resulted in an expanded personalised improvisational *kendang bebarongan* vocabulary.

Video 7.13 Demonstration of *pengawit kendang* contextual application of DRE game/Interval timer quickness/agility developmental framework

The list of specific indicators that emerged during the agility research period are displayed in Table 7.3.

Indicator Area	Indicators
Agility	• Maintains a varied and uninhibited rhythmic flow without mental and physical hesitation despite the unknown/ improvised choreographic sequence of the dance • Responds appropriately and without hesitation, in an anticipatory manner, to the choreography of the dance giving the impression that the player is leading rather than following • Transitions fluidly between improvised patterning and fixed drum stroke-dance movement alignments including *seledet*, *nyanjek* and all *angsel* varieties

Table 7.3 Agility indicator area with mapped indicators

7.2 The complete self-assessment indicator model

In order to consolidate the practical outcomes set out in the preceding two chapters a complete version of the Self-Assessment Indicator Model has been compiled and displayed as Table 7.4. As can be seen, Table 7.4 includes all of the indicator areas and associated mapped indicators pertaining to "Understanding and Managing the Elements of Performance." In addition to the thirty-three video demonstrations and corresponding musical "chant spaces," displayed throughout the "*Kendang* Response" project, the complete Self-Assessment Indicator Model represents a significant and primary research outcome representative of this period of the study.

Understanding and Managing the Elements of Performance	
Indicator Area	**Indicators**
Sitting Position/Posture	• Can sit comfortably with a straight back, relaxed neck and shoulders with head facing forward • Legs are configured (stacked one on top of the other) so they are as flat as possible allowing the drum to balance freely without physical assistance • Drum can be positioned on the legs so that the right skin/drum rim remains aligned with the player's shoulder • Demonstrates seating position so that the stick can move freely without any physical obstacles in its path
Speed	• Understands and actively takes advantages of breaks in the music/drumming to physically dis-engage and recover • Understands and actively selects patterns, when required, which allow for physical relief whilst maintaining the tempo and intensity of the music • Maintains a varied improvisational flow free of any hesitation and "tongue-tying" inhibitors • Understands and actively engages in strategies which represent physical recovery and relief *Left-hand Technique* • Pivots from the thumb • Thumb remains relaxed and physically dis-engaged and in close proximity to the top of the drum rim • The four fingers demonstrate rapid oscillations when striking: indicated by high velocity inward movement • Wrist evidences physical dis-engagement with an appearance of the fingers hanging vertically

(Continued over page)

Understanding and Managing the Elements of Performance	
Power	*Left-hand Accented Stroke* • Pivots from the thumb • Thumb remains relaxed and physically dis-engaged • Striking path forms an ellipsis with maximum velocity reached on the inward/downward curve • Thumb used as a pivot point in the ellipsis reaching a height of approx. 15-20 cm at an estimated 45-degree angle from the top rim of the *kendang* *Right-hand Accented Stick Strike* • Stick strike path displays a direct and straight line with both out and in motions • Stick movement/motion is free of any twists/wobbles or other inconsistent movements that don't display a direct and straight path • Pivots from the little finger with both the outward and inward motion of the accented stick strike • Stick pivots to an almost perpendicular position in proximity to the skin/drum rim visually displaying the little, ring and middle finger grip • The inward motion of the stick strike is at a rapid speed achieved by pivoting from the little finger • Final accented stick strikes within musical phrasing conclude with an Upward Elliptical Sweep and release of stick grip
Agility	• Maintains a varied and un-inhibited rhythmic flow without mental and physical hesitation despite the unknown/improvised choreographic sequence of the dance • Responds appropriately and without hesitation, in an anticipatory manner, to the choreography of the dance giving the impression that the player is leading rather than following • Transitions fluidly between improvised patterning and fixed drum stroke-dance movement alignments including *seledet*, *nyanjek* and all *angsel* varieties

Table 7.4 Complete Self-Assessment Indicator Model

7.3 Post-indicator insights and reflections

The motivation to explore the potential of the quickness/agility developmental framework and the concept of turbulent dexterity in a contrasting context (playing without the dance) emerged primarily from a rather insightful moment in the study. Once the taxonomy of indicator areas (displayed in Table 7.4) had crystalised, I assumed "great, the work is done, now to play through a complete version of a *Barong* performance." This assumption turned out to be powerfully illuminating.

The process began with playing the customary opening of a *Barong* dance performance, the aforementioned *pengawit kendang*. Previously, the *pengawit kendang* that I performed was a sequence that was prescribed by Yande. It was a fixed and fully composed sequence that met the aesthetic requirements of the performance (the exact structure of which is described and analysed in Chapter Two).[18]

Upon playing the *pengawit kendang* I knew that something was not right. However, I proceeded into the next section of the music comprising the formal entry of *gamelan* accompaniment. It became even more apparent that something was indeed not right. I stopped and reflected. My playing felt disconnected, awkward and clumsy. It felt like I was playing someone else's music (which I admittedly was: these were Yande's patterns) and that I was trying to play it through someone else's hands: Yande's. I quickly realised all the work I had done, through the development of the various Indicator Areas, had been profoundly transformative and had facilitated the configuration of my hands and therefore myself to play in a different and highly personalised way.

I reminded myself of the specific Indicators (although represented in text and table form in this thesis I had memorised and internalised them all) and played again, this time with the vocabulary that had emerged throughout the indicator development process. This time, the experience was significantly different, relaxed, assertive, powerful and conveyed a level of confidence that I had not experienced when playing Yande's vocabulary. Through my own self-generated process, involving an individualised technical developmental approach and the formation of new *kendang* vocabulary whilst isolated and environmentally constrained, I had internalised the elements of *kendang bebarongan* performance at a level that could not have been anticipated prior to commencing this project.

The indicator areas and specific mapped indicators clearly represent the process of highly personalised technical development, as described throughout the last two chapters, yet the vocabulary that emerged throughout the process was inextricably linked to these technical procedures. The process was not simply technical development for the purpose of refining drumming technique

18 One of topics explored during the practitioner-to-practitioner discussions with the six participating *kendang* players was the *pengawit kendang*. The discussions revealed highly individually technical and conceptual approaches to this section of music. Considering the limited research conducted on this subject (currently I am unaware of any other scholarly activity other than what is presented in this thesis) further study in this area would be a fruitful endeavour.

that could be applied to any vocabulary. The emergent vocabulary provided context for the various technical areas but more importantly became a way of playing the instrument that was particular to myself and my way of developing and practicing whilst in accordance with the aesthetic requirements of the drumming and music. I must reiterate that the concept of a non-Balinese musician creating their own vocabulary and personalised technical approach to playing the *kendang* is currently unheard of. The significance of the research from this perspective is therefore apparent.

I reflected again on Merta's thoughts and comments that "we must know our own *keplakan* (drum strokes)," and that "we must know our own strength and power" and what this meant for my own playing from the "post-indicator" perspective, but also for the entire study.[19] Although it might not be clear exactly what Merta was proposing here, the implications of his insights are represented potently throughout the pages of this thesis. The research is therefore demonstrative of the high-resolution level of detail, process and individual thought required to perform at an elite level, such as that of accomplished *kendang bebarongan* drummers.

I finally understood what Merta was expressing during our time together: finding my own way and creating my own process was what was required to perform at a level that transcended my former way of playing. The decision to embark on this study however was paramount in this process in that it facilitated the exploration and design of alternative, unconventional and sometimes radical approaches to the development of a skillset required for musical performance. The process of developing a considerably higher standard of playing through researching the possibilities of a personalised approach allowed me to solve several long-standing issues that are not only central to *kendang bebarongan* performance but also many other drumming practices worldwide.

To conclude, throughout this chapter I set out the development of the agility indicator area pertaining to understanding the elements of *kendang bebarongan* performance. Throughout the establishment of the agility indicator area I highlighted a range of strategies in response to the subsidiary research question: how could I develop the agility skillset, without a dancer to practice with, and without regular opportunities to perform? The response to this question, represented in the embedded videos throughout the chapter and the various agility indicator areas, highlights the potential of a self-generated and environmentally constrained approach. The complete Self-Assessment Indicator model presented in the concluding moments of the chapter further evidences the potential of this approach in developing some of the most fundamental skills of *kendang bebarongan* performance.

19 I Wayan Merta, interview by author, Sanur, Bali, May 13, 2018.

Chapter Eight
Conclusion

Throughout this thesis, I established a range of original strategies for creative and technical development on the drumset and Balinese *kendang* in response to my performance experience on both instruments and to respond to a set of research questions outlined in Chapter One. In Chapter Two I began by identifying a cellular hand-patterning vocabulary pertaining to *kendang bebarongan*. Through the analysis of this vocabulary I traced direct links between the physical aspects of performance and hand-patterning design. In Chapter Three I established a taxonomy of original developmental procedures on the drumset in response to a range of *kendang bebarongan* conceptual prompts. These processes were theorised in the Spectrum of Influence model which categorised a range of ways I responded to *kendang bebarongan* in a manner that was not literal translation. The practitioner-to practitioner discussion with I Wayan Merta in Chapter Four "Learning from the Stick," identified a series of conceptual prompts relating to the role of the *panggul* in *kendang bebarongan* development and performance. The prompts, concerned primarily with movement and physical efficiency, provided another context to establish a range of developmental processes on the drumset which were also not of literal translation.

The question of how I could integrate the experience of becoming a Balinese *kendang* player into my drumset playing in a way other than literal translation has been addressed, if not fully answered by the research outcomes set out in these pages. This is evident in the range of categorised developmental processes, the suite of creative works for solo drumset featured in Chapter Three, the creative work "Stick to Skin," a range of original extended performance techniques and the crafting of original musical instrument hardware. These outcomes represent the scope of creative output which emerged from investigating how these two disparate drumming traditions can experientially interact. Whilst this study is the first of its kind, as I am aware, to document experiential interactions between Balinese drumming and drumset traditions it is my hope that researchers and performers alike will explore similar interactions between other drumming practices.

The creative works for solo drumset and demonstrative video excerpts displayed throughout this thesis also represent the crystalisation of a unique identity and original conception of drumset performance stemming from my experience of becoming a *kendang* player. This is evident in the Inward Elliptical Sweep (Chapter Three), the Dynamic Rotations concept (Chapter Three) and the conception of cellular layered stick/bare hand playing as seen in the solo drumset performance "Stick to Skin" (Chapter Four). Although the range of procedures set out in these pages resulted directly from Balinese conceptual thought, they are malleable, free of stylistic association, and therefore likely to produce different results in other musical contexts. I have since explored the application of

these techniques and resultant drumset vocabulary in a variety of ensemble contexts in the form of accompanying and group improvisation. I intend to use this as a fundamental vocabulary that can guide my creative choices in a range of contexts to further solidify and expand the unique identity I have already established on the instrument throughout this project. Additionally, the kinetic nature of these processes provides insight into the potential of a mode of practice that prioritises movement rather than sound. Furthermore, procedures emerging from the use of apparatus such as blindfolds and skipping ropes illuminate the potential of non-musical developmental pathways that result in original musical outcomes.

In Chapter Five I transitioned from a range of responses on the drumset to a dedicated response on the *kendang*. I began by setting out an original model for viewing *kendang bebarongan* performance from the practitioner's perspective. I then proceeded with a self-audit of my own *kendang* playing before embarking on a technical reset in response to technical observations of Merta's *kendang* playing. Chapters Six and Seven then set out a range of self-generated strategies for technical and creative development on the *kendang*. The procedures set out in these two chapters stemmed directly from the self-generated developmental approaches initiated throughout the aforementioned drumset focused chapters. This culminated in the formation of an indicator model stemming from an unrelated discipline through the work of Thomas Engesser. The indicator model resulted in a high resolution system for self-assessing technical aspects of my own *kendang bebarongan* performance.

Over the years, the time I spent in Bali provided valuable opportunities to practise, converse, engage and perform with some exceptionally skilled *kendang* players. Being exposed to this level of playing was important firstly to learn what is expected, but secondly to know what is possible, and in this way validating practice-based fieldwork as a research method. Although the expectations and potential skill level were at times directly in front of me, the experiences did not teach me "how" to tangibly achieve the required level of performance. As an extension of my work on the drumset I investigated alternative approaches to learning to play the *kendang* to solve some long-standing technical issues that I had not found answers to within the traditional mode of learning in Bali. In addition to formulating solutions to these issues I developed an identity on the *kendang* through the creation of a set of original "chant" works (Chapters Six and Seven). These were specific to a range of categorised performative areas pertaining to *kendang bebarongan* allowing the drumming to be viewed from a practitioner's perspective. Although outside the Balinese traditional performance context the creative works in these chapters represent an original contribution to Balinese *kendang* vocabulary.

The self-generated strategies that crystalised throughout this study have revealed the amount of process required to perform at a high-level on a musical instrument, such as the *kendang*. However, when viewing a performance at this level, the developmental detail is often not apparent.

Throughout this study it is evident that high calibre Balinese musicians learn, develop and perform in equally detailed ways and that this level of high resolution process is highly individual. This was endorsed by all six *kendang* players that participated in the practitioner-to-practitioner discussions and represented in the interview footage featuring Merta. It is my hope that researching practitioners will embrace similar methods set out in this thesis and seek further insight into individual and high-level musical development.

In terms of the broader implications of this research, the developmental procedures presented throughout this thesis are not intended to remain within the confines of Balinese *kendang* playing, or drumset performance. It is hoped that this study offers a set of transferable and adaptable solutions in the form of categorised processes and self-assessment models that could be applied to other drumming practices. The Spectrum of Influence model, detailed in Chapter Three, offers a template for how practitioners from any background or tradition could filter musical influence of varying degrees, reflective of their experience, into their practice. The potential for a range of creative outputs, including new musical works, that a model such as this offers, is ripe for further lines of investigation. Furthermore, principles such as speed, power and agility are recurring principles that exist within many forms of drumming. Due to the virtuosity sometimes associated with these principles they are often the performative hurdles that inhibit many performers from progressing to a higher and more desirable skill level. As Merta asserted during our discussion together: “there are many players that don’t actually reach this level and can play okay/so-so. It’s getting beyond this, that’s what’s most difficult about *kendang bebarongan*.”[1] The self-assessment indicator model detailed in Chapters Six and Seven provides a model for practitioners to develop a personalised system for the development of such principles to the level impressed upon me by my Balinese counterparts.

Finally, as a result of the significant increase in interest and prolific development in *kendang bebarongan* across the last two decades in Bali, represented by the vibrant *lomba kendang* scene, it is fertile ground for future lines of enquiry. Although the research set out in these pages is the first known study into *kendang bebarongan* there is much more to be explored. It is hoped that the outcomes of the research in these pages have illuminated the potential for further research from the practitioner’s perspective.

1 I Wayan Merta, interview by author, Sanur, Bali, May 13, 2018.

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Appendix 1: Glossary of Terms used in Balinese Music

Angsel: strongly articulated dance movement and/or musical rhythm. In the context of *kendang bebarongan*, *angsel* can be initiated by dancer or *kendang* player depending on the section of the music/segment of the performance

Bapang: an even numbered beat gong/metric structure, often cyclic, characterised by the small hanging *kemong* gong creating symmetrical division by de-marking the half way point

Baris: an eight-beat melody typically set to the eight-beat gong/metric structure *gilak*, however in the context of *kendang bebarongan* the melody is set to a four-beat *bapang* structure

Barong: a mythical animal-type creature, often a lion as in the *Barong Ket*, depicted in a masked dance requiring two dancers, one co-ordinating the head and front legs, the second co-ordinating the tail and hind legs

Bayu: force, energy, strength and power

Cedugan: strikes on the *kendang* utilising a *panggul*

Elah: easy, with no hindrance; to be able to overcome the emotional, mental and physical burden of playing *kendang bebarongan* and therefore perform in a way that is comfortable/relaxed and full of expression

Gamelan: term for the largely percussive ensembles of Bali and Java (I)

Gamelan Beleganjur: a processional *gamelan* of gongs, drums and cymbals used in ceremonial and competition contexts (H)

Gamelan Geguntangan: a small portable *gamelan* that accompanies *arja* performances including serval bamboo flutes with the omission of metallophones typical of most Balinese *gamelan* (H)

Gamelan Gong Kebyar: five-tone *gamelan* that emerged early in the twentieth century known for its complex compositions and virtuosic performance techniques (H)

Gamelan Rindik: also known as *tingklik*, a small portable *gamelan* comprising two bamboo keyed xylophones with the addition of a small bamboo flute (H)

Gamelan Semar Pegulingan: seven-tone *gamelan* traditionally associated with the courts (H)

Gender: metallophone with bamboo resonators. The name is however typically used with specific reference to *gender wayang*, a quartet of bronze keyed instruments used to accompany *wayang kulit* (shadow puppet plays)

Jam Terbang: literally meaning flying time; referring to performance experience in the context of *kendang bebarongan* (I)

Kajar: sunken-bossed hand-held gong used to perform a steady beat in *gamelan bebarongan*; may be substituted with a *kempli*

Kempli: horizontal gong mounted on a stand, used to perform a steady beat in *gamelan bebarongan*; may be substituted with a *kajar*

Kemong: a small sized hanging gong

Kempur: a medium sized hanging gong

Kendang: a cylindrical double headed drum that typically sits on the player's lap horizontally (I)

Kendang Bebarongan: a medium sized drum, somewhat smaller and larger than other Balinese *kendang*, occasionally referred to as *kendang bebancian*. The term also refers to a from a solo drumming (a single player rather than two) requiring the use of a *panggul* (H)

Kendang Tunggal: a form a Balinese solo drumming (a single player rather than two) involving bare-hand playing (I)

Kreasi Baru: 'new creation,' composition in modern style (I)

Lomba: competition (I)

Meguru Panggul: teaching/learning from the *panggul*

Ngunjar Bayu: a philosophical concept involving a personalised energy distribution system concerned with the use or distribution of force, energy, strength and power

Ngutang Gedig: to discard and throw away a hit or attack; to remove some *pukulan*/strokes

Opak Lantang: a long or extended *angsel* characterised by an increase in tempo and melodic variation

Panggul: mallets/drumsticks used to play the *kendang*

Pangus: matching or appropriate; the placement of drum strokes in accordance with the rules of *kendang bebarongan*: it also refers to the *kendang* player's ability to appropriately synergise with the movements of the *Barong* dance

Pengawit Kendang: *kendang* (drum) prelude to a *Barong* dance performance

*Pesta Kesenian Bal*i: the Bali arts festival, a major arts festival held at the Taman Budaya Arts Centre in Denpasar from June-July each year (I)

Pindekan: Balinese windmill

Pukulan: individual drum/*kendang* strikes/strokes

Reyong: a small gong-chime instrument typically organised as a set of twelve, mounted horizontally on a decorative rack, and played by four players. In the processional *gamelan belegnajur* four *reyong* are employed with each gong played by one player

Seledet: a dance movement characterised by a look through the corner of the eye, or a stolen glance, underscored by a left-hand accented stroke on the *kendang*

Tabuh Bebarongan: an instrumental prelude to the *Barong* dance

Appendix 2: Additional Analysis of Kendang Bebarongan Cells

This appendix, comprising text commentary and diagrams, is intended to be read as an alternate way of viewing the *pengawit kendang* cells discussed in Chapter Two.

Analysis and RS Cells

A useful concept in further analysis of the cells in Yande's *pengawit kendang* model is "rhythm/sticking cells" (RS cells). This is a concept that was developed by Australian drummer and scholar Simon Barker through his analysis of traditional Korean rhythmic forms. RS cells refer to sticking patterns and resultant rhythmic outcomes that emerge through the ordering of left and right hands, used to create rhythms on double-sided drums like the *kendang*. To illustrate this concept, Cell 2 in Yande's *pengawit kendang* model, as displayed above in Chapter Two, may be conceived of as a single resultant pattern. However, when performed on a double-sided drum like the Balinese *kendang*, individual rhythms emerge from the left and right hands, as seen in Figure 1.

Left-side Rhythm:	L L L L
Right-side Rhythm:	R R R R

Figure 1 *Kendang* cell with resultant left and right-hand rhythms

Geometric Diagrams

Through the use of accents using a variety of timbrally different drum strokes on the *kendang*, additional rhythmic layers can emerge. An insightful way of viewing *pengawit kendang* cells is by using geometric diagrams. This was inspired by the work of Godfried Toussaint in his book "The Geometry of Musical Rhythm." In his book Toussaint uses geometric diagrams to represent and analyse mostly African timelines and clave based rhythms, however I have developed this approach and applied it to the analysis of cellular hand patterning and emergent rhythms within *kendang bebarongan* drumming. The geometric diagrams are a mode of representation that displays the equal distribution of left and right-hand movements, used to perform the drumming efficiently, and how these movements are organised around a central physical axis: the body. For the purposes of this study it is intended to be descriptive: describing how it works, rather than prescriptive: a transcription based tool for a musician to read from and learn. I will now describe the principal of symmetry and how it appears within *kendang bebarongan* drumming, followed by its representation using geometric diagrams.

Symmetry

The term symmetry varies widely in its application and is typically associated within the fields of mathematics and science. Within the arts symmetry has historically been used to create order, balance, beauty and perfection. *Gamelan* music from Bali embodies and range of symmetries which have been featured notably in the scholarship of Tenzer. A primary analytical topic in this scholarship is a *contour class* system (pitch class system) used to describe and categorise the symmetrical organisation of melodies within the repertoire of the *gamelan gong kebyar* (most common Balinese musical ensemble). The identification of symmetry within Balinese drumming however has yet to be identified and the scholarship within this chapter offers insights that align with the work of Tenzer, yet contrast with his point of view.

Bilateral Symmetry

Bilateral symmetry, also known as “mirror” or “reflection symmetry” is the most prominent form of symmetry in art and nature. Bilateral symmetry displays two halves with indifference about a particular axis. It is understood that one half is a *reflection* or *mirror-image* of the other half when bilateral symmetry is present. It is considered accurate and measurable and represented clearly using geometry. As can be seen in Figure 2, bilateral symmetry is present in the form of a triangle. The triangle is divided equally in half by the dotted line (axis) and the reader will observe that the left-side of the triangle is an exact reflection of the right side.

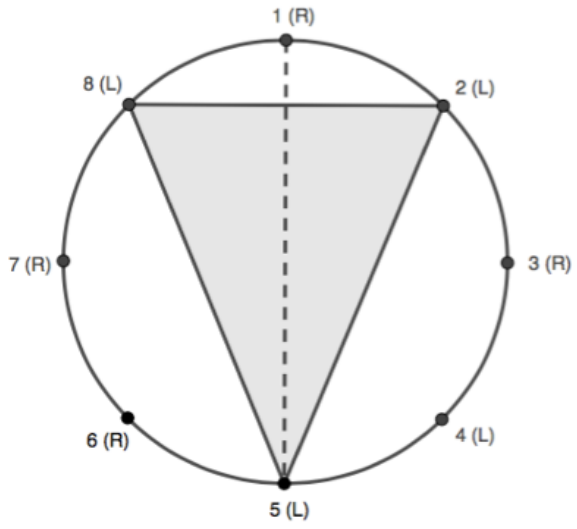


Figure 2 Geometric diagram displaying bilateral symmetry

In the first extended phrase of Yande’s *pengawit kendang* there are seven cells, as set out in the timeline provided in Table 2.1 (in Chapter Two). The geometric diagram below (Figure 3) displays the hand patterning of Cell 2 which consists of eight rhythmic attacks, numbered from 1 – 8 around the circumference of the circle. Unlike Toussaint, I have chosen to delineate the start of the cells

(12 o'clock position) with "one" rather than "zero". Alongside these numbers, in brackets, is the sequence of left and right hands used to perform the cell. Two polygons are then created within the circle by connecting the left-hand attack points, in pink, and the right-hand attack points, in green. The different colours have been chosen to show distinction and by doing this highlights the relationship between the two hands, in particular the chosen leading hand. What is revealed in the diagram in Figure 3, and what we cannot as easily see using European staff notation, is bilateral symmetry. The axes of symmetry are indicated by the dotted line in the diagram. In the case of the hand patterning in Cell 2 there are two axes of symmetry.

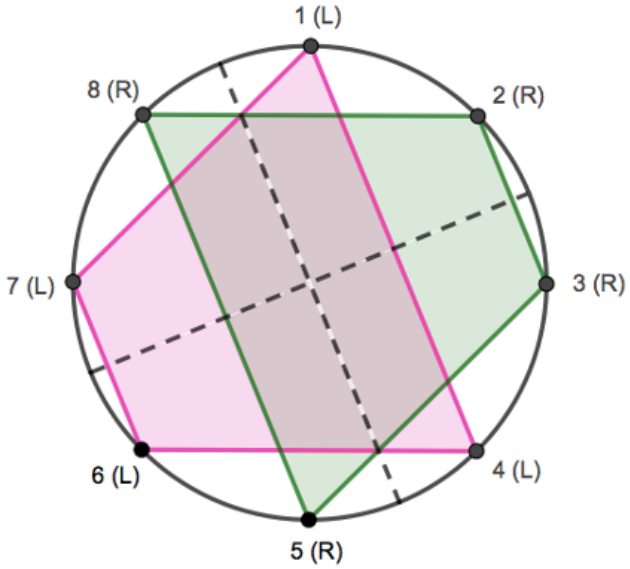


Figure 3 Hand patterning sequence of Cell 2

Symmetry and the Player's Perspective

Again, I am wary that the reader may perceive this revelation of symmetry as a broader governing syntax of the drumming. As elegant and as convenient as this may be, the purpose of this analysis is an attempt to describe the music from the player's perspective. When playing the *kendang* the music is coming from a singular body with left and right-hand movements to produce rhythms. The symmetry is an aesthetic that aids in the ability to perform rhythms and maintain an improvisational flow at very fast tempos. It is not simply a mental construct for the sake of convenience and theoretical analysis. A limitation of standard European staff notation is that is does not prioritise physical symmetries. In this case I am attempting to approach the material from the player's perspective and it is these areas that are of interest to me as a practitioner and performer. Presenting the rhythms in this way therefore represents a clearer visualisation for how I feel about how the *kendang* is fundamentally played. It is finding a way to visualise the drumming that more clearly represents the physicality of how the drum is played, and therefore the rhythms that emerge through the physical motion. The diagrams offer a way to understand that the rhythms comprise sequences of left and right-hand movements from

a singular body and that many of these combinations are symmetrical. The implication here is that there is an organisational logic that provides insight into physical efficiency and rhythmic variation when performing the music at tempo.

Emergent Rhythm Diagram

As noted earlier *kendang bebarongan* rhythms often emerge through hand patterning with the use of accented drum strokes. The diagram below (Figure 4) of the same cell as described above in Figure 3 displays the rhythm that emerges through the use of the accented left-hand slap stroke *pak*. Again, the diagram displays the eight rhythmic attacks around the circumference of the circle and also the ordering of the hands alongside these numbered rhythmic attacks. It is important to note that not all left-hand strokes are accented and this is due to an idiomatic double stroke where the second note receives more emphasis than the first. In my Undergraduate thesis, I termed these as “end weight emphasised” double strokes. The accented left-hand *pak* strokes in the diagram are then joined to create a polygon which also displays bilateral symmetry.

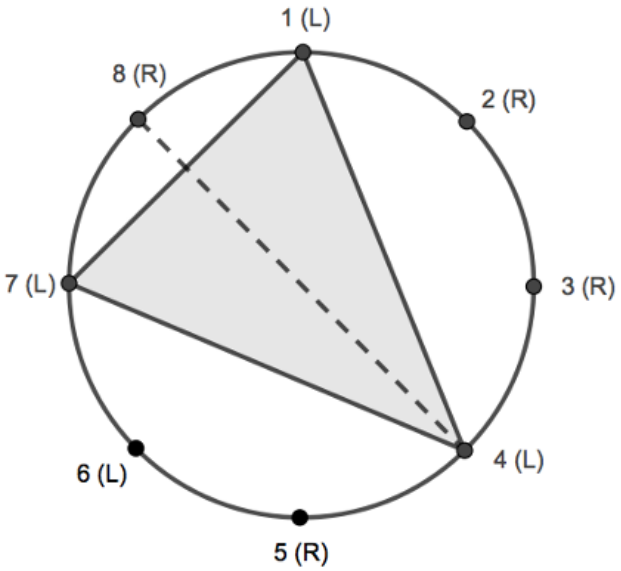


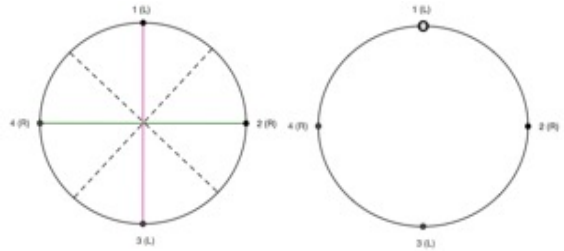
Figure 4 Emergent rhythm from Cell 2

Viewing the emergent rhythms using geometric diagrams also provides insight into physical efficiency, rhythmic variation and tempo sustainability. As is displayed in Figure 4 three of the eight rhythmic attacks in Cell 2 are accented and the remaining five attacks are non-accented. This is a ratio of accented strokes being less than half of the total number of rhythmic attacks. The ratio of accented to non-accented strokes is consistent within all seven cells featured in the discussion throughout this chapter where no more than half of the total number of rhythmic attacks receive accent. If the cells contained a greater number of accented strokes it is possible this would place further physical demand on the *kendang* player and likely not be sustainable for the full duration of a performance.

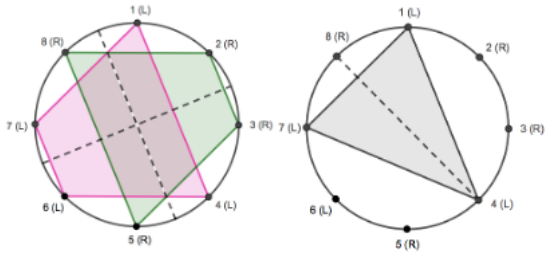
I would also argue that the emergent rhythm would be compromised as well. We can see the inter-onset-interval structure of accented strokes displayed in Figure 4 equate to 3, 3, 2 (starting from position 1). This allows the emergent rhythm to shift between on-beat, off-beat and back to on-beat placements, creating a buoyant yet engaging feeling of syncopation and unpredictability that is a likely explanation for the challenging task of tracking the cellular changes displayed in Video 2.2 (displayed in Chapter Two).

Upon the analysis of all the cells in Yande's *pengawit kendang* model, of which there are eleven, they all embody bilateral symmetry at both hand patterning and emergent rhythm level. This further supports my assertion that there is a fundamental organisational logic within certain contexts of *kendang bebarongan* drumming, emphasising both hand-patterning and rhythmic outcome and their close connection to physical efficiency and playing at tempo. As a summation of the concepts discussed so far in this chapter, Figure 5 displays the first seven cells of Yande's *pengawit kendang* model in geometric diagram form. The diagrams provide a clear and effective way of viewing micro hand-patterning sequences (highlighting the stroke limitations of single and double strokes), equalised movement distribution (through a central physical axis), leading hand shifts (via contrasting colour assignment to each hand) and emergent rhythmic outcomes (through visual representation of the inter-onset-interval structure of each cell).

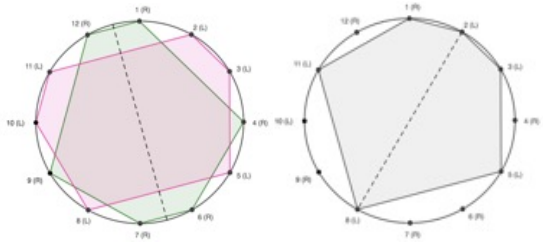
Cell 1



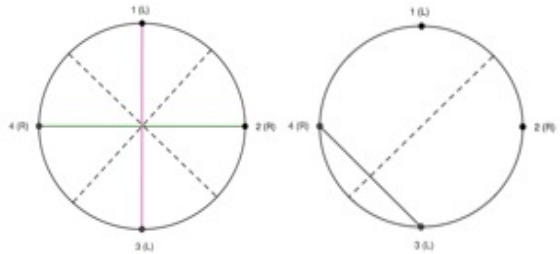
Cell 2



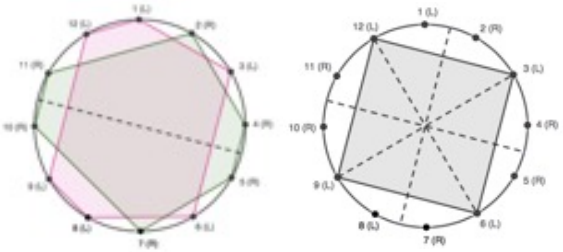
Cell 3



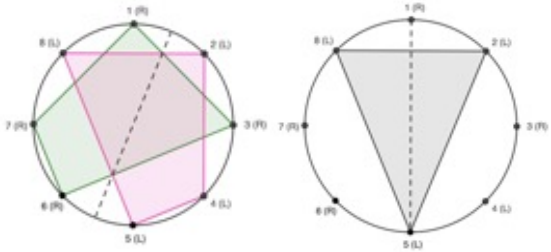
Cell 4



Cell 5



Cell 6



Cell 7

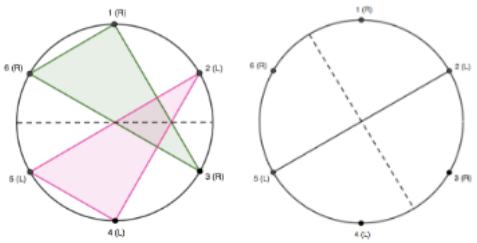


Figure 5 Summation of first seven cells of Yande's *pengawit kendang* model presented as geometric diagrams

Rhythmic Diversity

In Toussaint's book, nine categories of bilateral symmetry are presented as a way of categorising and measuring the similarity between rhythms. These consist of four primary categories: rhythms with a vertical axis of symmetry, rhythms with a horizontal axis of symmetry, rhythms with positive slope directions and rhythms with negative slope directions, plus five combinations of these. To illustrate the diversity of symmetry in *kendang bebarongan* drumming let us take a look at two more cells contained within the first extended phrase of Yande's *pengawit kendang* model.

In the two diagrams below, appearing as Figure 6 the hand patterning and emergent rhythm of Cell 5 are displayed. The cell has twelve rhythmic attacks. The hand patterning diagram to the left displays a negative slope of reflection where-as the emergent rhythm diagram to your right shows combinations of both negative and positive slopes. All indicated by dotted lines.

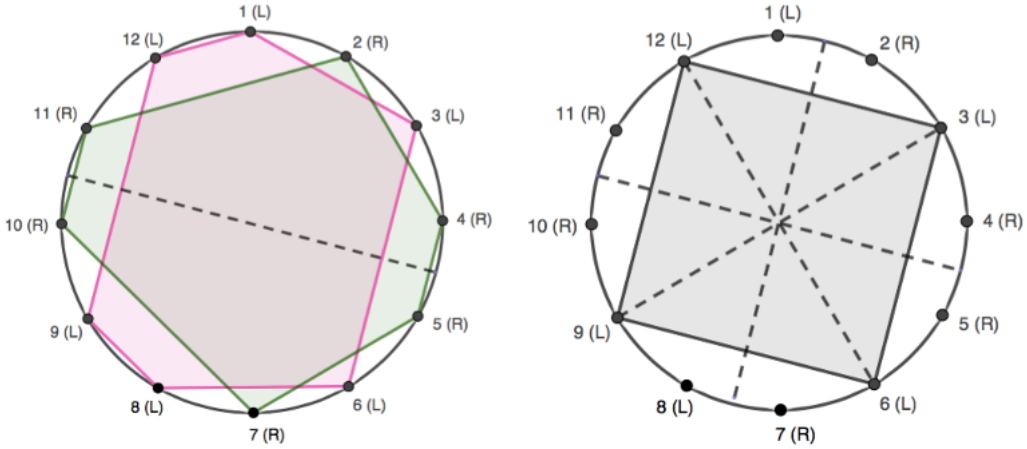
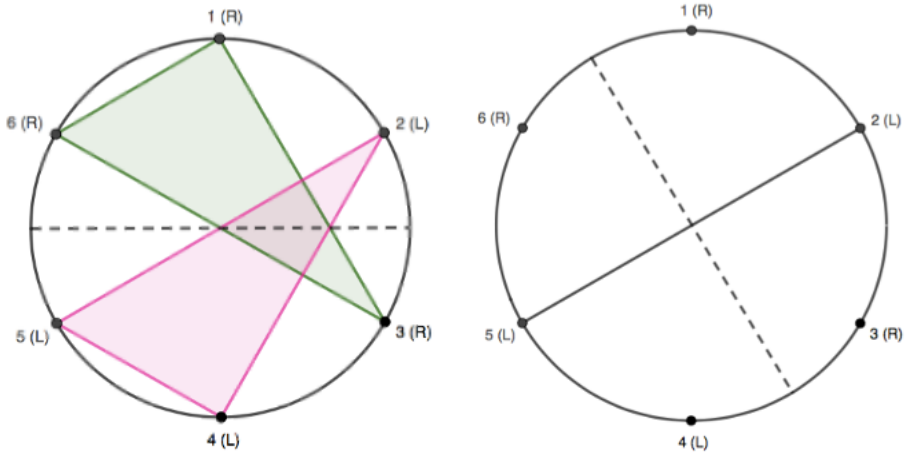


Figure 6 Hand patterning sequence and emergent rhythm of Cell 5

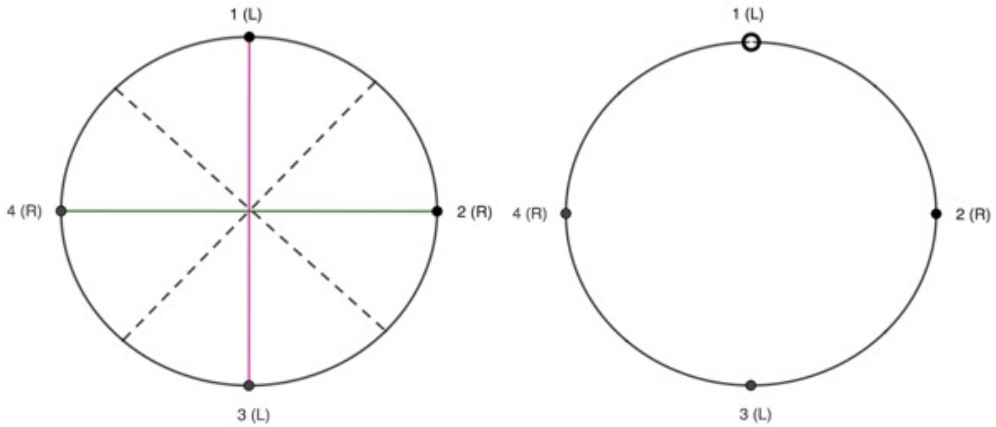
The next diagram, shown below as Figure 7, displays the hand patterning and emergent rhythm of Cell 7, which is a length of six rhythmic attacks. We can see that the hand patterning diagram to the left features a horizontal line as the axis and the emergent rhythm diagram to the right shows a negative slope as the axis and also a positive slope embodied by the line connecting the accented strokes on rhythmic attacks 2 and 5. There are also cells contained within Yande's *pengawit kendang* model that contain vertical axial lines of symmetry and other combinations of these four primary slope directions.



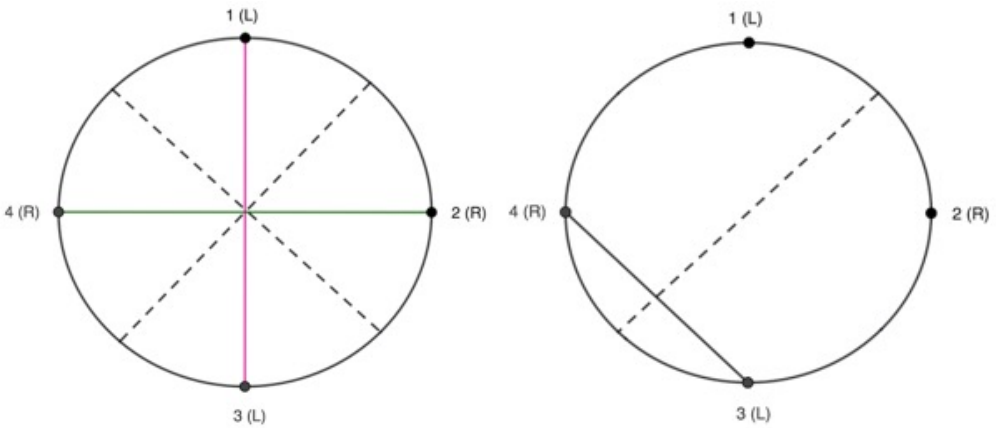
Hand-Patterning Emergent Rhythm

Figure 7 Hand patterning sequence and emergent rhythm of Cell 7

Cells 1 and 4, as displayed in Figure 8, provide another insightful example of rhythmic diversity at play. These two cells embody the same hand-patterning sequence (the left-side diagram: L R L R) yet the rhythmic outcome (the right-side diagram) is contrastingly different. Here, rhythmic diversity stems from economical and creative use of the hand-patterning vocabulary. Of further significance, displayed in the hand-patterning diagrams, is the physical symmetry is retained despite a variation in the emergent rhythm.



Cell 1



Cell 4

Figure 8 Hand-patterning sequence and emergent rhythm of Cells 1 and 4

Cell Similarities, Rotation and Inversion

The examples described above highlight the diversity of rhythms in *kendang bebarongan* drumming through the varied number of rhythmic attacks, the variation in axis direction and the use of identical cells with varying rhythmic outcomes. In 2008, I embarked on a month long independent study intensive in Bali and during this time I practiced some basic *kendang bebarongan* rhythms with Yande. Through developing the analysis in this chapter I was reminded of a simpler and shorter *pengawit kendang* model offered to me by Yande. This consisted of four cells (all symmetrical) framed by opening and closing *cedugan* phrases. The second and third cells from this *pengawit kendang* appear below as Figure 9 and Figure 10.

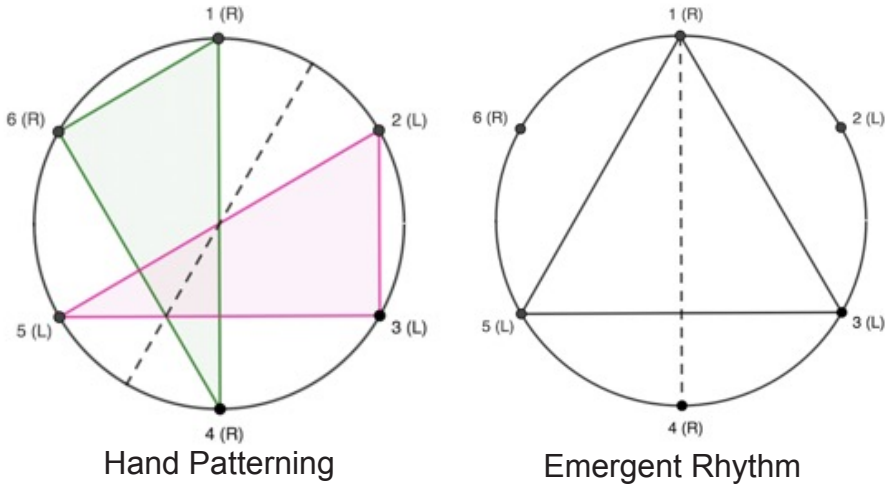


Figure 9 Hand patterning sequence and emergent rhythm of Cell 2 from 2008 *pengawit kendang* model

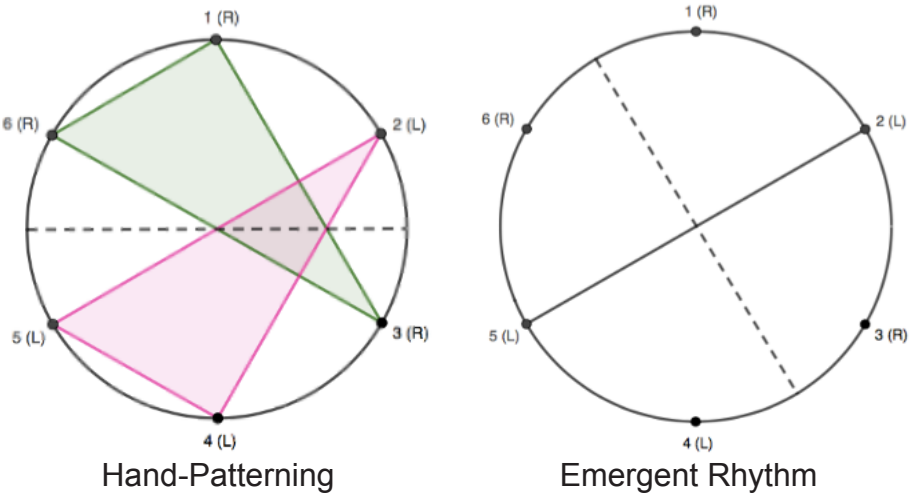


Figure 10 Hand patterning sequence and emergent rhythm of Cell 3 from 2008 *pengawit kendang* model

Whilst these two cells display rhythmic diversity, indicated by the slope direction of the axis and the number of accents in the emergent rhythm they offer insight into some intriguing similarities. Firstly, and most obviously, both of these cells are six rhythmic attacks in length. Secondly, the hand patterning cells embody the same internal structure (two scalene triangles), indicating that Cell 3 is

in fact a rotation of Cell 2. If we were to hypothetically rotate attack points one and two of cell 2 to attack points five and six of cell 3 we would see an exact rotation of the internal shapes. Although the two cells do embody the same internal shapes and indicate a rotation of the same cell, an inversion of the hand sequence has also actually taken place. This is confirmed by the allocation of the two different colours to each hand in the cell. It reveals insight into the manipulation of identical hand-patterning sequences through the application of rotation and inversion. It also supports the argument that rhythmic variation may be achieved through the use of a limited hand-patterning vocabulary. My proposition here is that many of the cells appearing in *kendang bebarongan* drumming may be skilfully manipulated through such processes to achieve rhythmic variety whilst maintaining physical efficiency. With this in mind, and through the lens of the practitioner, the physical symmetry is retained (indicated by the dotted lines in the diagrams) and the cells can indeed be conceptualised as revolving equally around a central physical axis: the body. The presence of symmetry in the geometric diagrams therefore allows us to see the balanced relationship of each side of the body and also that the player can shift between left and right-side leading.

Application of the Model to Metric Context: The Model in Action

I will now demonstrate how cellular rhythms, appearing in the *pengawit kendang* section, may be transferable to other sections of a *Barong* performance. As previously highlighted in section 2.5 (of Chapter Two) *pengawit kendang* drumming cells may be coupled together, at the discretion of the *kendang* player, to form streams of rhythmic improvisation that are not bound to any particular metric structure. The cells, however, are flexible in their application. I will now describe how these cells may function in a metric context and how conceiving of the rhythms in this way can also aid in physical efficiency and that rhythmic variety can indeed be achieved with a limited hand-patterning vocabulary.

Presented below in Video 1 is an improvisation performed by Yande using only three cells. The purpose of this performance was to demonstrate the amount of rhythmic variety that could be achieved using a limited number of cellular options. During the drumming demonstration Yande is also singing the melody titled *Baris*. The *Baris* melody is one of the melodic options for the first ensemble section of a *Barong* performance. This section immediately follows the *pengawit kendang* introduction. The melody, and other accompanying parts, would typically be played by the *gamelan* and a vocalised performance whilst drumming is common amongst *kendang* players as they practice, yet also in a pedagogical context. The *Baris* melody is eight beats in length and is set to the four-beat metric structure called *bapang*.

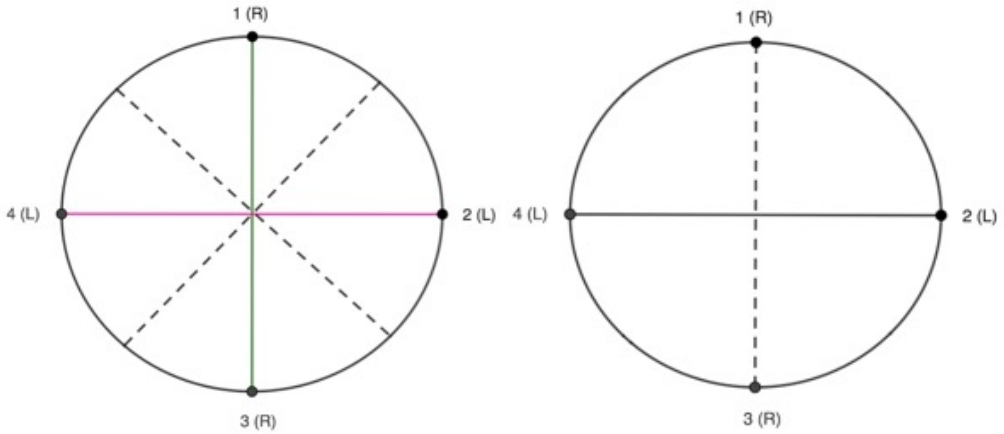
Video 1 Yande demonstrating application of three cell variants in metric context

The three cells employed in the Video 1 performance are presented as geometric diagrams in Figure 11 and display the hand-patterning diagram to the left and the emergent rhythm diagram to the right. The cells are organised freely and spontaneously by Yande and he may choose to repeat any of the cells any number of times before moving onto another. The three cells vary in length with Cell 1 being four rhythmic attacks, Cell 2 six rhythmic attacks and Cell 3 also six rhythmic attacks. The varied length of the cells allows a skilful drummer to potentially create unlimited rhythmic variation.

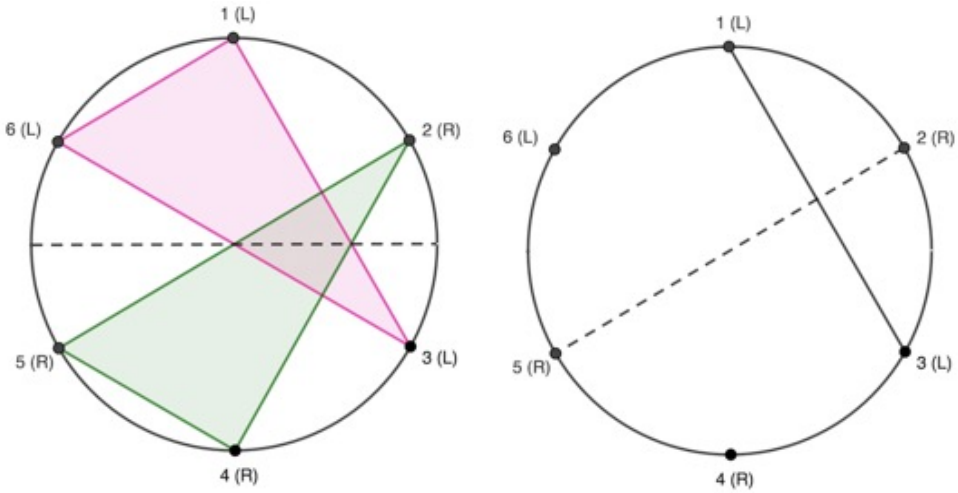
Distinguishing between cells whilst viewing Video 1 is a challenging task and the individual cells are not easily detectable. However, this ambiguity contributes towards an unbroken rhythmic flow where cells merge seamlessly to form longer rhythmic phrases. This is a profound example of the practitioner thinking in a way that may contrast with the listener's interpretation of what is actually happening. Organising the drumming in this cellular manner offers a valuable tool that can enable the drummer to creatively and spontaneously generate extended phrases that delay resolution and potentially obscure the ever-present metric structure. As a result, it allows the creation of continual rhythmic variation, which is not only a key characteristic of the drumming, yet also a standard requirement of a competent drummer.

Physical efficiency is also evident within the metric context. Upon viewing Figure 11 we can see that Cell 1 is right-hand led, Cell 2 left-hand led and Cell 3 right-hand led. As also appearing in the *pengawit kendang* section this combination of cells with varying leading hands represents equalised movement distribution between the left and right sides of the body. It allows the fast tempo to be sustained whilst also achieving rhythmic variety. Of further note, Cell 2 is a hand-patterning inversion of Cell 3 evidencing another layer of left to right-side body shifting and also that rhythmic diversity may exist within a limited number of hand-patterning options. We can conclude that the vocabulary

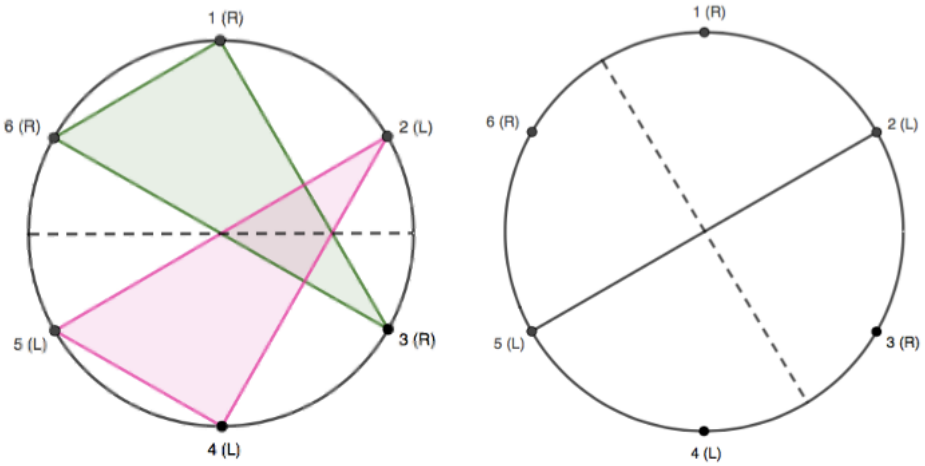
is therefore organised in an efficient, creative yet skilful way.



Cell 1



Cell 2



Cell 3

Hand-Patterning Emergent Rhythm

Figure 11 Three cell variants used in metric context

Summation of Analysis

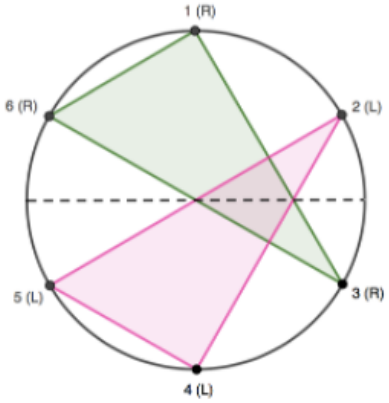
In this Appendix I have presented and outlined the development of an additional analytical model that identifies cellular hand patterning at multiple levels and emergent rhythmic outcomes. By presenting the drumming in this manner we can view the material through the lens of the performer in a way that priorities physical movement and efficiency to generate a varied improvised rhythmic flow. This has been represented most potently in the geometric diagrams through the identification of symmetrical cells revolving around a central physical axis: the body. In addition to this, comparative analysis has been employed to explore concepts of rhythmic diversity and similarity. The method of examining rhythmic similarity has provided insight into the manipulation of cellular rhythmic material revealing the developmental processes; rotation and inversion. Although *kendang* players might not necessarily think in these analytical terms it does provide a pathway to develop cellular material and suggests that a limited rhythmic vocabulary can function as the basis for a seemingly more complex form of drumming.

As I have demonstrated, the physical symmetries present in *kendang bebarongan* drumming are rich and diverse and warrant further research. This is significant as we now have of way of communicating an internal organisational logic of this intriguing rhythmic material, from the player's point of view. This analytical model also has broader implications as it offers a tool for categorising Balinese solo drumming rhythms which are removed from the context of ensemble playing and shows us that drumming vocabulary is capable of being conceived differently when performed on its own.

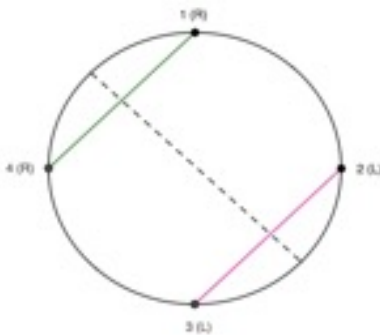
Appendix 3: Self-Generated Physically Efficient Cells

Self-Generated Physically Efficient Cells

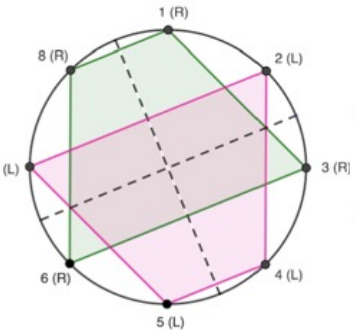
This appendix presents an alternative way of viewing the physically efficient drumset cells set out in Chapter Three. As mentioned previously, this series of drumset cells formed in response to the three criteria set out in Chapter Three and can be seen below in Figure 1 in their alternate form of presentation. At the top of Figure 1 is the original six note drumset cell, or "vocabularic prompt/ constraint." Below this cell, also in Figure 1, are the three cells that were generated under the terms of the criteria. As we can see "Contracted DS Cell" is four rhythmic attacks in length and is limited to the use of single and double hand strokes. The length of this cell was achieved by subtracting the opening "R L" of the six note Original DS Cell. Both "expanded" cells also meet the set criteria. "First Expansion DS Cell" was generated by adding "L R" to Original DS Cell forming an eight-note cell. And by adding "L L R L" to Original DS Cell a ten-note cell is generated, labelled in Figure 1 as "Second Expansion Cell." Upon viewing the diagrams in Figure 1 below, the reader will observe the presence of symmetry in all four cells, indicated by dotted lines.



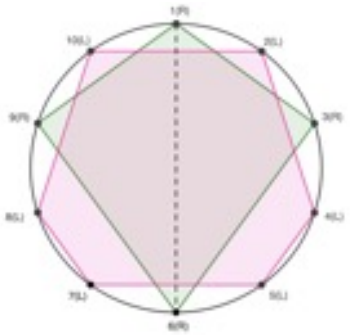
Original DS Cell (Vocabularic Prompt/Constraint)



Contracted DS Cell



First Expansion DS Cell



Second Expansion DS Cell

Figure 12 Self-generated physically efficient drumset (DS) cells in pre-developed form

Appendix 4: Additional Pindekan Response

In performance: The pindekan field recordings have been utilised in performances of the new material. These allow for transitions in changing instruments (snare drums etc.) so are presented at times on their own but also with live accompaniment in the form of upside down reyong placed on the snare drum and played with mallets. This was in response to sunari. Sunari are bamboo poles that are placed alongside pindekan bamboo poles. They have holes drilled in them, so when the wind passes across these holes are low haunting flute like melody/sound is produced. The reyong (inverted: my own idea) on the snare drum therefore offers a more literal response to this. I then developed this by spinning the reyong on the snare drum so they generate a type of vibrato, which is a little bit unpredictable to manage but evokes the sound of the sunari a little more literally. Whilst in Bali I was able to listen to sunari, however I did experience challenges when trying to record the sound. I did manage to capture them in some way though even if not completely in the foreground of the recording.

Appendix 5: Interview Questions – English and Bahasa Indonesian

English	**Bahasa Indonesian**
Before we begin I need to give you some information about the project and also a consent form. I am required to do this because it's a project that is officially run by the university. This information is part of the process and I need your permission before I can record our conversation.	*Sebelum kita mulai, saya harus menyampaikan beberapa hal mengenai proyek saya, dan sebuah formulir persetujuan. Saya harus melakukan hal ini karena ini adalah sebuah proyek yang dilaksanakan oleh universitas. Informasi ini adalah bagian proses ini, dan saya memerlukan persetujuan Anda sebelum saya boleh merekam diskusi kita ini.*
I am hoping that what we discuss will help me become a better *kendang* player but also a better drumset player	*Saya mengharapkan diskusi ini akan membantu saya untuk memperdalam ilmu kendang saya, maupun ilmu drum saya*
Artistic history and general questions	***Sejarah seni, dan pertanyaan umum***
When and how did you start playing *kendang bebarongan*?	*Kapan, dan bagaimana anda mulai main kendang bebarongan?*
What do you like most about this drumming?	*Apa yang anda paling suka tentang cara main ini? (kendang bebarongan)*
What do you think is most challenging about *kendang bebarongan*?	*Menurut anda, apa yang paling sulit dengan kendang bebarongan?*
In your opinion, what makes *kendang bebarongan* drumming unique?	*Menurut anda, apa yang membuat kendang bebarongan unik?*
Pindekan	***Pindekan***
I've been told the story of Pak Jagra from Singapadu, that he would send drummers that wanted to learn from him to go and listen to the *pindekan* in the *padi* and that would teach them how to play…	*Saya pernah diceritakan tentang Pak Jagra dari Singapadu. Dia menyuruh calon murid dia untuk mendengar pindekan di padi. Si murid bisa belajar langsung dari pindekan dan padu.*
Have *pindekan* influenced your *kendang bebarongan* drumming?	*Apakah pindekan ada dampak terhadap gaya main kendang bebarongan anda?*
When you listen to a *kendang* player, playing *kendang bebarongan*, can you hear if they have listened to *pindekan* or not? How do you know?	*Pada saat anda mendengar seorang pemain kendang main kendang bebarongan, apakah anda dapat mendengar apakah mereka pernah belajar dari pindekan atau tidak? Bagaimana anda bisa tahu?*
How have *pindekan* influenced your drumming?	*Apakah pindekan mempengaruhi cara main kendang anda? Bagaimana?*

English	Bahasa Indonesian
Can you play for me an example of how you've used *pindekan* in your drumming?	*Bisakah anda demonstrasi bagaimana anda pernah menggunakan suara pindekan dalam cara main kendang anda?*
Wayah	***Wayah***
My understanding is the *wayah* can mean mature, like an adult, but also like a fruit on a tree ready to be picked. What does *wayah* mean to you? Are there other meanings?	*Pengertian saya adalah wayah dapat memiliki arti 'dewasa', tetapi juga 'matang' seperti buah yang siap dipetik. Kata wayah memiliki arti apa bagi anda? Apakah ada arti lain?*
What makes a *pukulan wayah*?	*Apa yang membuat sebuah pukulan wayah?*
Can you please demonstrate some *pukulan* that you would consider to be *wayah*?	*Dapatkah anda demonstrasi beberapa pukulan yang menurut anda wayah?*
How about *angsel*?	*Dapatkan anda demonstrasi beberapa angsel yang menurut anda ? wayah*
Can you please demonstrate some *pukulan* and *angsel* that you would consider to not be *wayah*?	*Dapatkah anda demonstrasi beberapa pukulan dan angsel yang, menurut anda tidak wayah.*
Ngunjar Bayu	***Ngunjar Bayu***
I'd like to talk about *ngunjar bayu*? This is something I'm really interested in and feel it could help me to become a better *kendang* player and drumset player.	*Boleh kita diskusikan ngunjar bayu? Saya sangat tertarik terhadap ngunjar bayu, dan saya rasa ini dapat membantu saya memperdalam ilmu kendang dan drum saya.*
What does this concept mean to you?	*Konsep ini memiliki makna apa bagi anda?*
Can you tell me how *ngunjar bayu* is used when you are drumming?	*Bisakah anda menjelaskan bagaimana anda menggunakan ngunjar bayu pada saat anda main kendang?*
Is this a concept and technique that you practice, or that can be practiced?	*Apakah ini sebuah konsep dan teknik yang anda melatih, atau bisakah ini dilatih?*
How do you practice or think about it?	*Bagaimana anda melatih konsep ini, atau memikirkannya?*
How do you apply it to, or use it in your drumming?	*Bagaimana anda mengaplikasikan konsep ini terhadap cara anda main kendang?*
How could I practice or think about this to help with my *kendang* playing?	*Bagaimana saya bisa melatih atau memikirkan konsep ini untuk membantu dalam cara main kendang saya?*
Can you give me an example or situation of how this concept is used when you are drumming?	*Dapatkah anda memberi sebuah contoh atau situasi bagaimana konsep ini digunakan pada saat anda main kendang?*
Can you demonstrate how you apply this while you are drumming?	*Dapatkah anda demonstrasikan bagaimana anda menggunakan konsep ini pada saat anda main kendang?*
Are there other philosophical concepts that are important to you and your drumming?	*Apakah ada konsep filsafat lain yang penting bagi anda, dan cara anda main kendang?*

English	Bahasa Indonesian
Kawitan/Pengawit Kendang	***Kawitan/Pengawit Kendang***
Can you explain the function of the *pengawit kendang*?	*Bisakah anda menjelaskan di fungsi dengan pengawit kendang?*
Can you demonstrate *pengawit kendang*?	*Bisakah anda demonstrasi pengawit kendang?*
Because there isn't a melody or gong structure, how/what are you thinking?	*Karena tidak ada melodi, atua gong, bagaimana memikirnya?*
Elah	***Elah***
Can we talk about *elah*?	*Boleh kita diskusikan elah?*
What does the word *elah* mean to you?	*Kata elah memiliki arti apa bagi anda?*
Pangus	***Pangus***
How about the word *pangus*?	*Bagaimana dengan kata pangus?*
What does this concept mean to you?	*Apakah konsep ini memiliki makna bagi anda?*