EXPLORING SCENE SETTING AS A STRATEGY TO SUPPORT
LEARNING OF STUDENTS WITH A FORMAL DIAGNOSIS OF
ADHD STUDYING IN HIGHER EDUCATION.

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January 2018

A thesis in fulfilment of the requirements for the degree of Doctor of Philosophy
EXPLORING SCENE SETTING AS A STRATEGY TO SUPPORT LEARNING OF STUDENTS WITH A FORMAL DIAGNOSIS OF ADHD STUDYING IN HIGHER EDUCATION.

An increasing number of students diagnosed with attention deficit hyperactivity disorder (ADHD) are enrolling in higher education (HE) in Australia. Little is currently known about their needs and learning strategies or the support required for successful completion of their studies. What is known is that these students are at greater risk of psychological difficulties and academic failure. Bachelard’s (1964) Poetics of space, Dewey’s (1934) observations of experiential learning and Jackson’s (1998) theory of intersubjective relationships inform this inquiry. In-depth interviews and photo-voice were used to investigate what 13 students with a medical diagnosis of ADHD needed to support their HE learning. Interpretations of the data are found in the development of a new pedagogy for engineering students with ADHD (Hain, Turek, Zaghi, & Hain, 2017) and Ingold’s (2000, 2001, 2013) anthropological work culminating in his theory of attentionality (2016). Ingold (2016, p. 9) identifies the cognitive, sensory and motor experiences that occur during the developmental process of skill acquisition (enskilment) as the educational correspondences of attentionality, “attention as a resonant coupling of concurrent movements”. Meta-cognitive resources were interpreted through the concept of imaginative tools for placemaking developed by Fettes and Judson (2013).
The participants in this study were found to use a range of strategies to set the scene for their learning by working to their strengths with the help of medication, psychosocial education, support and/or coaching. Scene setting helped participants to manage anxiety, eliminate distractions and focus their attention using learning strategies such as visual-spatial signposting to hyperfocus, which is expressed through the metaphor of gating. Gating extends to gate-keeping, time-keeping and book-keeping, forms of strategic partnering support that greatly benefit the participants. Such external support, combined with socio-economic status, stability, greater self-awareness and self-advocacy, strongly influenced how well the participants could function in the HE environment. The research also highlights the tensions between institutionalised learning environments and ADHD.
Acknowledgements

An array of professional assistance supported this thesis. Dr Michele Toner provided invaluable coaching for ADHD. I would like to thank Hazel Baker for editing my thesis. Doctors Trudy Ambler and Agnes Bosanquet guided the inception of the thesis, and Associate Professors Neil Harrison and Judi Homewood brought it to completion. Their contributions are described in the forward.
Declaration

I certify that the work in this thesis entitled *Exploring scene setting as a strategy to support learning of students with a formal diagnosis of ADHD studying in higher education* has not previously been submitted for a degree nor has it been submitted as part of the requirement for a degree to any other University or institution other than Macquarie University. I also certify that the thesis is an original piece of research and it has been written by me. Any help and assistance that I have received in my research work and the preparation of the thesis itself has been appropriately acknowledged. Furthermore, I certify that all information, sources and literature used are indicated in the thesis.


Signed: 

[Signature]

date: 29/5/18
When the glasses go missing

This is a short paragraph. It is for any person with ADHD in Higher Education (HE) who is suffering and has a short attention span. There are two words you need to know: help and hope. Don’t give up yet. You need to find help and hope. If you haven’t found the WHO screening tool for ADHD, copy and paste this link:


The psychiatry literature suggests that it is accurate and self-testing may confirm that it is important to consult your general practitioner for a referral to a psychiatrist or specialist clinical psychologist for professional assessment.¹

The stories in this thesis will hint about how many times the participants have had to recover from the kind of days described by Caroline, who wished ADHD had a colour, like purple or green, so people could see that “ADHD is just ruining her day”. The good news is that hope can be re-stored when you are out of stock. With the right help, you can re-think ADHD. You can be supported to re-cognise and re-appraise your situation, so you can re-frame ADHD. Then, like those old-time, knockdown, bounce-back sideshow alley games, people with diagnosed or undiagnosed ADHD can bounce back.

Keep looking for help and hope. They might be with the car keys.² If the stress of looking for the right help for ADHD is overwhelming and making you feel worse,

² See totallyadd.com/ for practical ADHD strategies and solutions; and Rick Green & Jain Umesh’s book called ADHD stole my car keys.
take a rest and do something else for a while. I have made a lot of art in the “down
times”’. Now I make art during the “in-between” times. This is my story and I have
done this research to test if things could improve. My experience and the research
show that with the right help, in the right place and at the right time, people with
ADHD can achieve. You too can be helped to develop your unique potential, but you
need to find the right support. Meanwhile, good help might just turn up for people
with ADHD who regularly scan their environment. Like the expensive reading glasses
lost the week I bought them. Three years later, I saw a glint under a pile of leaf litter
and there they were, just where I had lost them! I remembered every detail about
gardening in that corner, but I thought I had lost the glasses in the green waste bin
collected by the council truck. When I picked them up I saw that there was only the
tiniest bit of rust along the ridge of one of the arms. The rust was hovering over the
embossed logo, looking like it belonged. They were so cool those Diesel glasses.
Unfortunately, they were lost again during the following week.

Speaking of the line of rust, it looked good on the glasses because they had a
purple/green interference paint finish. This paint is usually only seen on ‘hoon cars’.
When the car turns a corner, the iridescent glass particles suspended in the spray paint
refract light and the colours shift. I think I am talking about the interference paint at
the beginning of the thesis, although I am writing the story at the end, because
Caroline, the participant who wished ADHD had colour, said ADHD should be green
or purple. I didn’t think to tell her that she could have both green and purple and that
they could shift between each other, if she could coat ADHD with interference paint.

When the glasses were lost again, I wasn’t as disappointed as the first time
they were lost. I had replaced them with comfortable reading glasses I could wear
most of the time, so I didn’t have to keep taking them off and then lose them so quickly. I have had to replace the comfortable ones on two occasions while the PhD has been competing for space in my head. You get used to losing your glasses, but please let me know if you find the Diesel ones because they really were cool. When you are hyperfocused, ADHD can be cool too. Then it is just the in-between times that are scratchy, but even those times can be used well. In-between hyperfocus is the time for appointments, shopping, looking for glasses and all the activities that set the scene for getting back into hyperfocus, studying for those exams, finishing that assignment, developing new strategies for improving learning engagement and completing your degree; not only on time, but in ADHD-time, using hyperfocus.
Forward

Recognition, lack of recognition, validation and invalidation assist or create obstacles to learning. When I found *learning as recognition* in Neil Harrison’s thesis (2002), there was something to grasp when my research needed to change direction. In the beginning, my research was supervised by Dr Trudy Ambler and Dr Agnes Bosanquet. Trudy’s inspired metaphor, ‘scene setting for learning’, emerged from our collaboration and was developed in my Master of Research on the learning strategies used by women in the context of higher education (HE). Agnes introduced me to the phenomenology of Bachelard’s *Poetics of Space* (1964) and this was a significant contribution to aesthetic appreciation of the participants’ stories about scene setting, which equates with Bachelard’s image of “nesting” in domestic environments.

I was able to confirm I had a reading disorder as a result of the conflict between the physical and intellectual effort to engage with a text. I found it was much easier to follow the train of thought in the book if I transcribed the text by hand. Handwriting slowed my brain down, stopped my eyes from darting all over the small print in order to read, a task made easier when staying with a friend nursing her 94-year old father, on an expansive waterfront property at Lake Macquarie. The pace at the end of his life in a house weighed down by hardbound classical literature in the old property on Marmong Point lent itself to longhand. My handwriting a book to read also applied in the case of Elliot Mischler’s (1991) book, *Research Interviewing: Context and Narrative*. Like a talisman, I kept the increasingly curly pages with me wherever I went until long after the fieldwork was finished. I caught Trudy’s love of Mischler’s (1991) philosophy of the research conversation as potential to democratise research as an approach to engagement with research participants I have a debt of
gratitude to Trudy for the stamp of her inspired metaphor of scene setting. As a result of her retirement and Neil’s position in my department, he became my principal supervisor.

As a result of working with Aboriginal students when teaching and lecturing in the Northern Territory (NT) of Australia, Neil is steeped in knowledge about the differences in how people learn. His first thesis developed a theory of learning as recognition. I was anxious to get some research purchase on recognition for and of ADHD and latched on to learning as recognition.

I made an association between learning as recognition most clearly with the immediate situation context, using diagramming or conversation, whereby participants seemed to make leaps of understanding. It appeared that if they could “see” or experience context, they could develop learning strategies. With increasing mastery, they became more fluent with setting the scene to eliminate distractions and harness focus. When the cycles of chaos and control recurred and the participants spiralled down with anxiety, with the right support, they could tap into their learning strengths and with their predisposition for identifying problems and becoming intensely involved in the process of finding solutions to problems, they could bounce back.

In-between times or transitions are difficult experiences for people with ADHD. The last phase of my research has been supported by Associate Professor Judi Homewood and her field of expertise has brought a much sharper focus to the neuropsychology of ADHD, lending clarity to the importance of understanding that people with ADHD learn differently. I think in terms of pictures and stories with characters, patterns and associations, spatial relationships and metaphors. In times of
hardship, I have made graphic metaphors and used them as metaphorical resources. This works for making meaning. I resisted accepting the diagnosis of ADHD for 18 months after a consultant psychiatrist identified I had ADHD. It was not until I made an artists’ book titled *Warehouse meditation* (2009) that I came to terms with the impact of ADHD on my life. In the *Warehouse meditation* I tell the story of how I came to “see” I had something “electrical” going on/wrong in the personal motivation for my study (p. 4), but I didn’t talk about my collaged images of three of the Lewis Chessmen, “probably the most well-known archaeological find from Scotland” found on Lewis Island in 1831.3 My favourite is the figure biting on his shield. Arriving in disarray in Brisbane for fieldwork in February 2016, I could not work out any points of reference until I saw a poster of a Lewis Chessman. I had to keep making myself get out of the hotel room in order to think, because if I stayed in too long, I found myself stuck and almost unable to move. One of the participants called this experience *under-stimulation torture*. The room was so bland it was painful and I recognised the problem on recalling the jokes about *beige* told by Scottish comedian Billy Connelly. I couldn’t estimate times or direction because there were no windows, so there was no natural light or natural darkness.

The Chessman chosen to be the poster boy was my favourite, the guy biting down on his shield. Allegedly his show at the museum was his first overseas tour. For this thesis, my metaphor is going to be the kaleidoscope to reflect my Scottish heritage. Brewster the Scot invented the kaleidoscope to be of value “for all of the ornamental arts” and “rational entertainment”.4 These factors are one and the same for

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3 [http://www.bbc.co.uk/ahistoryoftheworld/objects/Lbm6fLMtOFuX5jSGRFFCug](http://www.bbc.co.uk/ahistoryoftheworld/objects/Lbm6fLMtOFuX5jSGRFFCug) 22/11/17
me in a world of ever-changing patterns of colour and prisms of light. I have a limited sense of dimension if colour, light and weather are taken away and air is circulated by remote-control. It is very hard to think and self-regulate in such an environment because they are both enervating and subject me to *under-stimulation torture*. It is harder to breathe, move and think and there is no opportunity to use long-distance and scanning vision, or feel connected to the earth, because a cell offers no opportunity to be under the shelter and shade of a tree. The imposed timing of activities in cell-like, monochrome/tone, highly controlled environments is an additional burden.

The association between ADHD and knowledge exploration, innovation and creativity that is promoted in my thesis does not diminish the challenges of living with ADHD, or the possible need for professional support. An evidence-base is now available to establish academic coaching as the most effective learning strategy for students with ADHD in HE (DuPaul, Dahlstrom-Hakki, Gormley, Fu, Pinho, Bannerjee, 2017).
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Chapter 1: Introduction

1.1 Overview

This study builds on preliminary research (Young, 2015) exploring the strategies used to support learning by female students in HE who disclosed with a formal diagnosis of ADHD. The preliminary research found that the women participating in the study used a range of strategies to support their learning. These included visual-spatial and time management strategies and strategies to aid concentration and promote engagement with HE studies. The research highlights the ways these strategies are not isolated or fixed in time but are interrelated and developed through a complex interplay of contextual factors such as diagnosis, medication, greater self-awareness, stability and external support. The study on women argued for an approach to supporting students with ADHD in HE that was grounded in a dynamic cluster of learning strategies. Continued research is needed with male and female students with ADHD to further develop understandings of the array of strategies that may support both learning and teaching.

1.2 ADHD: Australian definition

The Australian statutory document *Clinical Practice Points on the Diagnosis, Assessment and Management of Attention Deficit Hyperactivity Disorder in Children and Adolescents* takes a broader view of ADHD in context and defines it as a “bio-social phenomena with an array of symptoms that interplay with learning, social and physical environments” (National Health and Medical Research Council, 2012, p. 10).
1.3 Characteristics of ADHD

The characteristics that may impede learning for people with ADHD are well established. Focusing on learning materials is complicated for people with ADHD due to differences in their attentional resources (Baldauf & D’esimone, 2017) and difficulties with working memory (Gropper & Tannock, 2008). The manifest difference for people with ADHD is in the association between delayed impulse control, which neurologically alters access to executive functions such as attention and concentration, motivation, sustaining attention and task completion required for learning in classrooms and completing assignments (Barkley & Murphy, 2010; Rown, 2008; Borwn, Reichel, & Quinlan, 2009. The day-to-day challenges of learning are as a result of the characteristic emotional dysregulation (Corbisiero, Stieglitz, Retz, & Rosler, 2013) and difficulties with estimating time as a result of impaired time processing skills (Di Nuovo, Belluardo, Belluardo, Castiglia, Fanzone, Granata, & Notti, 2015). Coghill, Set and Matthews (2014) report challenges for learning with ADHD as a result of difficulties with variability in attention and difficulties with working memory, delay aversion, timing, inhibition and decision making. Decision making processes also recognised as impacting learning for people with ADHD, with the challenges of delayed and/or risky decision making (Dekkers, Popma, Agelink van Rentergem, Bexkens and Hiuzenga, 2016).

1.4 Scene setting as an approach to learning

According to the *Cambridge Idioms Dictionary*, the expression scene setting is used

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3 set the scene (n.d.) *Cambridge Idioms Dictionary*, 2nd ed.  
http://idioms.thefreedictionary.com/set+the+scene 28/10/16
to describe making “something possible or likely to happen”. Young (2015) found that strategies that set the scene for learning included support people, eliminating distractions, modifying the environment and externalising or making time and learning visible. This was an important finding for tertiary educators because information about students’ motivations or “out-of-classroom study strategies” is limited (Simon-Dack, Rodriguez, & Marcum, 2016, p. 776). Epstein, Graham and Langberg (2008) identified that further research was needed to support students with ADHD with time management and organisational skills. In this thesis, scene setting for learning is used as a metaphor to describe the preparation involved in organising spaces, drawing on support from people and accessing resources to eliminate distractions and enhance concentration in the context of higher education.

Increasing numbers of students with ADHD are enrolling in HE (Toner, 2009; Weyandt & DuPaul, 2008), although exact numbers are unavailable for reasons of confidentiality. A federal parliamentary inquiry (House Standing Committee on Education and Employment, 2012) advised Australian educational institutions to provide training for educators and coaching for students with mental health needs. To effectively support these students, it is crucial that educators acknowledge the educational difficulties associated with ADHD. Accurate information is needed for students and the people involved in supporting their higher education, including parents, partners and support people, as well as lecturers and professional staff so that informed support can be provided. As evidence-based information is currently limited, careful consideration needs to be given to resources to ensure these students have access to a broad spectrum of strategies organised and made accessible through equity support.
1.5 Research question and aim

The research question focusing of this research is “how adults with ADHD studying in higher education set the scene for their learning”. The interview questions expand on the areas of research concern associated with how university students with ADHD prepare to study (see Appendix D).

Inquiry into how institutions of education adapt physical space and the built environment to teaching and learning is a new area of investigation (Blackmore, Bateman, Loughlin, O’Mara, & Aranda, 2011; Dovey & Fisher, 2014). My research aims to improve learning for students with a formal diagnosis of ADHD in higher education by investigating the relationship that these people with a formal diagnosis of ADHD have with place and space and how they engage with learning.

My study sought to make visible the learning challenges and strategies used by students with ADHD in HE by exploring the elements involved in a) how they organise the environments they inhabit for studying, b) what helps to overcome procrastination, c) how physical places and space design might help with focus and attention, d) what helps to sustain concentration, e) what constitutes distractions and how can they might be managed and f) what needs to be in place to maintain the motivation required to complete academic tasks. These elements are conceptualised as scene setting as a metaphor and heuristic to describe self-taught, individualised approaches to learning in HE.

1.6 Personal motivation

When I was seeking help for my son’s experience of academic underachievement, his situation had become worse over time. Bullying had progressed to become life-threatening and by this stage, I saw how it was institutionalised because it also came
in the form of hostility and passive aggression from some teachers and two different school principals. It was not until I was 48 years old and presented to a consultant psychiatrist with post-traumatic stress disorder (PTSD) that I was recognised as having ADHD. I resisted the diagnosis but read popular literature and identified with new information such as dyscalculia (difficulties with calculation). With new knowledge, I thought I could just try harder to overcome my problems, until there was a tragedy. I was in shock, depleted and needed to take stock and found myself designing metaphorical resources. I made a visual representation of cabinets full of information, but there were no labels. I called this image *Filing Cabinets sans frontiers*. Then I made a silvery network of gridlines and the thought came, *Well, you’ve got major electrical problems too.* The idea that I might have a “legitimate” reason for anxiety and depression meant I no longer felt that I had to overcome the challenges of ADHD *by myself*.6

At a meeting in Newcastle of five people with adult ADHD, I introduced myself to the only other woman present. A red-raw graze about 15cm wide was around her neck, left from her third attempt at hanging herself. Both of us had consulted one of the leading educational psychologists in Sydney who was qualified to diagnose ADHD. If I counted my son, now I knew there were at least three of us with what had been invisible ADHD. We swapped notes about the years spent seeking help for anxiety and depression, because experience became progressively worse by these co-morbidities over time, which were masking ADHD. She had been

6 *Warehouse Meditation* was made five years before I read any literature concerned with the neurological aspects of ADHD.
discharged on the day of the meeting and during this hospitalisation, she was diagnosed with ADHD underlying co-morbid suicidality.

My return to Sydney confirmed that support for ADHD was still unsatisfactory. The president of a community service to support the condition was taking phone calls from people in distress about long waiting lists for the few doctors and clinical psychologists with a professional interest in ADHD. The volunteers had very little research literature available to assist people in their context. Much discussion at the conferences and seminars run by the committee members was about stigma and disinformation about ADHD. There was little information available about how people with ADHD learn or how their learning outcomes could be improved in formal education, although teachers were also calling the service for help.

1.7 Justification

While there are numerous studies that identify the needs of students with ADHD in HE (Burlison & Dwyer, 2013; Field, 2013; Green & Rabiner, 2012; Norvilitis, Sun & Zhang, 2010; Prevatt & Young, 2014; Weyandt & DuPaul, 2008), only a limited number of studies address “how students study and/or tackle their tasks” (Exner, 2010, p. 66) or what coping or learning strategies they use (Simon-Dack et al., 2016). Students with ADHD have difficulties with organisational and time management skills, which can cause an array of co-occurring challenges and poorer educational outcomes (Dvorsky, 2014; Thomas, Rostain, Corso, Babcock & Madhoo, 2015). These factors influence high rates of attrition for first-year students (Getzel, 2008; Hartley, 2010; Johnson & Reid, 2011; Naylor, Baik & Arkoudis, 2017), with 23% to 25% of Australian students dropping out, interrupting their studies or fail to graduate within six years of starting HE (Krause, Hartley, James, & McInnis, 2005). There are,
however, no statistics available to identify the percentage of students with ADHD in these figures.

Academic underachievement as a consequence of the poor impulse control, inattention and restlessness triad is consistently seen in the difficulties students with ADHD. They experience difficulties with planning, remembering details and appointments, focus, reading, concentration, sustaining interest and motivation to stay with academic tasks until completed. Although this is well established (Adamou et al., 2013; Antshel et al., 2011; Barkley & Murphy, 2010; Brown, 2008; Brown, Reichel & Quinlan, 2009; Janeslatt, Linsteadt & Adolfsson, 2014; Noreika, Falter & Rubia, 2013; Weyandt & DuPaul, 2013b) and recognised, little research has addressed how students with ADHD might set the scene to alleviate the interplay between restlessness, labile moods, distractibility and difficulties with motivation. With distractibility, the minds of people with ADHD seem “elsewhere” (Volkow & Swanson, 2013, p. 1937). Rather than having difficulties with study habits, students with ADHD were found to have significant problems with distraction, withdrawing from class, and having trouble with planning and completing assignments (Advokat, 2011, p. 656).

This study seeks to contribute knowledge to improve learning engagement for students with ADHD in HE by investigating how they might organising the environments they inhabit for study, an area noted to be in need of research (Epstein, Graham, & Langberg, 2008). No information has been located that describes time and task management strategies developed by students with ADHD in HE, although a memorable approach is provided by Canel, Buadze, Dube, Eich and Liebranz (2017) in the case of a man with ADHD who tied himself to the chair so that every time he
went to get up he was reminded that he needed to stay seated until his task was completed. A pilot study by Young (2015) found that scene setting through the organisation of the home and/or learning environment was an important learning strategy for women with ADHD. A dynamic range of strategies supported their learning through a complex interplay of contextual factors such as diagnosis, medication, greater self-awareness and the stability provided by external support. Further research on scene setting, organisation of the materials and environments that students inhabit for their learning, visual-spatial signposting and what other support contributes to learning for students with ADHD is the specific focus of this thesis. It appears that setting the scene by shaping transactions in physical settings (Lippman, 2010) to transform places of learning (Cannatella, 2007) is under-researched as an organisational learning strategy for students with or without ADHD, in higher education. Epstein et al. (2008) note that improved understandings of the strategies that could help tertiary students with organisation and time management difficulties are urgently needed for students with ADHD. My research presents the opportunity to conceptualise how place and spatial organisation can assist students to create conditions for learning by understanding just how some learners with ADHD think, feel and experience place, space and time. In the context of HE this will assist educational institutions, professional and academic staff carry out their “duty” to foster equal opportunities for learning (Costello, 2012, p. 119).
Chapter 2: Literature Review

2.1 Overview

This chapter reviews the literature about students with a medical diagnosis of ADHD in the context of HE to justify an inquiry into how setting the scene for learning might support learning for these students. That there is a neurological difference in people with ADHD is one empirical foundation of this study and on this foundation, the literature on place, space and lived experience informed the research processes.

2.2 Introduction to the literature.

Students with diagnosed or undiagnosed ADHD who become unable to function or participate effectively in HE (Emmers, Jansen, Petry, van der Oord, & Baeyens, 2016) need strategies for hope, optimism and resilience; these can occur with constructive approaches to seeking help and taking action (Parker & Boutelle, 2009; Ramsay & Rostein, 2008). Setting the scene for learning can include accommodations to assist students with ADHD function and participate in HE (Jansen, Petry, Ceulemans, van der Oord, Noens & Baeyens, 2017).

Theories of experiential learning, inter-subjectivity, person-environment, conceptualisations of space and visual perception, as well as lived-experience literature act as research reference points. Intersecting lived-experience theories informing my research include Dewey’s view of aesthetic experience (1934) as heuristic learning and Jackson’s (1998, 2002) intersubjective interpretation of the use
of dialectic’s reconciliation as a narrative heuristic in order to derive meaning from the adversities of life. The view of narrative as a heuristic for dialectic reconciliation of adversity is a construct taken from Jackson’s (1998, 2002) observation of traditional societies’ use of legends and myths that acted as intermediaries to externalise or personify forces and events beyond human control. Using the strategy of re-appraisal (Young, 2005), students in HE with ADHD can re-cognise learning and this will be discussed as dialectic reconciliation.

Support for organisation and timing is a factor in setting the scene for learning. The literature on coaching for executive function skills indicates that the idea of gate-keepers, time-keepers and bookkeepers can help to scaffold students with ADHD until the skills of re-organisation can be learnt to the extent that they ameliorate altered “inhibition control delay” (Barkley, 1997, p. 51), the inhibition control delay that manifests as the impulsivity characteristic of ADHD. The “gating” metaphor is used to signal the need to eliminate distractions and to highlight the need for the extra steps necessary for focusing attention. The role of gating is to keep distractions out and attention in. Regarding the management of the inhibition control delay difference experienced in ADHD, Bari says:

Only with the concerted action of attention, inhibition and cognitive flexibility we can successfully monitor our performance in relation to external or internal feedback and update our place and goals to better cope with an ever-changing environment (Bari & Robbins, 2013, p. 50).

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7 Dialectic is the medium that helps us comprehend a world that is racked by paradox; it facilitates the philosophic enterprise described by Bertrand Russell, who wrote that “to teach how to live without certainty, and yet without being paralysed by hesitation, is perhaps the chief thing that philosophy, in our age, can still do for those who study it”. csmt.uchicago.edu/glossary2004/dialectic.htm 8/12/17
The role of academic coaching to support students in HE with ADHD to develop autonomy and self-efficacy to help them determine their own approaches to goal attainment (Parker & Boutelle, 2009) will be presented as an effective service (DuPaul et al. 2017). Coaches can act as “gate-keepers” and “time-keepers” to set the scene for learning by helping to “educate attention” (Ingold, 2016) and assist with the altered perception of time that Nielsen calls desynchronisation (Nielsen, 2016). Additional theoretical approaches used to inform the research include visual perception (Gibson, 2014, 1978, 1979) and Ingold’s (2016) discussion on knowledge and enskilment through experiential learning, in his theory of attentionality, which emerged from studies on the education of attention, perception, making and artefacts (2001, 2013).

2.3 ADHD: Classification

In both the American Psychiatric Association’s Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5, 2013) and in the International Classification of Diseases, ICD-10 (World Health Organisation, 1990) inattention, impulsivity and hyperactivity are the determining characteristics of ADHD.

2.4 Prevalence.

The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (American Psychiatric Association, 2013, p. 63) estimates of the prevalence rate of ADHD in children at 5% is confirmed by Polanszyk, Willcutt, Salum, Keiling and Rohde (2014). Adult ADHD prevalence is 4% (Kessler et al., 2005). In the only available evidence of the prevalence of ADHD in HE students, between 2% and 8% of students

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8 Notably, this policy document does not mention adult ADHD.
in American colleges self-reported as having ADHD (DuPaul et al., 2009). ADHD is distributed equally between males and females (Biederman et al., 2004; Patton, 2009; Retz-Junginger et al., 2010; Rucklidge, 2008; Rucklidge et al., 2007). The literature recognises that ADHD occurs within the population irrespective of socio-economic, ethnic, gender and age differences (Arnold, Hodgkins, Madhoo & Kewley, 2015).

2.5 Under-diagnosis.

The evidence that ADHD is underdiagnosed is robust, which raises concerns about under-treatment (Ginsberg, Quintero, Anand, Casillas, & Upadhyaya, 2014; Hamed, Kauer, & Stevens, 2015). Neuropsychological tests have a poor ability to discriminate between patients diagnosed with ADHD and patients not diagnosed with ADHD (Pettersson, Soderstrom, & Nilsson, 2015, p. 1). Women are less likely to be recognised with ADHD than men (Asherson et al., 2012; Quinn & Lynch, 2016; Wright et al., 2015). ADHD can also be overlooked in the gifted population (Antshel, 2008; Brown, Reichel, & Quinlan, 2009; Hua, Shore & Mkarova, 2012; Yermish, 2010) and in ethnic and cultural minority groups (Bailey et al., 2010; Sciutto, 2015). For these reasons, it may be that in some cases students in HE with ADHD have not been identified (Asherson et al., 2010; Asherson et al., 2013; Sciutto, 2015). People undiagnosed as children may be unaware of why they are struggling (Holthe & Langvik, 2017), or if diagnosed, unable to find support, helpful resources, or trust that it is safe to take stimulant medication (Patton, 2009).

2.6 Treatment for ADHD.

A number of studies indicate that medication, therapy, psychosocial education and skills training can improve academic learning (Kolar et al., 2008; Merkt, Reinelt, &
The pharmacotherapy view is a multi-modal approach to treatment (Hinshaw & Arnold, 2015). Vance (2015, p. 574) that suggests medication and psychosocial intervention leads to “the greatest decrease in functional impairment” in classroom, social and home environments. The meta-analysis by Meszaros et al., (2009, p. 1137) found “significant and clinically robust improvement” in the severity of ADHD symptoms through the use of medication, with support for medication as the first-line strategy to facilitate formal learning. However, there is not consensus on the benefit of medication. Langberg and Becker (2012) reported only small improvements in adolescents’ educational outcomes and Advokat et al. (2011) concluded that medication alone did not improve academic achievement, although preliminary research suggested this to be the case. Medication is best considered on a “case by case basis” (Saltz 2017, p. 215) to be prescribed within a context of therapy for self-esteem issues arising from negative feedback from early learning difficulties and coaching. There are non-pharmacological strategies that can support ADHD. Psychosocial education supports relational as well as practical life skills to bring a measure of control into daily life, which also assists function and participation in HE (Bagan, Sayos, & Garcia, 2015; Exner, 2010; Hirvikoski et al., 2011; Merkt & Gawrilow, 2016). Parker et al. (2011) recommend academic coaching as a best-practice strategy to improve executive functioning for tertiary students with ADHD.

2.7 ADHD strengths.

Meanwhile, a groundswell of literature identifying the unique potential of ADHD (Williams & Taylor, 2006) is accumulating. Entrepreneurialism is starting to be recognised as an ADHD trait (Thurik, Khedhaouria, Torres, & Verheul, 2016;
Verheul et al., 2016; Verheul et al., 2015) as a result of the wide range of semantic skills and episodic memory demonstrated by people with ADHD (White & Shah, 2011, 2016) and their preference for learning in the oral tradition of storytellers and raconteurs (Boyle, 2006; Patton, 2009).

A study examining gifted ADHD people uses descriptions like “remarkably imaginative, resourceful, and curious”, “average to above average intelligence, divergent thinking and increased long-term, episodic memory” and c) “demonstrating strengths in the fluency, originality, and elaboration of their ideas” and a “high tolerance for chaos and ambiguity” (Hallowell & Ratey in Arnold et al. 2010, p. 370) appears to bestow creativity. Students with ADHD have been found to demonstrate high levels of innovation and fluidity in thought and creativity, despite poor working memories (Fugate, Zentall, & Gentry, 2013; Hua, Shore, & Makarova, 2014, p. 3). People with ADHD show strengths in heuristic abilities, problem identification and solving endeavours (Arnold et al., 2010) and the ability to “produce remarkable results in short periods of time” (Hua et al., 2014, p. 76).

White and Shah (2011) found that students with ADHD have the potential to excel in situations or in tasks that require unconstrained, or divergent thinking. Tertiary students with ADHD conceptualise original, fluent and flexible responses to problem-solution scenarios, demonstrated in the ability and scope of their semantic activation, which in turn enables innovative thinking (2016, p. 275).

Saltz (2017) suggests that the tension between impulse control and decision-making at the heart of ADHD potential presents the benefits of distractibility in terms of potential for creative thought and problem solving through daydreaming. Wandering attention is described by Uddin et al. (2008, p. 249) as “spontaneous
intrinsinc brain activity”, which Fassbender et al., (2009) say is a response to increases in task difficulty. This appears to contradict Friedman-Hill et al.’s (2010) unexpected findings that attentional filtering was more efficient for children with ADHD when task demands were higher. While the testing context may be the variable in these studies, there is also discussion about distractibility that directly links daydreaming to complex problem solving. Studies have found incremental and conscious problem solving to be an analytical process, whereas daydreaming (which may be a response to boredom) can produce insight and creative solutions to problems (Mann & Cadman, 2014; Zedelius & Schooler, 2015, 2016).

To assist students with ADHD following through on the initial stimulus of new ideas, new learning and novelty, Hua et al. (2014) recommend organisational support is needed to turn creative ideas into products. Organisational and moral support are said by Lebowitz (2016, p. 199) to be necessary to overcome the “substantial stigma” attached to individuals with ADHD. As Saltz (2017, p. 77) states, the difficulties of living with ADHD should not be minimised or to suggest “it can go untreated without ill effect”. In the context of strategic pairing recommended by Saltz, the motivation, drive and ability to surmount considerable obstacles to gain a university education (Holmes, Gathercole, Place, Dunning, & Hilton, 2010) could provide mutual support through selectively paired learning partnerships. The benefits of the learning gained and shared by people with ADHD are overlooked in their highly individualistic and unpredictable behaviour (Williams & Taylor, 2006).

Descriptions of creativity, fluidity, exploration and observation relate closely to a theory of attentionality developed by Ingold (2016). Although his interests do not concern ADHD, Ingold’s (2001) work addresses the education of attention as
direct learning from the environment, which is articulated through perception with a focus on emergent properties of dynamic systems (2013). Learning, according to Ingold (2001), is an ongoing, self-organising process of enskilment, which occurs in a dynamic system of attenuation and direct observation through the perceptual system. Ingold’s view of attentionality, the dynamics of attention and educational correspondence (2016) is found in Hutchins’ observation that “humans create their cognitive powers by creating the environments in which they exercise these powers” (2001, p. 133) speaks strongly to scene setting and support for ADHD.

The experience of adversity and how this can forge strengths in people with ADHD is observable in clinical practice (Saltz, 2017). People with ADHD show remarkable tenacity and, when combined with gifts of creativity and insight, a tremendous drive and determination to put their gifts to work, in the course of which they unconsciously and consciously develop “work-arounds” (Saltz, 2017, p. 28). The expression “work-arounds” is of value to describing the challenges of ADHD in HE. There is limited literature describing accommodations for ADHD as useful, or evidence of lecturers adapting learning materials that would benefit people with ADHD in HE, with the exception of coaching (Field et al., 2013; Parker, Hoffman, Sawikowsky, & Rolands, 2013; Prevatt et al., 2017; Richman et al., Rademacher, & Maitland, 2014). Issa (2015) and Thirukkumaran (2013) propose that support is the opportunity for face-to-face contact with people with ADHD to develop and following through creative ideas. Issa cautions:

The possibility that ADHD may in some cases be associated with certain advantages for creativity does not necessarily diminish the challenges of living with it [such as] the potential destructive effects of ADHD on a person’s education, home life, relationships and well-being (2015, p. iii).
2.8 ADHD and HE

This section of the literature review considers the expectations of academia, how the features of ADHD combine in the academic environment to create poor outcomes and what institutional supports may set the scene for students with ADHD to succeed in HE.

2.8.1 Formal schooling.

The potential inspiration and opportunity for students with ADHD to shine in some education environments can be restricted (Arnold et al., 2010), “where movement and conversation are constrained, frustrating the relational and contextual learning pattern of the individual with ADHD whose cognitive strengths lie outside an institutional setting” (Du Paul et al., 2009, p. 49). Lange, Reichl, Lange, Tucha, & Tucha (2010) note that the behaviours classified as ADHD today were not characterised in terms of disorder until the advent of compulsory education. Recent work specifically examining children in the context of school experience reports the influence restrictive environments have on restlessness (Gwernan-Jones et al., 2016; Helle-Valle, Binder, & Stige, 2015; Kofler, Raiker, Sarver, Wells, & Soto, 2016).

Eisenberg et al.'s (2008) evolutionary explanations for the restlessness, boldness and exploration observed in ADHD contextualise the person-environment mismatch in highly regulated learning environments requiring silent, seated concentration for long periods of time (see Figure 1, p. 18). Danforth and Kim’s observation (2008) that school is where the most frustration and struggle is experienced by children with ADHD indicates the likelihood of former struggles with didactic being revisited in HE.
### The mismatch between ADHD and Higher Education

<table>
<thead>
<tr>
<th>ADHD symptom</th>
<th>Challenging Educational Setting</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive function differences</td>
<td>Difficulties with activation, focus, motivation, sustaining attention (Barkley &amp; Murphy, 2010); emotional dysregulation (Adler et al., 2017; Corbisiero et al., 2017); decision-making, initiation, planning, self-monitoring, punctuality, time estimation, procrastination (Prevatt &amp; Young, 2014). Difficulties in the educational environment include overcrowded classrooms and lack of individualised attention; meeting the need for high levels of organisation, summarization and test taking (Meaux et al., 2009; Quinn, 2013; Thomas et al., 2015); becoming stuck as a result of being unable to shift attention from one task to another (Halleland, Haavik, &amp; Lundervold, 2012).</td>
<td>Poor academic performance due to difficulties with planning, decision making and tracking learning. At risk of becoming overwhelmed by administrative, organizational and technological demands of HE leading to anxiety and depression</td>
</tr>
<tr>
<td>Disability support services</td>
<td>A substantial gap is found between support services and their efficacy (Weyandt &amp; DuPaul, 2013) in a learning environment that expects that learning to be self-regulating (Saltz, 2017).</td>
<td>Disappointment in not getting the help that is needed; floundering students</td>
</tr>
<tr>
<td>Classical forms of teaching and learning</td>
<td>Students with ADHD do not learn effectively under “didactic” instruction (Parker &amp; Boutelle, 2009, p. 205). The failure of lecturers to practice flexible teaching methods brings about the symptoms of ADHD (Jensen et al., 2017).</td>
<td>Academic impairment</td>
</tr>
<tr>
<td>The digital learning environment</td>
<td>Red-tape/bureaucracy (Heflinger &amp; Hinshaw, 2010) and problems with lock-step, algorithmic learning and assumed digital literacy (Johnson &amp; Davis, 2014). Higher education’s enthusiasms for technology and pedagogy are not supported in the experience of learning (Henderson et al., 2015).</td>
<td>Missing important procedures in enrolments, on-line form completion leads to increased alienation and disenfranchisement</td>
</tr>
<tr>
<td>Restlessness</td>
<td>Regulated learning environments require silent, seated concentration for long periods of time (Eisenberg, 2008), whereas ADHD cognitive strengths lie outside institutional settings (Arnold et al., 2010). Inability to delay gratification; delay aversion (Hart, 2012; Noreika et al., 2013). Difficulties in turn taking, blurtng out answers (Patton, 2010)</td>
<td>Restricted ability to shine Withdrawal/avoidance Disruption to studies and others Frustration/social isolation</td>
</tr>
<tr>
<td>Social issues</td>
<td>Restricted choices and enforced groupings (Boyle, 2006). Problems of being able to maintain a good sense of self in university (Ramsay, 2010)</td>
<td>Difficulties with group work Social misfit</td>
</tr>
</tbody>
</table>
| Problems with working memory | Difficulties with planning, time management, keeping track of details; managing transport, learning materials, possessions, relationships | Forgetfulness 
Anxiety and incapacity in test-taking situations |
<table>
<thead>
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</tr>
</thead>
<tbody>
<tr>
<td>Inattention/boredom</td>
<td>Lectures and subjects are “painfully uninteresting”, focus wavers (Saltz, 2017, p. 57).</td>
<td>Lectures become fatiguing; words can swim on the page</td>
</tr>
<tr>
<td>Distractibility</td>
<td>Problems with work that is insufficient in degree of difficulty (Friedman-Hill, 2010). Wandering attention (Uddin, 2008).</td>
<td>Appears not to be listening Boredom</td>
</tr>
</tbody>
</table>

Figure 1. Mismatch between ADHD and higher education.

The impact of early school learning on people with ADHD has been described as “degrading” and traumatising, resulting in subsequent learning being plagued by depression and anxiety (Saltz, 2017, p. 47). Jansen et al. (2017) confirm the problem of institutionalised education, finding that classical teaching and evaluation methods intensify or bring about the symptoms of ADHD.

What can be learnt from history and current research is that the difficulties in adjusting to academic routines caused by inattention symptoms have a particularly negative effect on success in higher education, which provides reasons for the lower retention rates (Norwalk, Norvilitis, & McLean, 2009). Knowing what assists students with ADHD in HE is important because ADHD directly impacts grade point averages (GPAs) and attrition rates (Getzel, 2008; Hartley, 2010, Johnson & Reid, 2011). Evidence of greater challenge for students with ADHD is found in their lower GPA scores (Schaffer, 2013).
2.8.2 Evolving concepts of ADHD.

Understandings of ADHD are evolving (Killeen, 2016). ADHD has a genetic component (Klein et al., 2017; Perroud, Weibel, Aubry, & Dayer, 2016; Xu et al., 2015) but environmental factors influence the way it presents (Lavigne, Gouze, Hopkins, & Bryant, 2015), leading adult ADHD to be “extremely heterogenous” (Merkt et al., 2015, p.1) and reinforcing the need for early intervention. The genetic-environmental interplay replaces the earlier idea that ADHD was a moral defect, which is fortunately now regarded as archaic. What are regarded as the presenting characteristics of ADHD have also changed from hyperactivity to a wider view of executive function differences (Heidbreder, 2015) and now include differences in emotional function (Adler et al., 2017; Corbisiero, Morstedt, & Bitto, 2017; Morstedt, Corbisiero, Bitto, & Stieglitz, 2016; Musser & Nigg, 2017).

The evolution of the aetiology of ADHD can be traced through historical descriptions of hyperactivity using pejorative descriptors such idiocy, imbecility, encephalitis and deviancy (Rafalovich, 2001) such as An inquiry into the nature and origin of mental derangement, written by 1798 by Alexander Crichton (Barkley & Peters, 2012) and Still’s 1902 lectures equating hyperactivity with moral defectiveness (Palmer, 2001). The first neurasthenic and psychiatric clinics for the observation and treatment of children with disease-induced symptoms of ADHD were established in America and Europe as a result of worldwide epidemics of encephalitis between 1917 and 1923, leading to Bradley noticing test-taking improvements for children receiving Benzedrine in 1937 (Lange et al., 2010). After a long period of clinical focus on hyperkinetic behaviour in children, the first empiric definition of

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9 [https://www.cdc.gov/ncbddd/adt/hd/timeline.html](https://www.cdc.gov/ncbddd/adt/hd/timeline.html) 19/10/17
ADD was proposed to improve understandings about the association between inattention, language and reading (Shaywitz, Fletcher, & Shaywitz, 1994). The role of “inhibitory control delay” manifest as difficulties with impulsivity, a defining characteristic of ADHD, was identified by Barkley in 1997 (p. 51).

Halperin’s (2016, p. 444) reference to the role executive functions may have in the development of “compensatory mechanisms” to ameliorate symptoms and impairment in ADHD involving “diverse areas” of the brain, indicates recognition for neuro-diversity. Interpretation of scene setting as a learning strategy for learning diversity can be found in the terms “cognitive difference” (Arnold et al., 2010, p. 359) and neuro-diversity that recognise the unique potential in people with ADHD and/or Autistic Spectrum Disorder (ASD) (Armstrong, 2012, 2013). Recognition of ADHD is urgently needed in the face of pervasive misinformation that further stigmatises the condition (Mueller, Fuermaier, Koerts, & Tucha, 2012).

Current ADHD discourse characterises the condition as a bio-psychosocial aetiology involving complex gene-environment interactions (Arnold et al., 2010; Barkley, 1997, 2006; Colley, 2010; Dawson, 2012; Faraone et al. 2005; Morgan, 2012). Kolb and Wishaw (2015, p. 682) confirm “wide ranging structural and connection irregularities impair self-regulatory behaviour with ADHD”, which are seen in difficulties in the domain of planning, decision-making, being able to focus, stay on task and keep track of learning. The well-documented executive function deficits people with ADHD experience results in difficulties in formal learning environments; taken together this shows that the experience of ADHD can be helped or hindered by the environment. The level of challenge for tertiary students with ADHD in HE is now discussed in terms of “academic impairment” (Merkt &
Gawrilow, 2016; Sjowall & Thorell, 2014; Torgersen, Gjervan, & Rasmussen, 2006). According to Saltz (2017, p. 6), as understandings of the complexities of neurological structures improve, long-standing arguments over stigmatising labels will be rendered “moot” and the DSM-5 categorisation archaic.  

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2.8.3 Gene-environment interplay.

The variability of ADHD according to environmental influence gives rise to evolutionary biology (Eisenberg, Campbell, Gray, & Sorenson, 2008; Williams & Taylor, 2006) and psychiatry (Jensen et al., 1997; Swanepoel, Music, Launer, & Reiss, 2017) recognising its adaptive features. Research shows hyperactivity in ADHD changes according to context (Gwernan-Jones et al., 2016; Helle-Valle et al., 2015; Kofler et al., 2016; Lavigne et al., 2015; Newark, Elsasser, & Stieglitz, 2016; Sagvolden, Aase, Johansen, & Russell, 2005). Restlessness, the novelty of constantly changing environmental events and displays of bravery that involved self-threatening risk-taking behaviours were adaptive to nomadic lifestyles; however, these traits are disabling in contemporary society (Tovo-Rodrigues, 2010; Gutman, 2005; Callaway, 2008). Jensen at al. (1997) re-frame impulsivity as response-readiness and they state that the ability to adapt is found in the responsiveness of children to environmental modifications and accommodations for ADHD in schools. However, there is little research indicating that reappraisal of ADHD has support in HE.

Research on academic outcomes for those with ADHD has focused on how to ameliorate problems with impulsivity, attention and timing (Prevatt & Young, 2014). If this is not successful, the individual is stigmatised as disabled (Adams, 2008;  

More than three hundred million dollars funding has been allocated towards this initiative. Saltz views this initiative as a fresh start, with new understandings and hopefully a new vocabulary.
Asherson et al., 2012; Bowden, 2013; Mordre, Groholt, Sandstad, & Myhre, 2012; Pingault et al., 2011; Prosser, 2006) or deviant (Prosser, 2013, 2014; Prosser & Hattam, 2008). However, the possibility that educational institutions may be failing students with ADHD is an alternative view with strong support that the environment causes or exacerbates the disability (Feneley, 2013; Fuller, Healey, Bradley, & Hall, 2004; Kiely, 2006; Mackenzie & Watts, 2011; May & Stone, 2010; McGaha, 2005; Nadeau, 2006; Schitz, 2003; Shakespeare, 2006, 2015; Singh, 2014). Lack of fit in HE for students with ADHD finds some explanation in Eisenberg et al.’s (2008) evolutionary hypothesis that some of the attributes for ADHD, such as restlessness, boldness and exploration, are mismatched in highly regulated learning environments that require silent, seated concentration for long periods of time.
Williams and Taylor (2006) suggest people with ADHD are genetically predisposed to optimal exploration and experimentation because they learn from observation and direct experience; they are driven to explore and will take risks that will benefit others at low cost to society. As foretold by Darwin:

Restless men who will not follow any steady occupation – and this relic of barbarism is a great check to civilisation – emigrate to newly-settled countries, where they prove useful pioneers (1871, p. 172).
2.8.4 Women and ADHD.

It is not only “men” (sic) who experience restlessness, although the literature finds women to be at greater risk of under-diagnosis and misdiagnosis of ADHD (Waite, 2010; Quinn, 2005, 2010, 2013). Most authors make no comment on gender-specific symptoms of ADHD, further reducing the likelihood of females with ADHD being diagnosed (Lahav et al., 2015; Merkt & Gawrilow, 2015; Nussbaum, 2012; Quinn, 2005, 2010; Rucklidge, 2010; Waite, 2007, 2010). Anxiety and depressive symptoms are found to be higher in female tertiary students with ADHD (Nelson & Liebel, 2017, p. 1), but the stress of unrecognised ADHD increases problems with depression and anxiety, as well as sleeping and eating disorders, substance abuse and other quality-of-life vulnerabilities for women (Rucklidge, Brown, Crawford, & Kaplan, 2007; Waite, 2007, 2010). There are differences in the severity of particular symptoms according to gender (Gerson, 2002; Gomez, 2013; Lahav et al., 2015; O’Brien et al., 2010; Rucklidge, 2008). According to O’Brien et al. (2010), female university students with ADHD are at higher risk of the internalising disorders of anxiety, depression, suicide, addictions and eating disorders.

Societal expectations of gender role norms are an added burden to women with attention disorders (Hinckley & Alden, 2005). Stigma increases the difficulties of difference (Goffman, 1963) and the stigma attached to ADHD (Fuermaier et al., 2014; Mueller et al., 2012). Holke and Langvik (2017) say stigma further complicates women’s experience of conflict from living with ADHD as it is thought to be a “fake disease” and/or “moral deficit”, causing them to be at higher risk of psychological, psychiatric and academic problems as they try to hide their problems to avoid being judged (Holthe & Langvik, 2017, pp. 1-2). Women are often expected to remember,
organise and manage important dates, complex social commitments with potential and actual conflicting priorities as well as day-to-day time-dependent events, schedules, routines (Arnold et al., 2010). Women with ADHD show a higher rate of impairment than men in their health, psychological function, social life, education, money management and daily life activities (Lahav et al., 2015; Merkt & Gawrilow, 2014; O’Callaghan & Sharma, 2014).

Gender bias is also evident in symptom measurement (Dupuy et al., 2013; Gomez, 2013; Mahone & Wodka, 2012; Valera et al., 2010) because diagnostic tools are based on masculine behaviours (Mahone & Wodka, 2008; O’Brien, Dowell, Mostofsky, Denckla, & Mahone, 2010). Hyperactive males with ADHD are not socialised to repress their actions, making it more likely they will be diagnosed and be the majority of research participants (Gershon, 2002; Mahone & Wodka, 2008; O’Brien et al., 2010). I have been unable to find literature addressing the inattentive sub-type of ADHD in males, or those not identifying with their gender (assigned or physical) in the context of HE and consider that they are at equal, if not greater, risk to factors discussed in research on women with ADHD.

Highly intelligent, well-educated, professional women with ADHD can experience increased impairment in adulthood across multiple domains, with increases strongly influenced by stigmatising views of ADHD (Holthe & Langvik, 2017). Entrenched misinformation has an alarming number of serious impacts on the lived experience of women with ADHD, as reported by Holthe and Lanvik:

- Lowered quality of life, avoidance of diagnosis disclosure, reluctance towards pursuing a diagnosis of ADHD, treatment discontinuation, social isolation, and lowered self-esteem and self-efficacy. The feelings of inferiority, guilt, and low self-
esteem that accompany many mental disorders increase vulnerability to
internalization of negative public attitudes and beliefs, which commonly results in
self-stigma, self-devaluation, and intropunitive emotions (2017, p. 3).

Information about the interplay between person-to-person support, divergent thinking,
semantic activation and the perceptual experience of wide associative cognitions has
great relevance to my study about how students with ADHD in the context of HE set
the scene to work around (Saltz, 2017) learning challenges in HE.

2.8.5 ADHD and academic expectations.

In the rule-bound, structured world of mainstream academia, with its often-
overcrowded classrooms wavering of attention can be a very difficult challenge to
overcome (Saltz, 2017, p. 55).

[A]cademic impairment in college students with ADHD may be related to external
factors such as specific difficulty with academics at a particular university, loss of
family structure and support as a function of living away from home, and lack of
individualized education. Indeed, social and psychological factors likely play a role in
the success or failure of all college students, and perhaps this is especially true in those

Research on academic planning, time management, or organising strategies used by
university students with ADHD is preliminary and necessary (Young, 2015). The
timing and organisation of learning materials (Epstein, Graham, & Langberg, 2008),
poor study skills and inattention put students with ADHD being at risk of becoming
overwhelmed by the administrative, organisational and technological demands of HE
(Arnold et al., 2010; Meaux et al., 2009; Quinn, 2013). Inattention symptoms have a
particularly negative effect on success in higher education, due to poorer academic
function, poorer adjustment to academic routines (Norwalk, Norvilitis, & McLean, 2009) and expectations such as difficulties with summarisation and test taking. These are all widely noted as contributing to the mismatch between institutionalised learning and the experience of ADHD (Prevatt, Dehili, Taylor & Marshall, 2012; Prevatt, Petscher & Proctor, 2007; Prevatt, Proctor, Baker, Garrett & Yelland, 2011; Reaser, 2007; Weinstein & Palmer, 2002). ADHD is considered to be a predictor of academic procrastination (Klassen, Krawchuk, & Rajani, 2008) due to the cumulative inability of individuals for self-regulation, decision-making, initiation, planning and organisation, self-monitoring, working memory and task monitoring (Rabin, Fogel, & Nutter-Upham, 2010). Organisational strategies, such as having clear visual cues about deadlines, need to be strictly set up and reinforced until they become embedded as a routine scene-setting practice in order to improve learning functions, which in turn will assist in their engagement in HE.

Learning challenges for students with ADHD include task initiation and completion, information processes such as summarising and being able to select “main” ideas (Thomas, Rostain, Corso, Babcock, & Madoo, 2015, p. 37), perceiving time accurately (Prevatt, Proctor, Baker, Garrett, & Yelland, 2011) and being “stuck” as a result of problems with changing tasks, referred to as “set shifting” in the literature (Halleland, Haavik, & Lundervold, 2012). The contradictory problem of being vulnerable to distraction as well as becoming stuck and unable to set-shift is one of the responses typical for learners with ADHD. Students with ADHD who have no sense of achievement and are unable to anticipate rewards or delay gratification may be inadvertently reinforcing distraction (Tripp & Wickens, 2008). As a result of their poor impulse control, students with ADHD prefer immediate rewards and those
transitioning from secondary to tertiary education may be particularly vulnerable to problems of self-regulation, such as misuse of alcohol (Fleming & McMahon, 2012). Transitions such as moving between the tasks of planning, executing and reviewing work requires an ability to identify the passing of time and shift of attention (Halleland, Haavik, & Lundervold, 2012). Transition from high school to university puts these students at risk for academic probation or failure (Rogers, Hwang, Toplak, Weiss, & Tannock, 2011; Weyandt & DuPaul, 2011).

Nielsen (2017) highlights the difference in time perception in people with ADHD as desynchronisation. An altered perception of time leads to aversion to any kind of delay, as well as difficulties with transitions, such as changing tasks or stopping when hyperfocused (Coghill, Seth, & Matthews, 2014; Di Nuovo et al., 2015). This can be seen in the consistently high error rate in predicting how long it will take to arrive at an appointed time, how long it will take to complete tasks and in the perception of how much time is available (Lahav et al., 2015; Noreika et al., 2013; Prevatt et al., 2011). People with ADHD can become overwhelmed by having to attend to administrative, organisational or technical details, which can lead to what authors are now describing as “procrastination paralysis” (Almai, Abumadini, & Ali, 2016; Holzapfel, 2016; Liebenberg, 2016).

Agreement is found regarding the relationship between an impaired ability to maintain an accurate sense of time, routine and impulsive behaviour as a visceral reaction to the experience of waiting, delayed gratification and boredom (Antrop et al, 2006; Hart et al., 2012; Noreika et al., 2013; Solanto, Abikoff, Sonuga-Barke & Schachar, 2001). Delay aversion is the consistent response to the subjective experience of time passing for people with ADHD; they say that it is “intolerable”
(Hart et al., 2012, p. 2248), or “insufferable” (Noreika et al., 2013, p. 260), yet they are known for daydreaming (Thomas et al., 2015). Saltz (2017, p. 52) describes daydreaming as the “uncontrolled wavering attention and lapses into freethinking that occur simultaneously”. Boredom creates learning problems for people with ADHD (Dekkers, Popma, Agelink van Rentergem, Bexkens, & Huizenga, 2016); lectures become fatiguing; when reading words can swim on the page because their focus is wavering and they become restless when subjects are “painfully uninteresting” (Saltz, 2017, p. 57).

It is known that there are differences in the understanding of timing and the experience of rewards for people with ADHD. For example, a preference for immediate rewards is described in laboratory tasks (Tripp & Wickens, 2008) but there are few descriptions of how this translates to the day-to-day experience of ADHD students in HE. Currently it appears to be unknown what strategies they use to delay gratification of immediate rewards and spend years at university, or how they might be rewarding themselves during that time. Because of the availability of immediate rewards such as misuse of substances and alcohol, it is crucial for educators, professionals and significant others to understand that students with ADHD prefer short-term over long-term rewards (Fleming & McMahon, 2012).

Studies on coaching (see Section 2.3.9 below) reiterate that organisational and time management skills need to be supported until students with ADHD in HE have learnt them. Planning, time management, keeping track of details and remembering to attend to them in the future are essential to successful academic performance (Arnold et al., 2010) and the time demands of higher education warrant interventions for students with ADHD (Prevatt et al., 2011). Richman et al.’s (2014) findings illustrate
the wide range of discrete tasks that need support while students with ADHD learn how to set goals, think ahead to plan, prioritise and manage sequential tasks. In addition, they need to remember details, people, places, dates and times; overcome procrastination to effectively manage the stops, starts, focus on tasks, sustain attention and keep motivated for long enough to be able to complete work. They need to glean information from disparate and inconsistent online digital networks. Finally, they need to master the self-management skills of managing possessions, transport, self-care, finances, emotions and relationships and other roles and responsibilities.

The sheer number of complex organisational tasks expected to be managed highlights the need for support for students with ADHD in HE (Parker & Boutelle, 2009, p. 2014). Despite research identifying areas of strength and vulnerability specific to ADHD, disability support services do not differentiate the needs of students with ADHD from students with learning disabilities (LD) in HE (Costello, 2012). Furthermore, students report finding it safer not to disclose their ADHD due to the “significant levels of disability stigmatisation” (Trammell, 2009, p. 24). The fear of disclosing was “among the top factors” O’Shea and Thurman (2017) found impacting service access.

Working memory, another aspect of executive function that is highly predictive of academic learning, is defined as “a limited capacity system allowing the temporary storage and manipulation of information necessary for such complex cognitive tasks as comprehension, learning, and reasoning” (Baddeley, 2000, p. 418, cited in Martinussen & Major, 2011, p. 68). In the context of heightened anxiety, the capacity of the working memory is further reduced (Martinussen & Majors, 2011). Situational and social anxiety (Roth et al., 2004; Schatz & Rostain, 2006) and
behavioural inattention (Rogers, Hwang, Toplak, Weiss, & Tannock, 2011) as a precursor to memory deficit are cited as potentially inhibiting the capacity of students with ADHD to use working memory effectively. The pairing of anxiety and inattention is part of the ecology of ADHD (Saltz, 2017), further intensifying the challenge of learning with ADHD, and will be discussed in the section on anxious learners below.

2.8.6 Teaching and learning and ADHD.

Learning problems are exacerbated for students with ADHD in HE because there is little research and they are yet to have been given or found a voice. Although problems with pragmatic speech are manifest for people with ADHD (Green, Johnson, & Bretherton, 2014), there appears to be no research on tertiary students with ADHD and how they communicate or participate in HE. In addition to the manifest differences seen in examples of excessive talking, interrupting others and giving the appearance of “not listening when spoken to”, Green et al. (2014, p. 16) observe problems with the pragmatic language skills for people with ADHD in the contexts of help-seeking and decision-making. It is thought that the lack of coherence that occurs with elicited speech may result because planning is involved, which requires thinking through “multiple options” (Green et al., 2014, p. 23). This is because when the information that is being processed through story comprehension and asking questions is spontaneous, speech is “coherent, organised and fluid” in contrast to the conditions when speech is “elicited” (p. 26).

Opportunities for direct communication with people are reduced in both the HE contexts of transmission teaching and in self-regulated, online learning. Online instruction is found to teach by transmission (Henderson, Selwyn, & Aston, 2015;
Henderson, Selwyn, Finger, & Aston, 2015). The transmission model is also the context of classical teaching methods (lectures, essays, closed book exam, open book exam, multiple-choice exam and thesis writing) and classical evaluation methods (examinations) that Jensen et al.’s study (2017, p. 44-45) says brings a “high chance of attention problems and inefficient study skills” for students with ADHD. Encouraging findings observe that the function and participation of students with ADHD “increases when they can participant actively” in their learning (Jansen et al., 2017 p. 48); this contradicts O’Shea and Thurman (2017). Without differentiating learning disabilities from ADHD, O’Shea and Thurman (2017, p. 149) say that learning difficulties are not “related to, attributed to, or predicted by an individual’s level of intelligence, motivation, or the teaching style with which they are taught”. However, I prefer Jansen et al.’s (2017) view that active teaching methods such as excursions, internships, self- or peer evaluation and process evaluation and alternative methods such as portfolios, oral and practical exams can significantly reduce problems for HE students with ADHD.

There is an expectation that learning in HE is self-regulating, whereas people with ADHD not only need “strategic partnerships” to keep on task (Saltz, 2017, p. 62), they need help (due to their attentional biases) to understand protocol and to master complex, lock-step procedures (Baldauf & D’esimone, 2017). Instructional technology is noted as a particular environmental stressor that can cause high anxiety

11 Results (p. 44): the probability of experiencing difficulties were highest during classical teaching methods: attention (=.82); regulation (=.70) inefficient study skills (=.58); social problems (=.67). Analysis from the perspective of “activating teaching” (excursion, internship, self- or peer evaluation, process evaluation) and “alternative methods of evaluation” (oral exam, practical exam, portfolio) lowered the chances of experiencing attention problems (=.31); regulation problem (=.23) and inefficient study skills (=.21). Social problems were extinguished in activating teaching; however, this was also the case for non-ADHD students.
for students with ADHD (Costello, 2012; Meyers & Bagnall, 2015), online administrative interactions in HE being “one of many institutional obligations that can restrict people with ADHD from thriving in higher education” (Toner, 2009, p. 137).

The need for self-regulated learning in the context of digital learning environments creates stress for ADHD students. Meyers and Bagnall (2015) confirm this view in their findings of severe disorientation in the areas of navigation, context and procedure experienced in online learning by a student with ADHD in HE. The online learning environment detailed in a study by Meyers and Bagnall (2015) provides an example of being desynchronised. An older student with ADHD + ASD needed graduate qualifications to continue acting in a role he had been performing for many years and he needed intensive support to understand navigation, context and procedure functions expected of all students in HE (Meyers & Bagnall, 2015). It is well established that poor self-regulation is characteristic of ADHD and Johnson and Davis (2014, p. 3) quote Zimmerman’s statement that self-regulated learning is not “innate”, saying that online learners “must take greater responsibility for the management and control of their own academic progress” (p. 2). Henderson, Selwyn, Finger and Aston (2015, p. 308) find that higher education’s enthusiasms for technology and pedagogy need containment because it is reproducing “the formal transmission of educational knowledge”. Importantly, Johnson and Davis (2014) note that digital literacy should not be assumed without assessment and that students who are scaffolded by teachers, peers, parents and coaches perform best, provided that they are given an assessment model identifying the skills required to function in the online learning environment.
Learning occurs quickly for students with ADHD in HE yet they are not always able to implement their learning and they do not learn effectively under “didactic” instruction (Parker and Boutelle, 2009, p. 205). The problem identification-solution abilities in students with ADHD can be like a “sixth sense” and attune them to hypocrisy (Hallowell in Saltz, 2017, p. 70), which further complicates their learning. Harrison (2008) found that lecturers might offer students encouragement to develop their interpretative capacities, but this encouragement could mask didactic teaching methods, seen in the comments and how essays were marked if students deviated from their lecturers’ beliefs about what constituted valid knowledge. Activating teaching and alternative methods of evaluation are under-utilised. Jansen et al.’s (2017) evidence correlating activating teaching practice with better learning outcomes for students with ADHD and Toner’s (2009, p. 227) finding of “the failure of some university teachers to practice flexible teaching methods” indicate that research is needed to understand what might motivate lecturers to make learning accessible for tertiary students with ADHD. In the meantime, Jansen et al. (2017) recommend visual cues be utilised during lectures.

The de-contextualised teaching and rigid curriculum in Engineering Studies identified as barriers to learning (Zaghi, Reis, Renzulli, & Kaufman, 2016) has led to the development of a new pedagogy for engineering undergraduates with ADHD (Hain et al., 2017). Hain et al.’s work coincides and directly corresponds with the experience of five of the 13 participants in my research who have experience in Engineering Studies and this is discussed in the section about ADHD in HE. Two examples of a pedagogy considering ADHD have been located. The first is a thoughtful consideration of ADHD presented by a legal academic (Boyle, 2006) using
Dunn and Dunn’s framework to address the needs of law students with ADHD from a pedagogical perspective. Boyle (2006, p. 69) cites Dunn and Dunn about environmental, emotional, sociological, physiological and psychological factors that need to be taken into account for students with ADHD, highlighting the need for choices such as variety, the freedom to move and eat while learning, holistic versus analytic processing and permission to make choices about learning preferences rather than enforced groupings. Dunn and Dunn also refer to the need for learning to be experienced through the senses, among “sound, light and design” (ibid).

The second example of pedagogical consideration for ADHD is by Hain, Turek, Zaghi, & Hain, (2017) and heralds a new era for ADHD teaching and learning. Two conference papers were published about the difficulties engineering undergraduates with ADHD were experiencing in HE (Zaghi et al., 2016a; 2016b). They were published six months after I interviewed five engineering students with ADHD (one having withdrawn and changed degree). The papers matched the problems my informants described almost word for word and the pedagogy (Hain et al., 2017) matched the solutions to the curricula problems in the same way. Issues of interest highlighted were direct contact with lecturers, freedom of movement, flexible methods of content delivery and that context-based projects providing the challenge of real-time problem solving increased learning engagement for HE engineering students with ADHD. Direct contact with teachers and experiential learning (Dewey, 1934, 1950) is seen in Thirukkumran’s thesis (2013). This discusses a range of strategies in a student-centred pedagogy used by art teachers that led to high school students with ADHD being more successful in art than other classes. Although individual educations plans (IEPs) were the procedural tool used in the main for
students with ADHD, they were not necessary in the context of the relationships and pedagogy experienced with the art educators.

Motivation and organisation are said by Dvorsky (2014) to be the predictors of academic success. Exner (2010) found developing learning skills and learning strategies alone did not make students with ADHD more effective in HE. When the students gained insight into how ADHD was impacting their learning, an accurate perception of the challenges they needed to overcome provided them with the motivation to engage with learning skills, develop strategies and become effective. In the context of setting the scene for learning, it is important therefore that an accurate assessment take place in order to know what attentional difficulties need to be addressed. Exner (2010, p. 45) found the “most important predictor” of the effective use of strategies is the effort which brings about the reciprocal interaction between self-awareness, accurate perception of the impact of ADHD on learning and the motivation to develop and use learning strategies. Effort and efficacy, however, need to be seen in a broader context of reciprocity. For example, if students cannot perceive any return for their efforts, there may be other factors to take into account, such as learning barriers in their social, academic or built environments.

2.8.7 Anxious learners.

There is some indication that the coexistence of ADD and anxiety is not cause and effect, but rather a result of the way the ADD brain works. Imagine the ADD brain as being a highly tuned antenna that points itself in not always predictable or controllable directions and imagine that same brain being unable to switch off unpleasantness or stress triggers (Saltz, 2017, p. 52).
The sheer red-tape and bureaucracy attention to institutions and services systems doubtless increase alienation and disenfranchisement on the part of many who seek or receive service (Heflinger & Hinshaw, 2010, p. 64).

The reference to the unpredictability of the attention antenna in Saltz’s quote above means students with ADHD have “poor interference control”; as yet, however, there are no clues to what disturbs people with ADHD that is emotionally overwhelming (Van Cauwenberge, Sonuga-Barke, Hoppenbrouwers, Van Leeuwen, & Wiersema, 2015, p. 200). Harrison (2008) has identified how learning can be an anxious and oscillating experience and this is a basis on which to acknowledge the need for students with ADHD to receive ongoing support so that they can re-establish order during times of change. The vicious cycle of anxiety affects self-esteem even more when it pairs with the functional attention challenges of HE studies. Students with ADHD find themselves vulnerable to a number of factors, including managing the HE processes and procedures, managing anxiety and concentration, stigmatisation and lack of recognition for ADHD and co-occurring mental health concerns (Toner, 2009). Research highlights the co-occurring conditions of ADHD, with “up to 90% of adults [with ADHD having] one or more comorbid psychiatric disorders” (Gjervan, Torgersen, Rasmussen, & Nordahl, 2014, p. 598). Anxiety is the most prevalent (Newark et al., 2016) and includes frequent feelings of being overwhelmed, social anxieties and difficulties with appropriate expressions of anger, which are also manifest in difficulties in being able to “stand up for self” (Adler et al., 2017, p. 4). This points towards such serious concerns as the difficulty in maintaining a stable sense of self (Corbisiero et al., 2017). 35).
Ramsay (2010, p. 40) describes the impact of ADHD on identity in settings where “one’s sense of self are constructed”, such as schools, universities, work and relationships. The need to address mood management in the ADHD learning puzzle has led to calls for more research (Corbisiero et al., 2017; Morstedt et al., 2016). No research is available on how people with ADHD maintain a sense of self, which is arguably unstable in the context of Green et al.’s (2014) findings that this population do not always use the pronouns you/I accurately. Issues with timing extend to being out of step and sensibility with others and this in turn increases anxiety (Di Nuovo et al., 2015; Hartman, Geurts, Franke, Buitelaar, & Rommelse, 2016; Hurst, Kepley, McCalla, & Livermore, 2011). ADHD as a desynchronised way of being, i.e. ‘out of synch’ with others (Nielsen, 2016, p. 1), can leave students with ADHD unable to keep up with the increasing pace of society.

The continuous experience of misunderstandings and difficulties arising from under- and over- stimulation as a result of “perceiving too much” (Nielsen, 2016, p. 5) in the environment, resulting in the need to withdraw and subsequent social isolation. Schatz and Rostain (2006) note the possibility of anxiety about social and cognitive functioning may be actually masking ADHD, thereby increasing the risk that anxiety is diagnosed at the expense of leaving ADHD unidentified and undiagnosed, or misdiagnosed (Arnold et al., 2010; Asherson et al., 2012; Currie & Stabile, 2006; Kooij et al., 2010; Remschmidt, 2005). When repeated and prolonged, the symptoms of ADHD may heighten anxiety to extremes, resulting in the sufferer leading a “double life” to cover the cycles of chaos and striving for control (Toner et al., 2006, p. 251). Co-occurring anxiety in students can lead to lifelong cycles of difficulties with learning, organisational and administrative tasks, with the result that adults with
ADHD become “masters of putting on a brave face” while being unable to divulge their internal and/or external chaos to others (Toner et al., 2006, p. 258). Prevatt et al. (2012, p. 8) suggest:

It may be productive to explore the nature of the anxiety and reassure students that there might be a positive side to their academic concerns. Normalizing their concerns, educating them about anxiety, and even being able to re-frame their anxiety as a possible positive coping mechanism may all be helpful strategies.

### 2.8.8 Accommodations for ADHD.

Following *The Parliamentary Inquiry into Mental Health and Workplace Participation* (House Standing Committee, 2012), the NSW Mental Health Commissioner quoted “intimidating campuses and inflexible course structures as barriers to participation” in HE (Feneley, 2013). Statutory authority entitles students formally diagnosed with ADHD to receive “support and accommodations” (Toner, 2009, p. 26). Adjustments for assignment deadlines, provision of quiet rooms for exams and coaching are among such accommodations (Prevatt, Lampropoulos, Bowles, & Garrett, 2011; Prevatt & Yelland, 2013; Swartz, 2005). Teaching and learning accommodations include changes in presentation and response requirements. Gropper and Tannock (2008, p. 574) recommended parents and physicians counsel students with ADHD to contact the university accessibility services to provide them with “academic guidance” and seek accommodations.

Vischer’s (2008, p. 100) study on the transactions between people, work and the built environment emphasise the need for environments and workspaces to be “negotiable” to balance the needs, skills and abilities with sufficient challenge to stimulate active engagement. Negotiable workspaces can empower people with a
sense of control over their environment and help them find their own ways of improving their functionality. In the HE policy environment context, ratification of the UN Convention on the Rights of Persons with Disabilities (2006) suggests equal participation for students with ADHD through “reasonable accommodations to support academic achievement” (Jansen, 2017, p. 38). Most of the problems experienced by students with ADHD occur in “classical teaching or evaluation methods” (Jansen, et al., 2017, p. 35) and most of their problems can be ameliorated through activating teaching, visual methods and alternative methods of assessment. However, there is a “substantial gap” between disability support services and their efficacy (Weyandt & DuPaul, 2013, p. 97). Toner (2009) reports on first-year students with ADHD finding the time taken to access disability support to be as consuming as their academic workload. Effective support is scarce and “as yet, it is not clear under what circumstances accommodations for ADHD are beneficial” (Jansen et al., 2017, p. 38), again, with the exception of coaching.

While acknowledging there are difficulties associated with accessing support from disability services, Lefler et al. (2016) suggest that hiding ADHD and/or refusing to access support services is self-handicapping. However, it is difficult to reconcile this suggestion with the fact that the quality of engagement with their educators and support people, social issues such as stigma and lack of learning materials specific to ADHD (Arnold et al., 2010; Marshak, et al., 2010; Toner 2009) is consistently failing to meet the learning needs of people with ADHD (Boyle, 2006; Proctor, Prevatt, Adams, Reaser, & Petcher, 2006; Rogers, Belanger-Lejars, Toste, & Heath, 2015). This may also be true for people with autism spectrum disorders.

2.8.9 Executive function coaching.
Ramsay recommends coaching as a learning accommodation in HE for “turning intentions into actions” (2016, p. 179). Currently academic coaching for executive function training is found to be the most effective learning intervention for tertiary students with ADHD (DuPaul, 2017; Field et al., 2013; Prevatt et al., 2017; Ramsay, 2016; Ramsay & Rostain, 2006; Richman et al., 2014). The development of an assessment scale (Deal et al., 2015) has confirmed that coaching can improve Grade Point Average (DuPaul, 2017). Adults with ADHD seem to know what needs to be done, but have difficulty knowing how to focus, concentrate, start and complete tasks in order to improve how they function, simply because they have an altered response to task initiation. In cases of learning dysorganisation, coaching enhanced self-control and helped the affected students manage the multi-dimensional aspects of student experience; this was because they internalised their coaches’ voices and instructions over time (Parker, Hoffman, Sawilowsky & Rolands, 2013). Coaching is non-didactic and emphasises autonomy, self-determination and metacognition (Parker et al., 2013). Executive function training for ADHD academic coaching has been shown to improve metacognition and self-determination for goal attainment, self-efficacy (Parker & Boutelle, 2009), self-monitoring (Scheithauer & Kelley, 2017), self-advocacy (Toner, 2009) and time and goal management (García-Ros, Pérez-González, & Hinojosa, 2004; Häßner, Oberst, & Stock, 2014; In de Braek, Dijkstra, Ponds, & Jolles, 2017). Accuracy in time-to-task estimation and allocation can be taught by chunking or breaking down their tasks into “smaller components of shorter duration and estimate those individual segments” (Prevatt et al., 2011, p. 536).

Parker and Boutelle (2009, p. 204) report that “in contrast to traditional campus services” students found the primary role of support for emerging autonomy, and
executive function enskilment boosted confidence and self-efficacy. The non-didactic engagement afforded by coaching is found in the humorous interactions between tertiary students with ADHD and their coaches (Parker and Boutelle, 2009), which will be discussed again in the findings (see Chapter 5).

2.9 Setting the scene for learning

The unique quality of place is its power to order and focus human intentions, experiences and actions spatially (Seamon & Sowers, 2008, p. 44).

It is the symptoms – not the labels - that impact the way we interact with the world and how the world engages with us (Saltz, 2017, p. 16).

Following Seamon and Sowers’s (2008) observation about the power of place to focus intentions spatially, this section traverses a wide range of fields to conceptualise setting the scene for learning in HE as an ecological experience of learning. The breadth of experience and contradictions that divergent thinking, creativity, and distractibility affords people with ADHD means they need to create an environment to corral attention in order to hyperfocus. An ecology of ADHD using the lens of attentionality (Ingold, 2016) situates the participants as the experts on their own scene-setting practices, considering the interplay between the participants’ experiences of geographical, social, political, physical, imaginal, perceptual, spatial and learning relationships.

2.9.1 Overview of literature relevant to scene setting.

Research on how students with ADHD use space as an approach to learning and a means of focusing attention on their learning activities in the context of HE is preliminary (Young, 2015). Literature from environmental philosophy, environmental psychology, human geography, aesthetics, architecture and anthropology will assist in
the analysis of how the participants can focus their attention by observing how they create learning spaces by developing systems that help them study. Although the place and space literature overlaps, for clarity it will be grouped into three clusters. The first group, *Learning spaces and space design*, addresses the abstraction of learning spaces, physical locations and spaces for learning, including informal learning spaces (Ambler, Webb, Hummell, Robertson, & Bailey, 2013). It also includes educational architecture and social and environmental psychology (Blackmore et al., 2011; Deed, Lesko, & Lovejoy, 2014; Dovey & Fisher, 2014; Vischer, 2008; Wood & Dovey, 2014).

The second cluster, *Emplaced learning* (Fors, Bäckström, & Pink, 2013), covers strategies for learning engagement (Fettes, 2013; Fettes & Judson, 2011), which include time and space, learning preferences, approaches and capacities (Deed et al., 2014) and learning strategies. The third literature cluster, being concerned with a sense of place and reverie, memory, imaginative and inspirational connections with place, is called *spatial perception*.

### 2.9.2 Learning spaces and space design.

Use of the term *learning spaces* describes the boundaries of academic disciplines (Healey, 2005; Kolb & Kolb, 2005) or abstractions, such as “spaces of influence” (Green, 2007) and “climates of communication” as the spaces where informal learning can occur through corridor conversations (Ambler, Chavan, Clarke, & Matthews, 2014), including outdoor learning spaces (Ambler et al., 2013). Sociologies of space (Halford, 2008) and “the limits of what it is possible to learn” (Marton, 2010, p. 24) use “space” to connote and area or field of interaction and/or learning. Virtual learning space worlds (Johnson & Levine, 2008) and personal
learning spaces are used as metaphors for the technological space in which to explore information, organisation and communication (Bomsdorf, 2005; Schaffert & Hilzensaur, 2008; Waterworth, 1996). While current discussion of “personal learning spaces” in the educational literature considers technological entities, the occupational therapy literature provides information about how people are functioning in their own contexts. A [composite] case study based on tertiary students with ADHD by Gutman and Szczepanski (2005, p. 29) identifies inconsistency in academic performance, chronic lateness, difficulty maintaining alertness and paying attention in lectures and a “moderate degree of social avoidance” by peers. Lateness in attendance and submission of assignments, inability to maintain organisation of a workspace and medication, distractibility and inattention and difficulties participating in a supervisory relationship were targeted in the intervention provided by occupational therapists. The intervention improved monitoring and regulation of stimulation, organisation of the physical environment (including personal space), time optimisation, enhanced social awareness and interaction and stress management techniques for the student (ibid). Behavioural factors that cause havoc in the day-to-day functioning of a student with ADHD highlighted the need to “recognise when to ask for help before situations progressed beyond control” (Gutman & Szczepanski, 2005, p. 35). The need for examinations to be taken in areas of low distraction is an important point made and this requires that tertiary students with ADHD registered with disability services and disclose to faculty in order to be accommodated in quiet rooms for their examinations.

The metaphor “knowledge landscape” (Clandinin, Pushor, & Orr, 2007, p. 23) refers to the learning in place from the traditions, contradictions and innovations in
the practice of teaching and learning. A knowledge landscape can also represent the literal phenomenon of spatial learning in contact with land, place and country, in keeping with Aboriginal ways of knowing (Gumana, 2016; McNiven, 2004; Morphy, 2009). The importance of connectedness and sociability of place to learning environments (Crook & Mitchell, 2012; Harrop & Turpin, 2013; Hunley & Schaller, 2009) has led to both Gruenewald (2003) and Thomas (2010) holding virtual learning environments as responsible for displacing education and discouraging human contact.

Psychological interpretation of the built environment looks to situations where people are motivated by their work environment or demotivated by the effort expended in overcoming problems and environmental barriers. In presenting the view of the built environment being supportive, Vischer (2008, p. 100) says:

The concepts of positive stress (Selye, 1979) and of environmental competence (Lawton, 1980; Sternberg, 2001) are both useful in this context in that they recognise that some environmental challenge is necessary to ensure active engagement. A workspace…needs to be adaptable and ‘negotiable’ to be most supportive to users.

Learning is said to occur through “interrelational experiences” (Murphy & Brown, 2012, p. 645), which encompasses all the transactions in the learning environment between people and the places. Although places can “enable or inhibit” teaching and learning (Oblinger, 2005, cited in Harrop & Turpin, 2013, p. 59), educational architecture is usually discussed “independently” and away from location (Temple, 2007, p. 12). Thomas (2010, p. 502) describes this situation in terms of a “conceptual slippage” between traditional views of learning environments being married to the location of buildings and resources modelled on a production-line,
evocative of being “placeless” (Relph, 1976), without articulating where or how, learning takes place. Echoes of these views are heard in critiques of educational architecture. Jameison says, “attempts to create new teaching and learning facilities on university campuses have often resulted in celebrated architecture that has proved to be educationally problematic” (2003, p. 119). Whisnant has argued that the ‘campuses are, in effect, designed to exacerbate “division, tension, alienation and strife”’ (cited in Temple, 2007, p. 15). In the context of options for “anywhere” learning in virtual environments (Harrop & Turpin, 2013, p. 60) the connectedness and sociability of place to learning is altered (Crook & Mitchell, 2012; Harrop & Turpin, 2013; Hunley & Schaller, 2009). Disrupting social and place connections suggests that instructional settings and information technologies are assumed to be the mediums facilitating teaching and learning (Lippman, 2010).

According to Temple (2007), sound pedagogic principles should be contributing to learning space design; instead, the situation is that little thought has been given to the needs of students. Harrop and Turpin (2013) surveyed how students in HE used informal learning spaces and also emphasised that data that may have provided reasons for students’ learning preferences is yet to be collected. Other literature confirms that students’ learning needs have yet to be examined in the context of place and learning (Crook & Mitchell, 2012; Jamieson, 2003; Jamieson, Fisher, Gilding, Taylor, & Trevitt, 2000). A literature review on the relationship between educational architecture, use of space and primary school education (Blackmore et al., 2011) commissioned by the Victorian Department of Education and Early Childhood also found that the location of educational architecture practice was divorced from the location and business of teaching and learning. However, the Victorian review
comprehensively identified areas and stages for the conceptualisation and analysis of information about places and spaces for learning. Decision-making and the areas of pedagogical knowledge that were previously disconnected are addressed in the Victorian review by considering the relationships, i.e. the expectations, experiences, places and actions, occurring between the conceptual and practical design aspects of educational architecture.

Fettes & Judson (2011, 129) have said that education often neglects “creative engagement with the physical world”, although contact with the natural environment and outdoor learning spaces on campus can provide solace. Ambler et al. (2013) found that aesthetic experience seeded learning outside the formal curricula and provided inspiration for students on campus. Creative engagement can also occur in “a reflective space…where complexity, uncertainty and hidden feelings are thought about is postulated to reduce confusion and dissonance, and which in turn would enable the system to become more self-aware and less naïve” (Kildea, Wright, & Davies, 2011, p. 599) for people with ADHD and those supporting them.

Examination of how students with ADHD using scene-setting strategies, be they a reflective space for learning about self, a desk space for writing assignments, an office space for keeping records or a semantic space for innovation, follows Kildea et al. (2011) in respect of the need to reduce confusion and dissonance in order to concentrate.

### 2.9.3 Emplacing learning strategies.

Gutman & Szczepanski (2005) say it is a common experience for people with ADHD to be unable to “organize their physical environment to support daily functioning” (2005, p. 25) and they recommend training continue until organising skills become
routine. Tertiary students with ADHD who relied on parents to organise them during their school years, or did not learn organisational skills in the home, such as in the case of a whole family affected by ADHD, are vulnerable to academic difficulties, particularly during transition and their first years in HE (Dvorsky, 2014; Gormley et al., 2015; Schepman, 2013; Thomas et al., 2015; Weyandt & DuPaul, 2013a, 2013b, 2008). The photographs in Reaser’s study (2007) provided “before and after” photographs taken by American college students with ADHD who had been coached to tidy their rooms (Reaser, 2007). The photographs are exemplary, but it may be fair to also view them as temporary. According to Toner et al. (2006), people with ADHD continually cycle through periods of chaos and striving to regain control of their environments and undertakings. Young (2015) confirms this view, finding that in the context of HE learning, scene-setting strategies were not fixed in place or time, and strategies needing to be developed according to differing circumstances. Duncan (2005, p. 371) says that new learning situations change the “patterns of relations” in the dynamic between learning strategies, with a result that the conception and orientation of learning strategies need to be reviewed.

Scene setting involves strategic movement and action, location and relocation, preparation and placement in the organisation of materials, accessing of resources and making arrangements with support people. In this study, learning strategies are considered to be thoughts and behaviours (Weinstein & Meyer, 1991) that are “reflectively adapted” by individuals “to fit situations” (Klassen, Lam, P., & Forde, n.d., p. 1). Weinstein and Meyer (1991) suggest that there are three broad types of learning strategy; the first is for learning about content, the second is planning and organisation strategies and the third is resource management of time, materials and
people strategies.

2.9.4 Spatial perception.

Metaphysics is rooted in an implicit geometry which – whether we will or not - confers spatiality upon thought: if a metaphysician could not draw, what would [s]he think? (Bachelard, 1964, p. 212).

Bachelard’s (1964) conceptualisation of “nesting” is a metaphor of habitation, sheltering, security and the freedom to evoke the imagination and dream. Nesting evokes an intimate view of how contemplative thought can become routine by association through personalising space; it also provides an insightful lens into how students might interact in personalised space to manage restlessness, eliminate distractions and focus attention. Hyperactivity, now a disabling trait in contemporary society, can be invoked by the environment.

Gruenewald claims that place is “profoundly pedagogical” (2003, pp. 619, 623). The influence of place and landmarks on people includes self-regulatory and affective dimensions of place, space and learning (Ambler et al., 2013; Bai et al., 2010). In support of the participants’ need for visual and spatial cues for their executive function, I will rely on what Ingold calls the “taskscape” (2001, p. 137). This is the field of practice where first-hand knowledge is acquired as a model for scene setting and the principals of wayfinding12 and the use of visual cues, that is, visual-spatial signposting, in a taskscape act as “signposts in a landscape” (n.p.).

12 Environmental Graphic Design embraces many design disciplines including graphic, architectural, interior, landscape and industrial design, all concerned with the visual aspects of wayfinding, communicating identity and information and shaping the idea of creating experiences that connect people to place. https://segd.org/article/what-environmental-graphic-design-egd 12/12/17
To set the scene for familiarity and routine, calm hyperactivity and focus attention, and enhance approaches to learning, associations can be developed through imaginative and intellectual interaction with place through reverie (Bachelard, 1964; Fettes, 2013; Fettes & Judson, 2011; Gruenewald, 2003). Fleming describes “cornerstones” of mental associations with affection when recalling patterns of living associated with buildings and places (cited in Harrop & Turpin, p. 60). Affinity, in the sense of connection arising from the relationship between personal experiences and place (Tuan, 1991, 2001), can bond identity, memory and locations by association with the physical familiarity of place (Crabtree, 2000; Kudryavtsev, Stedman, & Krasny, 2012). Familiar memories and imaginative connections occurring between people and places is found in Bachelard’s (1964) poetic philosophy of space, which has had lasting influence on architecture and space design (Benedikt, 2013) and heightened appreciation of the immanent (Ingold, 2001) pedagogical potential of space (Chimisso, 2017; Magrini, 2016).

Benedikt’s view of reverie and its benefit to learning in the context of interactions with contemporary buildings designed with the aid of computer programs is expressed in his comment, “Cutting down the time for reflection and serendipity, for noise and chance, to enter the process – does this link with models of thinking and learning?” (2013, p. 3). The experience of mass education in the spaciousness afforded by contemporary architecture and Wi-Fi is regarded by Benedikt as a void that leaves an emptiness to be filled by media (2013).

2.10 Theorising the data

This final section of the literature review presents the theoretical perspectives used for data analysis and representation in the Discussion (see Chapter 6). Where the
participants gave express reasons for how and why they set the scene for their learning, I accept their interpretations (Mischler, 1991). Jackson’s interest in story and “different modes of understanding” (1998, p. 4) hints at the aesthetic potential for dialectic reconciliation of the human condition. The functional role of story in traditional societies in mediating the polarities of experience, by ascribing and deriving meaning from experience, is described by Jackson as “situated thinking” (2002, p. 252). The oral tradition is a pragmatic knowledge schema, for it “determines meanings and assesses beliefs in terms of their experiential effects” (Shusterman, 2010, p. 30). Scene setting was felt as a powerful heuristic, as was telling the story of this aspect of learning. Theories about story were taken into consideration (Ambler, 2015; Grumet, 1990; Kooy, 2006, 2007) as they relate to the epistemology underpinning Narrative Inquiry. Aesthetic understanding can be found in the meaning people give to experience in “story-talk” (Clandinin & Rosiek, 2007, p. 35), which functions to reconcile and externalise adversity, hence the term dialectic reconciliation.

Dewey’s (1934, 1950) view of aesthetic experiential learning and spatiality, Gibson’s (1978) ecology of the visual perception of pictures and Ingold’s theory of attentionality (2016) have focused my interpretations of scene setting, visualisation and visual representation emerging in this study.
Chapter 3: Methodology

Narrative Inquiry: Verbalising and Visualising Experience

3.1 Overview

This chapter presents the methodology for exploring the ways in which students with a medical diagnosis of ADHD set the scene for their learning in HE. Reasons for the selection of Narrative Inquiry are provided for exploring the learning strategies adopted and applied in their studies. Narrative Inquiry provides the methodological lens for this study, while portraiture, arts-based methods and self-study constitute the key methods employed to collect data; these are presented in this chapter. Documentation of a medical diagnosis of ADHD was a requirement for participation in this study. Participants were recruited either directly through disability support officers or through the university’s equity support service, both of which had such medical documentation.

3.2 Narrative Inquiry: Learning from experience

For millennia stories have been a universal and universally effective mode of communication and persuasion. We are introduced to them in childhood. They transcend time, culture, and geography. We use them to derive meaning from experience and to pass along knowledge, values, and wisdom (Aronson, 2014, p. 1456).

Using stories and images is a recognised approach to research for learning about human behaviour, values and making “meaning from experience” (Aronson, 2014). Connelly and Clandinin, (1990) recognised Narrative Inquiry as a valuable approach for researching people’s everyday learning settings. Dewey’s theory of experiential learning holds that everyday continual and relational knowledge is “a source of
insight useful not only to the person himself or herself, but also to the wider field of social science scholarship” (1981b, p. 175). Experiential, or empirical, learning is integrative, internally motivated and instrumental, a “unique experience of intrinsically unifying value in personal expression” (Dewey, 1934, p. 83) found in “the educational correspondences of real life” (Ingold, 2014, p. 393). The terms heuristic, aesthetic, experiential and direct are used to refer to this type of learning. The importance of experience to learning was the reason I selected Narrative Inquiry as the methodology suitable for exploring the participants’ lived experience of functioning and participating in HE, specifically by examining how they set the scene for learning. Experience is the “ultimate explanatory context” when teachers, students or others are asked why they do what they do (Clandinin & Connelly, 1989, p. 5).

The life experiences explored in this research concerned the students’ experiences of ‘scene setting’. They are constructed in narrative, which is considered to be a phenomenon for creating meaning and for understanding the learning and teaching context (Connelly & Clandinin1990; Clandinin 2006; Clandinin, Murphy, Huber, & Orr, 2009, 2007; Scutt & Hobson, 2013). The literature provides scant information into the everyday lives of adults with ADHD, and less about the difficulties they experience in HE (Toner, 2009, p. 11). Precious little is heard directly from students with ADHD in the context of HE. Some voice is found in quotes, provided in a minuscule amount of literature; however, the research issues, topic and themes are framed by the authors (Meaux, Green, & Broussard, 2009; Mullins & Preyde, 2013). This present inquiry gives a voice to each participant and aims to understand how students strategise to manage the impact of ADHD on their learning in HE.
In addition to improving understandings of the lived experience of ADHD in HE and giving the participants voice, an embedded value within Narrative Inquiry is empowerment for research participants. This is because “when people explore and reflect on their life stories, it is also a learning experience for the participants” (Bach, 2007, p. 300). Considering research participants as people for whom there should be benefits supports a democratising approach to the research project. Narrative Inquiry can “raise issues, inviting us to rethink what we thought we knew” (Hart in Bai, Elza, Kovacs, & Romanycia, 2010, p. 352), and “at its best, Narrative Inquiry has the power to bring together stories and in so doing transform the story and the participants in the process” (Hart, 2003, p. 9).

The research conversations (Mischler, 1991) provided the opportunity for the discourse to be developed in a place of emotional safety, which made it possible to share difficult experiences in a reflective way. Clandinin and Rosiek state, “The regulative ideal for inquiry is to generate a new relation between a human being and her environment – her life, community, world” (2007, p. 39). Specific questions focused attention on how they used and modified their environment to organise the places and spaces they used for their studies, with particular attention given to the meaning behind how they set the scene for their learning. Ongoing research engagement generated additional information in the visual narratives provided by some participants. In other cases, information was recorded in field notes and email correspondence.

Narrative Inquiry allows for deep, reciprocal learning. My approach to participant engagement was shaped by the ideas of flexibility and sensory perception of the environment as part of learning, which “calls for us to re-situate” (Fors et al.,
learning as a throwntogetherness (Massey, 2005). Narrative methodology builds this context, which coalesces through the work of problem-solution research transactions involved in moving from the known to the unknown in a conceptual space of research. The view of learning that occurs in a moving world accounts for processes of perception of the environment, which Massey (2015) identifies as place-events. Fors et al. (2013) suggest the context of perceptual learning through movement, and places-events is an epistemological shift from situated learning and embodiment to “resituating situated learning in a moving work” and “emplacement” (2013, p. 170); learning is emplaced in the environment.

In the context of research conversations, and in terms of scene setting, a learning space might be a meeting in a café, or it might be a disused room set up as an office or studio. A learning space emplaces a problem solver inside a “problem space”. The tools of problem solving might be stored on site, or at a place such as a depot, but the problem space is fluid, and takes place in the context of interactions with other actors. Narrative Inquiry helps identify what might be holding the experience of emplaced learning together; it can also help represent the separation, changes of direction and interstices of the in-between states of transactions between agents, actors, objects and objectives, projects and projections, places and spaces. The image of the flow of transactions and changes in direction brings andamento to mind; “the visual flow and direction within a mosaic produced by the placement of rows of tesserae” (Miles, 2016). The similarity between tesserae and pixels is that the individual pieces that construct the image can be perceived all at once, as a whole.

The Narrative Inquiry methodology, both verbal and visual, constructs a conceptual space, a temporal-space, a meeting place of people who are experiencing
difficulties with functioning and participating. In the HE context of this study, a learning space is a meeting place of like minds. The direct contact of ADHD compatriots affords an in-situ pedagogy. Using narrative methodology does not require the learning to occur in a timed sequence or a fixed location. The subject of our pedagogy, a literal and figurative education of attention, was “produced as part of the event of place” (Fors et al. 2013, p. 174) as emplaced learning. In the context of research interviews conducted by Skype for this study, “emplaced” expresses the experience more accurately than “embodied” learning.

### 3.3 Visual Narrative Inquiry: Learning from perception

Visual or aesthetic experience is grounded in the Deweyan view of direct learning. Visual Narrative Inquiry is a methodology to explore aesthetic experience in direct engagement with people, places and objects, through movement and vision (Bach, 2007). The organic connection between the expressive acts that integrate learning experiences was said by Dewey to be like building or construction. Experiential learning is “both action and its result [wherein] the oppositions of individual and universal, of subjective and objective, or freedom and order … have no place” (1934, p. 82). I interpret “no place” to be without distance, difference or duality in the experience of direct learning, where the senses, cognitions, emotions, intentions and concentration are engaged in a field of practice, focused and experienced as one.

The research design started with the metaphor “scene setting” and a question set, and the metaphor became the heuristic for the research processes. Scene setting addresses one of the puzzling contradictions in how people with ADHD learn. ADHD often equates with academic impairment in the literature (Weyandt et al., 2013), yet empirical research shows that adult ADHD equates with “high levels of original
creative thinking and real-world creative achievement” (White & Shah, 2011, p. 673). I could clearly see a research puzzle-space that needed definition and recognition, and the methodological puzzle of how to work with space. Visual Narrative Inquiry provided the tools for constructing a “home” as a metaphorical place to embed myself in this research puzzle. I experienced this as a “dynamic approach to context making” (Fors et al., 2013) and a perception that was “lived” (p. 171). I was within, in-between and sometimes without this space, an outsider to my own making, sometimes unsure whether I was part of the problem or part of the solution to the research puzzle. As a practicing visual artist, I am “at home” with the tools of Visual Narrative Inquiry for experiencing the uncertainty, incidental learning and emergent learning, which are characteristic of painting and other direct visual methods (photography is a different experience).

3.4 Methodological contributions of this study

The research on ADHD in the HE context is generally limited because studies are considered to be “few, preliminary in nature, or methodologically weak” (Weyandt & DuPaul, 2008, p. 316). Knowledge is limited because longitudinal studies are lacking; research into gender differences in the area of ADHD is limited (DuPaul et al., 2009), and no studies have been found that have researched formally diagnosed students (Green & Rabiner, 2012). To redress these reported weaknesses, there are four methodological contributions that this study adds to knowledge about ADHD in HE:

1. This research gives voice to the participants so they may express the impact of ADHD on their learning in the university environment.

2. ADHD is defined in the medico-scientific literature as a functional impairment when testing for academic achievement (Sjowall & Thorell, 2014) or academic
impairment in the context of institutionalised learning (Gropper & Tannock, 2009; Merkt & Gawrilow, 2016). Narrative Inquiry is of value to exploring ADHD in the context of HE because it is situated research.

3. This study explores participants’ experiences in terms of time, circumstance and relational contexts. It also addresses the problem of validity to contribute real-world improvements to measures of everyday functioning, real-life settings, and quality of life (Stern, Malik, Pollak, Bonne, & Maeir, 2014, pp. 2-3).

4. A methodological weakness seen in most studies concerned with ADHD is redressed in this study. That weakness lay in the fact that those studies relied on data from American college students who self-reported having ADHD. Participation in this current study required students to provide documentation of a formal medical diagnosis of ADHD. Alternatively, direct recruitment occurred through disability support officers, medical documentation being a requirement for registration with the university’s equity support service. Participants who met the requirement of diagnosed ADHD and volunteered to be in the study are described and the data collection and interpretive processes are presented in this chapter.

3.5 Research methods

The research methods used for data collection and analysis were metaphor, portraiture, self-study (Samaras, 2010) and arts-based methods including photography, drawing, diagrams and mapping. One-on-one interviews were conducted with each of the participants. Metaphor (Danforth & Kim, 2008; Diamond & van Halen-Faber, 2005; Lakoff & Johnson, 2003) and the use of humour (Garner,
2006; Powell & Andresen, 2006; Torok, McMorris, & Lin, 2004), which spontaneously emerged as a meta-cognitive form of participant engagement and data elicitation, were key tools of my approach to data collection.

3.5.1 Metaphor

Eisner has said that “metaphoric precision is the central vehicle for revealing the qualitative aspects of life” (see Janesick, 1994, p. 36). The essence of metaphor is understanding and experiencing one kind of thing in terms of another (Lakoff & Johnson, 1998, p. 5). The utility of metaphor has given it the role of a Swiss army knife in this research. Metaphor can coin terms for learning experiences (Hughes & Tight, 2013) and “serve as a bridge from experience to mediation, representation and symbolism, which in turn allow us to understand experience in new and deeper ways” (Oldfather & West, 1994, p. 23). A theory-constitutive metaphor provides semantic content necessary for new theorising (Boyd in Danforth & Kim, 2008, p. 51). Metaphor has been used as a tool of self-analysis as to my position as researcher (Doucet, 2008); as an interpretive device for connecting research process in the research design; for elicitation of meaning in the data analysis; to visualise concepts in the form of graphic metaphor (Diamond & van Halen-Faber, 2005; Prosser & Loxley, 2008) and as a communication tool (Chiappe & Chiappe, 2007) in the research conversations and research texts. White and Shah found “ADHD is positively associated with specific aspects of innovative thinking [attributable] to a wide scope of semantic activation” (2016, p. 275), supporting the relevance of word play, figurative speech and graphic metaphor in this study.
3.5.2 Portraiture

The data was written as individual portraits (Hill, 2005; Hill-Brisbane, 2008) of each participant. It is fitting that portraiture was used to communicate the participants’ lived experience of “setting the scene for learning”, as it is founded on the episteme of aesthetic wholeness (Hill-Brisbane, 2008) and avoids viewing the participants as reducible data (Polkinghorne, 2007). The experience-centred design of the portraits “ensures attention remains focused on the diversity of the people in the target group throughout the process” (Golsteijn & Wright, 2013, p. 301). It does this by documenting real people, in the places they frequent and where they learn, in real time and in the context of how they are living their lives. While Hill-Brisbane talks about the portrait being “framed by setting” (2008, p.3), this research considers an ever-changing backdrop to represent the dynamic clusters of learning strategies used by the participants.

3.5.3 Self-study: a methodology for re-framing experience

Samaras and Freese (2009) characterise self-study research as the systematic inquiry into the context of the researcher/narrator’s experience by opening the methodological processes to scholarly critique for the purpose of re-framing experience and improving non-exploitative practice. This thesis is underpinned by self-study, which is interwoven throughout the research texts. Self-study is in the narratives I have given in the pages preceding the Abstract, the personal motivation and the drawings and diagrams I produced while conceptualising the research. Self-study is found in the scene-setting practices and the scenes I set up as learning spaces that I have worked in for the five years spent conducting this research.
Intersubjective research requires a “careful balance in the movement between self-study and intersubjective research” (Bullough & Pinnegar, 2001, p. 14). This became an important method in my research because I share the platform with the participants through a disclosure of ADHD + PTSD and have been at higher risk of researcher vulnerability. The Disability Discrimination Act (1992), The Disability Discrimination and Other Human Rights Legislation Amendment Act 2009 (Cth) and Disability Standards for Education (2005) legislation and policies governing equal opportunity afford access for students who would otherwise have been unable to access HE. However, policies can only pre-empt experience based on current knowledge, and research is limited. The three articles I did find on the subject of researcher vulnerability (Davison, 2004; Huckaby, 2011; Jafari, Dunnett, Hamilton, & Downey, 2013) were instructive, and I also accessed external clinical support to address a number of ethical dilemmas. However, I was concerned about some responses from staff within the university environment that indicated a lack of awareness of matters of concern, such as the potential for crossing professional boundaries in the conduct of research.

My research is a result of my lived experience and I endeavour to be mindful of and responsible for the heuristic decisions, actions and interpretations in this inquiry. Self-Study emplaces methodological transparency, which supports my commitment to take care of the meanings the participants ascribe to the stories they entrusted to me (Mischler, 1991). Revealing the influences and iterative processes of insider research (Berger, 2013; Meerwald, 2013) heightens my sensitivity to the need for professional and researcher accountability. To set the scene for receiving the participants’ stories, I steeped myself in the philosophies and imagery of The Poetics.
of Space (Bachelard, 1964), Imaginative and cognitive tools for placemaking (Fettes & Judson, 2011) and Making: anthropology, archaeology, art and architecture (Ingold, 2013). The research was the opportunity to capture the “immediate situation contexts” of the participants’ day-to-day lives (Erikson in Moss et al., 2009, p. 502). Recent literature draws on these philosophies to identify the intersubjective, aesthetic engagement with imagined spaces and realised places as a profound pedagogy (Chimisso, 2017; Magrini, 2016), lending further support to the methodology and quality of the research transactions I experienced with the research participants.

Socio-affective issues inside and outside of higher education intensify stigma, symptoms and shame in respect of ADHD and PTSD, and researching mental health concerns further increases stigma (Heflinger & Hinshaw, 2010). As a result of stigma and misunderstandings, professional support was continual during the research. At critical times, “shareability” provided safety through conversation in a trusted therapeutic alliance (Freyd, 1994) with the psychiatrist treating me for ADHD and PTSD. Within this alliance, I have learnt to re-frame, or re-appraise, experiences of ADHD (Young, 2005). When feeling safe, I could return to notes and use my skills to rewrite my story and research texts (Emerson, 2007, Freyd, Klest, & Allard, 2005) and this remediated dissociation and re-traumatisation (Atkinson, 2002). Self-Study allowed me to continue to develop my heuristic approach to inquiry and engagement with the research, design fit-for-purpose methods, and create an in-situ pedagogy with the participants.
3.5.4 Self-Study: Visual narrative inquiry.

If we make it our goal to reach the concrete, then in certain respects we must put art above science because it achieves an expression of the concrete [hu]man which science does not attempt (Merleau-Ponty, 1964).

The ability of Visual Narrative Inquiry to make my experience of learning with ADHD concrete/visible was based on Dewey’s view of the primacy of aesthetic experience to learning (1934, 1950b) and how my art functioned to support mental health (Cameron, Crane, Ings, & Taylor, 2013; Sandmire, Gorham, Rankin, & Grimm, 2012; Van Lith, 2015). Diagrams were used to triangulate my learning and my data. Pattern matching, and colour, drawing spatial relationships between theories and creating visual hierarchies were all elements of design that informed the research, because I could re-situate my thinking. Drawing acted as a prism to converge theoretical lenses used to draw and test conclusions in terms of pattern matching or tolerance fit and from diagrammatic cognitions. I interrogated and triangulated theories, data and my perceptions and interpretations for bias; I drew over ideas and tore them up. Diagramming was a direct route to perceptual learning and was a constant in the research processes. Samaras (2010) advances the potential of art to offer insight into thinking, identity and learning. This view coincides with O’Sullivan’s (2005, p.130) view of art as transformative:

Art, then, might be best understood as the name for a function: a magical, an aesthetic, function of transformation. Art is less involved in making sense of the world and more involved in exploring the possibilities of being, of becoming, in the world. Less
involved in knowledge and more involved in experience, in pushing forward the boundaries of what can be experienced.

Theories of experiential learning find common ground in arts-based practice (Cahnmann-Taylor & Siegesmund, 2008; Catterall, 1998; Eisner, 2006; Ingold, 2013; Pink, 2008, 2011; Rolling, 2010), which is a dynamic approach to “context making” in recognition that learning is lived and enacted by people in a social, historic and material environment (Fors et al., 2013, p. 171). Visual representation of learning strategies was identified as important to establish routines, to set up learning environments and to produce this thesis.

The methodological heuristic scene setting parallels the aesthetic experience of place and individualised space are noted in early childhood education philosophy. The environment is articulated as “the third teacher” (Strong-Wilson & Ellis, 2007) in the example of Reggio Emilia learning space design, where visual representation is used as a primary means of making learning visible (Hertzog, 2001; New, 2007; Schroeder-Yu, 2008; Tarr, 2001).

3.5.5 Photography

Photography is a powerful research method with its unique capacity to capture “details, memories, emotions, and meanings” (Loeffler, 2004, p. 2). The potential for photography to make learning strategies visible is noteworthy. It can assist information processing, working memory and emotional regulation. In capturing the moment, it can act as a “memory trigger” and serve as an “integral bridge” to transfer learning from one environment to another (Loeffler, 2004, p. 6-8). Recall and information processing are two areas of potential challenge for people with ADHD. Bach (2007, p. 280) reports on a description of the value of photography for
overcoming a “a small fear” of memory loss and the helpfulness of photography for a person whose memory “works in snap-shots. The relationship between memory and photography is explicated:

I am a visual, hands-on learner photography is how I process information [it] represents the art of my mind. I feel closely related to and well-represented by the camera [and it] simply helps me remember things in detail where I otherwise might not (Bach, 2007, p. 300).

3.5.6 Graphic Elicitation

Graphic elicitation in the form of a diagram or a concept map can be described as a map indicating “pathways we may take to connect meanings of concepts” (Novak & Godwin cited in J. Prosser & Loxley, 2008, p. 24) and is considered to be a robust research method (Bagnoli, 2009; Copeland & Agosto, 2012; Crilly, 2006). Graphic elicitation was used with great potency in a study conducted with children highlighting the different affective and cognitive difference between those with ADHD and those without (Kildea, Wright, & Davies, 2011, p. 15).

3.5.7 One-on-one interviews.

Interview and research conversations are used interchangeably in this study; however, research conversation is what accurately conveys the spirit of intersubjective (Jackson, 1998) research collaboration (Mischler, 1991) that occurred during the semi-structured, in-depth one-on-one interviews.

Questions (see Appendix A) were designed to gain insights into the key learning strategies used by the participants, with a focus on the ways they prepared and maintained order in the spaces they used for their studies. Of importance in this study is the justification of discursive data collection.
The interviews were facilitated research conversations, which provided an impromptu pedagogy, as the participants brought their learning needs and concerns to the fore. Not all participants had secure accommodation, and two participants, migrants from different cultural backgrounds to Australia, were yet to identify with a space and place for their learning, despite many years of higher education in Australia.

3.5.8 Humour

In order to reduce anxiety and demonstrate a shared understanding, on many occasions, as most of the sample were Australian born, I could deploy the laconic Australian humour (Garner, 2006). Humour encouraged and humanised the research engagement (Torok et al., 2004), and was instrumental in gathering insights into some of the male participants’ learning strengths and weaknesses. When irony stimulated the research conversation, some wonderful moments of semantic engagement (White & Shah, 2016) were heard when listening again to the voice recordings. These moments were found in some of the exchanges, which took the form of a to-and-fro game, and participants provided slogans and neologisms that both contained and summed up complex and upsetting experiences. Humour was also used successfully with some participants to reduce tension and encourage them to keep focused and forward thinking when the research conversations touched on the distress caused by ADHD.

3.6 Participants in this study

Five male and eight female university students from three states in Australia, ranging in age from 19 to 37 years of age, volunteered to be involved in this study. The four participants born overseas hailed from Northern Europe, South Africa, North America and Asia. The sample covered the socio-economic range from underprivileged to
highly-privileged. Their stages of formal learning also demonstrated a wide range of experience in higher education from undergraduate through to post-graduate, research and doctoral students; one participant was completing a double doctorate. Of note, from the participant cohort totalling 13, there was a concentration of seven students from the same university, and four members of this sub-group were studying engineering. For purposes of anonymity, the participants in this study are identified in code with a number and pseudonym (see Figure 2).

A range of experiences was found in the domestic arrangements and relationships disclosed by the participants. Of the female participants, two had children younger than pre-school age. Jennifer (all names given are pseudonyms) was married. Sandra was a single parent, who mentioned diagnosis and divorce almost in connecting sentences. Two male participants (Ryan and David) disclosed that they were in same-sex relationships. David had received a Pinnacle vocational education scholarship for GLBT+ students, which enabled him entry into HE. He was living in a stable domestic environment in a polyamorous relationship with his two male partners. They contributed to his learning and with their approval, are discussed in the findings as the “good cop” and “the bad cop”. Another contrast in the data was found between David’s experience and two of the participants who had separated from their partners. Both these participants were adamant that they would not become involved in romantic relationships while they were studying, from fear that they would be distracted from their studies.
<table>
<thead>
<tr>
<th></th>
<th>Personal</th>
<th>Student</th>
<th>Volunteered Information</th>
<th>Support</th>
</tr>
</thead>
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<td>Monique</td>
<td>Completing Interior Design</td>
<td>Early identification</td>
<td>Yes.</td>
</tr>
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<td></td>
<td>early 20s</td>
<td>Thriving. Abundant support in a financially advantaged family.</td>
<td>Dyslexia. Anxiety. Medication ✓</td>
<td></td>
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<tr>
<td>PP2</td>
<td>Angela, 23</td>
<td>Engineering</td>
<td>Recent diagnosis of ADHD</td>
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<td></td>
<td>Financial disadvantage</td>
<td>Failed unit was devastating. Years of struggle. Starting over at another university.</td>
<td>Clinically diagnosed with Major Depression, Social Anxiety Suicidal ideation Medication ✓</td>
<td></td>
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<tr>
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<td>Scott, late 20s</td>
<td>Starting Y2 Engineering</td>
<td>Recently reassessed.</td>
<td>Limited</td>
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<td></td>
<td>Financial disadvantage</td>
<td>Struggling with family concerns and curriculum.</td>
<td>Anxiety &amp; Depression Medication ✓</td>
<td></td>
</tr>
<tr>
<td>PP4</td>
<td>Michael, 22.</td>
<td>Starting Y3 Engineering, struggling with social anxiety and curriculum.</td>
<td>Clinically diagnosed with Social Anxiety.</td>
<td>Limited</td>
</tr>
<tr>
<td></td>
<td>Financial disadvantage</td>
<td></td>
<td>Medication ✓</td>
<td></td>
</tr>
<tr>
<td>PP5</td>
<td>Andrew 30s.</td>
<td>Starting Y3 Engineering as his second degree. After a long period of stabilising, thriving with support, a number of tools, skills and strategies.</td>
<td>Two years taken to stabilise medication ✓</td>
<td>Yes</td>
</tr>
<tr>
<td>PP6</td>
<td>Sandra 30?</td>
<td>Starting Y2 Urban Planning.</td>
<td>Recent diagnosis</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Abandoned first degree in Engineering. Thriving since divorce and degree change.</td>
<td>Depression/Axiety Medication ✓</td>
<td></td>
</tr>
<tr>
<td>PP7</td>
<td>Patricia, early 30s.</td>
<td>Y3, Education; “lost” one year after changing from online to “texts and tutorials”. Skills were on display. Now thriving.</td>
<td>Recent diagnosis</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medication ✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PP8</td>
<td>David, 20s Scholarship</td>
<td>Education Degree, concurrent study and independent research. Thriving with good support.</td>
<td>Early identification ADHD /ASD (Asperger’s)</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Medication ✓</td>
<td></td>
</tr>
<tr>
<td>P9</td>
<td>Jennifer</td>
<td>MBus, coursework &amp; thesis in Behavioural Economics. Prior to diagnosis, two degrees were abandoned. Struggling-tough environment.</td>
<td>Diagnosed, then re-entered university for her third attempt to get a degree.</td>
<td>Limited</td>
</tr>
<tr>
<td></td>
<td>30s</td>
<td></td>
<td>Depression/Axiety Medication ✓</td>
<td></td>
</tr>
<tr>
<td>P10</td>
<td>Caroline, 30</td>
<td>Clinical Psychology professional doctorate</td>
<td>Diagnosed three years prior to interview. The only participant unable to tolerate medication.</td>
<td>Yes</td>
</tr>
</tbody>
</table>
### Figure 2 Participant Data

<table>
<thead>
<tr>
<th></th>
<th>Financial advantage</th>
<th>P11</th>
<th>Other medical conditions and anxiety acknowledged</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Financial advantage</strong></td>
<td>completed; Final year, Clinical Psychology, PhD</td>
<td>Tara, 37</td>
<td>Stressed “all the time”.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Other medical conditions and anxiety acknowledged</td>
</tr>
<tr>
<td><strong>P11</strong></td>
<td>Tara, 37</td>
<td>Final year PhD Urban Design</td>
<td>Tara is American and Master's degree lecturer identified ADHD when she could not adjust to a change of software program.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Adjusting to pregnancy and the idea of single motherhood with no employment as yet.</td>
<td>Medication √</td>
</tr>
<tr>
<td><strong>PP12</strong></td>
<td>Benny 20s</td>
<td>Masters by coursework and thesis, Organisational Psychology, highly anxious.</td>
<td>Unsupportive home culture; supportive partners and friends in Australia.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Diagnosed in Y2 of university. Depression/Anxiety</td>
<td>Medication √</td>
</tr>
<tr>
<td><strong>PP13</strong></td>
<td>Sara, 19</td>
<td>Y1 Psychology, enthusiastically transformed by diagnosis.</td>
<td>Diagnosed within 6 months of the interview. Prior to Dx, had Depression/Anxiety</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medication √</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Medication √: Yes

Figure 2 Participant Data
3.7 Data

This section identifies ethics approval, recruitment, data collection, transcription and interpretation. Data was collected over the duration of the study. This allowed time for participants to check transcripts for accuracy, and in some cases, they provided additional data, indicating that their participation in the research was of benefit (Larson, 1997).

3.7.1 Ethics Approval

The Macquarie University Ethics Review Committee approved the research presented in this thesis (Reference No: 5201400307, 28 March, 2014; Amended 19 March, 2015, See Appendix B). To be eligible, participants needed to be studying at university, aged over 18 years of age and able to provide proof of a medical diagnosis of ADHD. After the completion of the recorded part of the interviews, the participants received a $50 gift voucher.

The research, designed to be low-risk to the participants, met the requirements set out in the National Statement on Ethical Conduct in Human Research (2007). The values and principals of ethical research addressed in this statement acknowledge that research, like everyday life, often generates ethical dilemmas in which it may be impossible to find agreement on what is right or wrong. In such circumstances, it is important that all those involved in research and its review bring a heightened ethical awareness to their thinking and decision-making.

3.7.2 Ethical Engagement

All participants were under the care of a prescribing psychiatrist and I was able to ascertain during the research conversations whether they had additional psychological or moral support if the research conversations triggered memories of distressing educational experiences (Hedden, 2013; Honkasila, Vehkakoski, & Vehmas, 2016), or if their educational needs were unmet and/or learning was disrupted.
Although risk to participants was assessed to be low, I devoted some months to improving researcher confidence in the context of my experience of complex trauma. This involved external supervision and reading (Corbisiero, Stieglitz, Retz, & Rosler, 2013; Donahue et al., 2013; Morstedt et al., 2016) to help become a trauma-informed researcher during research conversations. I had grave concerns about one of the participants in particular, and spent some months returning to think about ethical dilemmas and sought external support from those with trauma expertise.

3.7.3 Data recruitment and collection.

Twenty-seven expressions of interest in the research were received following direct email contact with information about the research made with 90 disability support officers working for 43 Australian universities, as well as 27 lobby and support groups for ADHD in Australia and New Zealand and follow up from previous expressions of interest. From the 27 expressions of interest in the research, 13 university students with ADHD who met the research criteria of a formal medical diagnosis of ADHD and were available to be interviewed within the project timeframe participated in the research. Five participants from the same university responded to the advertisement about the research, which had been promoted on large screens around the campus by the disability support office I had contacted. For this reason, I travelled and stayed in the relevant city for ten days to conduct face-to-face interviews, which were conducted in an on-campus café, the adjacent Botanical Gardens, and in one case, a café close to where the participant was working. Two interviews were conducted face-to-face in Sydney. The eight interviews were conducted by Skype. The initial point of contact took the form of one-on-one, initial in-depth research conversations. These conversations lasted between 50 minutes and six hours.
In order to understand the participants’ backgrounds and experience of ADHD, the in-depth, one-to-one interviews were conducted in the conversational manner, as described by Mischler (1991). Each interview proved to be a different experience for each of the participants. One aspect of common challenge influencing each interview is the problem of altered time perception and organisation for people with ADHD. It was necessary to conduct interviews over a period of six months to allow for changes in schedules and forgotten appointments. When interviews were being arranged and participants became stressed as a result of poor scheduling, I let the participants know that it was my desire that our communication and contact was safe and an opportunity to be free from the need to apologise for forgetfulness and poor time management. For transparency, I admitted that there had been an appointment that I had forgotten, felt terrible about the situation and wanted to relieve the participants from the burden of needing to apologise. Given that there were many rescheduled, forgotten and delayed appointments, I made it a practice to only schedule one interview per day to reduce the risk of late arrivals pushing other interviews out of time. When I travelled to Queensland to meet five participants, I allowed ten days to conduct the interviews to allow for travelling time and an intervening weekend.

Eleven out of thirteen of the participants were vocal and eager to share their experiences. Two out of the thirteen participants were quiet and those interviews initially relied on leading questions. Humour as a research method was used to engage with most of the participants (see section 3.5.8 p. 67), assisting them to relax and speak from the heart. Further contact and data were volunteered by some of the participants, initiated by them through email and my follow-up phone contact in three cases. As the research intentions included validation and emancipatory aims for the participants, each was recognised as having their unique story of ADHD to contribute to the research. All 13 participants and their stories were included in the final project.
3.7.4 Data transcription

Interviews were digitally recorded and transcribed verbatim by a professional service, with one exception. There is no voice recording for the interview with Participant 7. Notes were typed and sent to each participant, who returned the reconstructed interview with additional text. Transcripts were again returned to participants to check for accuracy and there was 75% post-interview engagement. A rich, iterative data source was found in the emails and photographs sent in support of their scene-setting thoughts and actions, specifically from participants Angela, Michael, Sandra, Patricia, David, Caroline, Tara and Sara.

A research concern presented when I found it hard to recognise my experience of the interviews while reading some of the professional transcripts. I had transcribed five of the interviews myself when my supervisor thought the professional service was preferable. As a result, I had two sets of transcriptions, which I could cross-reference. The professional transcriptions had been done by different transcribers, and some had excluded dialogue, which denaturalised the conversation (Davidson, 2009). The lack of reference to laughter in the professional transcriptions made them dour. Particularly with the Australian-born males, I used the Australian laconic humour of dry understatement to engage them or in response to narratives describing their experiences of distress, because this type of humour signalled the opposite emotional tone of an experience.

In one professional transcript, an international student’s discourse had been denaturalised to improve grammar, which lost the entire flow of meaning. I felt offended on his behalf. All people find it difficult to utter completed, grammatically correct sentences when they are distressed or crying, and the “professional” approach cemented my position that the quality of engagement in qualitative research should be reflected in all aspects of the research process. In addition, there were parts of this interview that were not included at all in the professional transcript. Instead of the thoughtful discussion we were having about
visual cognition, “[aside conversation]” (P12), was typed in a margin. This participant (Benny) was hesitant, and his comments sometimes started with introductions like, “This might sound strange…” and “This might sound weird, but…” before revealing deeply considered insights into his situation.

The block of conversation that had been ignored by the professional transcriber was not a question-answer dialogue. I was trying to capture how Benny was using diagramming and then the emergent information as visual cues, which could provide him with the prompts to “see” theory under exam conditions. This was something I knew that I could do and I had a personal interest in visual/diagramming information processing and recall. I had been looking for the opportunity to investigate the correspondence between thought, how this formed as an inchoate image, sensed as a blank screen (or where I felt the formulation in the back of the head) and using a particular fine-line pen, the marks that were drawn in a diagram could symbolise the representation. Over a period of 30 years I have watched architects, a space designer, a photographer, an inventor, engineers and teachers use this cognition/skill to process information spatially for placement or projects from these projections. Benny and I were deep in communication, and some of it was non-verbal, such as nodding in agreement, thinking about how to describe the visual information processing while finding words, and holding up the tool of choice, an Artline 200 fine 0.4 to see we both had the same pen. Benny used this function of patterning using dots, arrows and visual cues to symbolise information that could be quickly learnt and quickly reconstructed under exam conditions.

I accept there were not many words that would have had a lot of meaning for a transcriber, but other influences were at play and this is an example of where the emotional responses to research need to be taken into account. If I had not felt depressed by the preference of a professional transcription over my own, I may have been grateful for the
labour saved and not returned to re-living, re-listening to and re-reading the data with as much intensity.

3.7.5 Coding.

I wanted to see the participants as a group of people. Starting with one post-it note for each of the participants, I wrote their name so I could remember the person I was about to de-identify with a code-name and included a key phrase or aphorism to remind me of something that made them unique. From these thirteen post-it notes on an A1 sheet of art paper, I made a large poster to gather, move and interact with the information I was gathering about the participants (Bach, 2009).

The moment I put all their names and a saying about them on the art paper, I had the thought, “this is a neuro-tribe” (Armstrong, 2012, 2013). Up until this time, I had felt alone but seeing the “characters” and my notations/drawings on the paper helped me bring together the disparate stories of the participants’ lived-experience together. As I was gathering this information by adding, subtracting, reflecting, symbolising, linking and integrating aspects of the data, I was able to bring the stories about what ADHD was like for the individual participants together as a group and iteratively integrate the data as a large-format, visual document, which had the quality of a poster. The poster was the method then used for visually coding the participants and the relationships between their portraits, the research question, the literature and the research methods (see Figure 3, p. 77).

It is important to note how the visual coding emerged as an organic process, and my experience of the process was akin to how an image emerges during the process of gently agitating silver-gelatin paper in the developer chemical bath. Watching a photograph develop using the wet print photographic is a captivating process, which may reveal details in an
Figure 3. Setting the scene for thesis mapping [redacted], April-May 2016.
image previously unseen. During this early part of the visual coding process, the participants were brought to life in my recollection, imagination, writing and conversations about the research. I had not made a conscious choice to embark on visual coding at the time. The coding method and the insights spontaneously emerged when I was posting notes about each of the participants to support my working memory, lest I forget what one of the participants looked like, how they behaved or what they said.

It was not until after the event that I became aware of the value of the poster as an emergent visual coding experience. Creating the poster has started as an intention to post the names of the participants with a scratch note to remind me of something unique about each one of them. The poster that emerged represented the integration of the reading, research texts, research conversations, reflections, interviews, data and my experience of the participants. I shared my poster experience with a friend, who said the participants sounded so vivid that a play could be written about them. As one of the participants (David) had provided me with the score of a symphony (see Sedna, Figure 6, p. 110), a means of further entry into the data concerning the lived-experience of the participants prompted me to think of ADHD The Musical, with the idea of actors, roles and agency in learning in HE. I wrote David an email about my ideas and using humour as a means of engagement with the research, said we should write an ADHD opera. He replied with a musical score to open an opera! For these outcomes, I perceive the intention to keep the participants alive in my thoughts, starting with an aide memoire, from which emerged an A1 poster representing the research processes, to be an effective means of visual/manual coding.

Following the development of the poster to act as a concept map, the data was written as individual portraits (Hill, 2005; Hill-Brisbane, 2008). The benefit of this form of analysis “is that it ensures attention remains focused on the diversity of the people in the target group throughout the process” (Golsteijn & Wright, 2013, p. 301). I deferred to literature about

3.7.6 Data interpretation.

The question for this research is, how do adults with ADHD who are studying in higher education set the scene for their learning? The interview questions expand on the areas of research concerned associated with how university students with ADHD prepare to study (see Appendix D). The semi-structured interviews were conducted and interpreted through learning as recognition (Harrison, 2002). The participants offered intelligent and creative solutions to some of the challenges of participating and functioning in the HE learning environment; solutions that were both novel and pragmatic. The participants were open, direct and present to the meetings. I noted that they told me stories of their failures and fixations, but rarely volunteered information about their achievements. Mistakes, miscommunications, humiliations and confusion sounded to be part of the daily fare. For example, I needed to pull the participants up to ask for clarification about how one pattern of behaviour related to another. I thought about tone, gesture, pauses, facial expression, and whether the participants might be experiencing shame when they looked down or away, or became anxious and looked worried.

It was in the moments of silence, or in their struggle to find the words to describe their experiences that reciprocal learning occurred. Sometimes I had to ask many questions before finding out how participants functioned in environments outside HE and thereby to understand how they might have acquired the skills and developed the strategies that enabled them to function in HE. The dialectic expression found in the research conversations matched
the “semantic activation and innovative thinking” found in people with ADHD, as described by White and Shah, (2016, p. 275).

Preliminary and post-interview emails and texts were revisited and I re-listened to digital recordings. Further contact was made with some participants to ensure the research texts validated their experience. Each participant was provided with their transcription and the “portrait” of the participation. With three exceptions, the participants provided feedback on and minor corrections to the texts.

From the time of starting to write about the participants, I waited six months before writing about Angela for the following reasons. First, I needed to gain some experience and confidence in the portraiture method. I wanted to ensure that all the other portraits had been written in case I found it difficult to grasp the significance of her story and its impact on me.

In order to give Angela’s story due respect, I wanted to be away from reminders of how harsh the formal learning environment can be when your parents are on the other side of the world, and there is no sense of home, or no space that feels safe enough in which to study. To re-listen to Angela’s story, I took leave of the university environment to walk and listen to the recording of a section of the research conversation. Walking allowed me to think deeply about the image I had of this participant. I settled into a rhythmic stride. According to Revsbaek and Tanggard, I entered “an explicit open-state-of-mind listening as a key aspect of analysing qualitative material” (2015, p. 376). Listening to her singsong voice and remembering her towering height, I walked through my own concerns about re-engaging with her story. I had been anxious about her welfare. Only a fragment of her story had been captured. Not long after we started the interview, I stopped the recording because I felt it was disrespectful. I had not wanted to take advantage of her vulnerability and I let her know she could then talk unselfconsciously. She talked for nearly six hours.
While I was walking, the word “endurance” kept repeating in my thoughts while I was trekking through a metaphorical trauma trail. I imagined this participant striding alongside me. I imagined a valiant battle, but not in the sense of heroism. The battle was to survive overwhelming anxiety and accept that being dealt an unstable sense of self was not a war that would be won. The quest to keep hunting for solutions, however short-lived they may be, while setting the scene for the hunt for knowledge, the learning in this inquiry. Could mastering fear be about endurance? I wondered as I started to meld the stories the participants told and felt the strain of living with anxiety, how it persisted at front, back and centre, regardless of what this part of an individual’s story revealed or how their stories of ADHD unfolded.

In the first analysis, Reismann (2008) guided interpretation of the data about theme, what was said, how it was said, structure, dialogic/performative and the social interaction between the interviewees and researcher in a context. I contributed the affective, relational and aesthetic qualitative interpretation. Interpretative processes were documented in a research log and mind maps, and collected and assembled using post-it notes, all of which acted as focus tools and devices to track the development of the research process (Bach, 2009; Gibson, 1997, 1998, 2014; Pink, 2008, 2011; Saldana, 2009).

An interpretive space regarding the participant’s experiences of support in HE is yet to emerge from the shadows of HE. Trammel (2009, p. 23) says, “disclosure should lead to accommodation”, but Toner (2009) describes participants in their research hiding ADHD in HE, and this was the case for 10 of the 13 participants in this study. The fear of disclosure indicates that there is a lack of recognition for ADHD. In the data, it was in the hiding, transitions, in between states, emotional tensions, disappointments and frustrations of invisibility that the thickest descriptions about stigma were hiding13.

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13 This is a reference to Geertz, the Sociologist who coined the term ‘thick description’ in the context of qualitative research.
The problem of hiding ADHD due to the stigma led me to visualise an association between creating a situation where a gatekeeper could assist to reduce distractions and help a student with ADHD to concentrate on learning tasks. In the next chapter, it will be seen that Benny replicates the conditions where he almost locks himself into studying, by leaving his studies until the last minute and investing his partner with the role of gatekeeper. This interpretation became clear to me when I made a visual model of a gating system with a gatekeeper to harness attention.
Chapter 4: Data: the portraits

4.1 Overview.

This chapter presents interview data in the form of a written portrait of each of the 13 participants interviewed for this study. Portraiture as a research method was selected because a variety of data could be presented while the participants’ stories were maintained as a whole. This allowed each participant to be seen as an individual and in the context of their day-to-day lives; it also gave each participant an individual voice. Portraiture showed how the participants experienced ADHD by presenting how they set the scene for their learning according to their strengths, what they found made learning difficult and what enabled them to participate in HE. Participants were invited to provide visual data, and in some cases, the portraits were accompanied by images and participants’ comments. Their narratives about their learning experiences, their transactions in HE, how they felt about themselves and the learning relationships presented in their portraits provide some insights into what it feels like to have ADHD. A table summarising the individual participant’s personal attributes, learning challenges and learning strategies is provided at the end of this chapter in the data summary (see section 4.16, p. 140).

4.2 Introduction.

It will be seen that within the group of 13 participants interviewed for this study ADHD was an individual experience, although to varying degrees some characteristics and experiences were common to all. The participants in this study were an articulate group of people, in no small part because they had had the benefit of diagnosis, psychosocial education and online access to information about ADHD. Each participant was well versed in the impact of ADHD on their learning and it was clear to them what helped them to learn in HE and what were the obstacles.
How the participants set the scene for their learning is found in their attitudes and how they situated their learning, how they organised support and resources, and how they attuned themselves to HE timing, tasks and engagement. Although there is a vast range of scene setting behaviours and approaches to their learning, there were some similarities in the participants’ perception of time and their attentional resources; however, it is clear that the participants’ study habits and learning achievements were influenced by early identification, early intervention, support and access to opportunity. The sample also shows a variety of experience according to whether their learning environment was rewarding and the participants felt validated, and/or whether factors in the learning environment were intensifying the participants’ symptoms of ADHD. With good support, the participants were able to overcome learning challenges and engage with their studies.

This study considered a medical diagnosis and access to professional support as the platform on which the scene could be set for students experiencing clinical-level ADHD and co-occurring conditions to study at HE level. There are in some of the participant narratives in this dissertation portrayals of great distress about their learning experiences. In these situations, diagnosis, medication and support was necessary for them to stabilise their functionality in order to participate in HE. Isolation, confusion and vulnerability reduced their ability to concentrate. When the participants were unable to think through problems or “see” solutions, they were unable to work to their strengths. For these reasons, participation in this study was predicated on evidence of a medical diagnosis of ADHD and that potential participants had adequate support before committing to an interview.

The method used to collect data included one-on-one in-depth interviews; these were conducted face-to-face, or by Skype. For some of the participants, a number of emails or text-messages were exchanged before and/or after the interview. It was hoped that graphic elicitation could be used as a research method by asking participants to draw what it felt like
to have ADHD. Unfortunately, interviews conducted by Skype or at cafés did not lend themselves to using this method. Neither setting was suitable for a spontaneous request that the participant provide a drawing of what it felt like to have ADHD. First, I could not facilitate a spontaneous drawing by providing a blank sheet of paper and a pencil by Skype and I did not want the participants to feel they had to be prepared to make drawings before we met in case I set up expectations that might make them apprehensive. Second, drawings done on small café tables in public places on campus could attract unwanted attention and preclude anonymity. As a result, there is only one drawing in the data, which was provided by the first participant interviewed, Monique. The setting for the interview was unique—a large table in a large private office on the first floor of her family’s business premises.

The use of photographic resources as a research method for data elicitation is known as photo-voice. Patricia and Caroline provided photographs and descriptions about the visual learning strategies they used to set the scene for their learning, and Tara provided photographs of the places where she was going to be writing her thesis. David provided a music score, a representation of how he learnt Piaget’s theorem, screen shots of his Facebook announcement to friends that he was about to become unsociable by showing his semester’s schedule and two humorous images of himself taken “before” and “after” study.

The interviews with Scott, Jennifer and Patricia were relatively brief and their portraits were like “snap-shots”. The opportunity arose to collect further data from Michael, David, and Tara, which extended the data by providing continuity. Their portraits provide more of a panoramic view as a result of additional contact over a two-year period.
4.3 Monique: Clear language and clear instructions will help people with ADHD

Figure 4 Messed-up brain.

“Inside the brain it’s just everywhere. ADHD is just frustrated. Like when I don’t take my tablets, I’m just like, frustrated all the time. Nothing’s clear. I hate that feeling” (Monique).

Monique had nearly finished her degree in space design, and on my arrival, I thought the business was designer kitchens. In fact, the entrance was a multi-purpose space that incorporated a galley kitchen, with room for people to pass to go upstairs to the office, or through to the area housing neat stacks of industrial-scale scaffolding. The office where the interview was conducted was a model of ergonomic design and organisation, with two walls lined with discrete whiteboards charting business operations.

It was hot on the day I met Monique. She was muscular, tanned and dressed in designer beach-style clothing. She conveyed a sense of coiled energy, ready to spring into action. She was taking the interview seriously. Her legs were crossed, uncrossed, and crossed again; she clenched and released her hands when her brows crossed and her mouth was slightly twisted as she concentrated on answers to the questions I asked. When I asked her what she needed to help her learn in HE, she said:
Clear instructions in clear language can be understood, and this clarity will put people with ADHD on the right track.

Monique described what she meant by clarity:

I go, “Mum, I need your help.” She just sits down with me and not on her phone or anything and she goes, “What is it?” And I go, “I don’t know”. She goes, “Just say it” [and I can then start]. I’m going, “Thanks for helping, mum” and she says, “I didn’t even help you. I just sat there”. Texting or talking to my boyfriend, “I can’t do this” and he goes, “Yeah you can”. Then I can go, “ok”. It’s just getting that reassurance.

Monique’s interview provided the sole opportunity to meet a person who supported a participant (her mother), because the interview with Monique was held at the family business premises. Monique was brought up in a household with appropriate reassurance. I was able to witness her mother rephrase a question that I asked of Monique, after her mother had arrived to start work. It was late in the interview and we were offered another office, but I thought it was time to finish as Monique had been concentrating intensely on some questions that had an emotional dimension.

At the closing stage of the interview, I saw the great skill Monique’s mother brought to her role in support of Monique’s learning when she looked to her mother for interpretation of a question and asked what I meant. Monique’s mother stopped what she was doing, and making eye contact with Monique, she rephrased the question while maintaining a slow pace of speech. This gave Monique a chance to slow down her own thinking and have a moment’s rest, refocus, hear the question restated and then reply. It was her mother’s presence, calmness and respectful response that led me to claim that Monique was provided with “appropriate” reassurance. At this juncture, her mother volunteered some family background information.
Monique’s mother, who did not have ADHD, observed that at the age of 2 ½, Monique’s persistence and frustration with tasks she was unable to complete were unrelenting, to the point of her mother calling this behaviour “melt-downs”. A psychologist told Monique’s mother that her daughter could not have ADHD because she was showing “persistence”. After Monique was diagnosed with ADHD by a child psychiatrist, Monique’s mother made it her mission to establish support for families affected by ADHD living on a coastal peninsular of Sydney. After decades of hard work, Monique’s parents returned to Germany for an extended holiday and her mother had some very funny stories to tell about her husband’s brothers and her husband’s perception of his own ADHD being reappraised after being reacquainted with ADHD / OCD “German style”. Monique and her mother were laughing heartily, and this was a joyful ending to the interview.

Before Monique’s mother arrived, I heard that Monique had been brought up with a strong work ethic. Her family environment was an idyllic home on the waterfront of a famous beach, secure family relationships and guidance using goals and frequent rewards for motivation:

You had to finish your homework or you won’t be able to do this [now] it’s like ‘Oh well, if I finish this I can have more free time in Queensland’. That’s been my motivation and why I’ve been working so hard.

Monique planned to move to Queensland when she had finished her degree, because that was where her sister and boyfriend lived. She had a realistic and well-established career path, having done work experience in pre-school programs and had realistic views about the world of work. Monique said she would start working “anywhere” as an entry point when she finished her degree and was thinking about working in nursing homes in whatever capacity that would provide her with employment.
It was clear that Monique was highly motivated to complete her studies, and she had the view that entry-level work experience would help her understand how the principles of space design could be applied in real-life contexts. Monique’s goals were expressed in this way during the interview, giving the impression that her parents had been supporting her towards gaining extensive work experience as a multi-dimensional approach to learning in HE. Monique’s work experience and her goals were setting the scene for her learning by giving her a context for the labour involved in academic work and the four-hour (return) commute to campus and back.

Monique kept her ideas, goals and tasks for learning in her “master book”, which contained “everything” and in which Monique said she wrote and rewrote up to 10 or 15 lists of the same project, like her father.

I need to see it all. It’s about memory – Dad and I have great ideas and we have to write everything down.

Monique said “it’s about memory” and this was because she has to work around her learning challenges by understanding exactly what her lecturers and tutors required; she needed to set the scene each semester by organising her work for clarity. Monique said it took considerable time for her to “approach” learning tasks and she devoted the necessary time at the beginning of each semester.

I do keep ahead, but it takes me much longer for me to do my work than anyone else does.

It’s the understanding process. I take everything out of the assignment, pull it apart, and make sure I can understand. If there are words I don’t understand I will research them and figure out what to do and then I write it in my own words, work out what I have to do, step-by-step in order to get that project done.

It appears that Monique’s reference to “the understanding process” indicated that she was taking ownership of the assignment by using her own language to write her own instructions
about how she would organise the task of the assignment. I noted that Monique’s reference to her “step-by-step” approach to assignment work is known as mastery learning, indicating her method for organising assignments by identifying each step involved in a task, and mastering each step.

It may not be a co-incidence that Monique used a “master book”, like her father. Insight into Monique’s “understanding process” involving mastery learning may be gleaned from her family and its business environment, which depended on logistical ingenuity for large-scale projects requiring specialist tradesmen and quality customer service. Monique identified with her father—“Dad and I have great ideas”—and it was evident that her mother was an excellent facilitator. The business literature described Monique’s father as a third-generation German master painter, specialising in conservation and industrial coatings for heritage and coastal buildings affected by salt air. Monique’s mother was also German, but I did not think to ask Monique if English was her second language or if some of the information used in assignment directives that she said she found difficult to “understand” was because the terminology was unfamiliar. In the group of participants, Monique was the most economical in her use of words. An approach to learning could also be found in Monique’s own business, which reinforced her learning in HE—she could rely on herself to be “practical” and versatile because her own work practices were well-established. Monique conducted both her studies and consultancy “like in a normal office”, which was a dedicated office in the family home for her sole use.

What Monique called changes in “energy”, meaning people coming or going, made it harder for her to maintain concentration. When our interview was nearly finished and we were talking about being distracted by the presence of others, her mother entered the building and Monique said, “See, you can hear her now”, but I had not heard anyone. Monique was actually taking about “energy”:
When dad and mum come home, you can feel their energy, and then I have to stop my work and then, you know, transport downstairs because I just can’t concentrate. But this year they were away for five weeks and I transported myself upstairs into the big dining room. We have a beautiful view of the waterfront. If I do get distracted, I can just sit there and have a stare, and come back in to focus on what I’m doing.

She also liked to know that someone was available to help her focus and to provide reassurance if she was about to start studying or became anxious about where to start. The text-message exchange with her boyfriend quoted earlier is an example of that support.

Monique’s learning engagement also increased when she was given choices and a context:

I wanted to look at dementia care in a nursing home. Or design learning places for people with ADHD. I liked this because I understand the benefits. My teachers love the project because I’m doing something that could change people’s lives. Wayfinding, how people find their way.

Being able to choose her project drew on Monique’s practice strength, which was experiential learning using spatial relations in the design of special-needs accommodation.

Parker and Boutelle (2009, p. 2015) identify the importance of students with ADHD having contexts where they can set goals for their learning, and the lack of effective learning when the teaching is “didactic” involving verbal explanations and learning that involves explanations of “the correct answer”. In addition to context-based learning, other factors that helped Monique engage with her learning in HE was her realism. She found some supportive friends at university, and also had the opportunity to see how her attitude towards and acceptance of both ADHD and medication were an effective approach to learning, especially when she observed a peer with ADHD in the same program who was not taking responsibility for taking her medication. Monique was realistic about the effort involved in becoming established as a space designer and this has kept Monique motivated throughout her degree. Her parents provided modelling for mastery learning, a strong work ethic and
ethical work practices. Monique was assisted in identifying her strengths and weaknesses and in how to work around learning challenges.

4.4 Angela: The alpha and the omega

After “blitzing” state examinations in Zimbabwe, one of the poorest countries in the world, Angela travelled by herself to Queensland at the age of 16 to study engineering. While she was struggling with the engineering curriculum, academic style of learning, distant lecturers and de-contextualised learning examples, she did not know she had ADHD. This led to her becoming increasingly isolated and depressed when she failed a unit. In addition, English was Angela’s second language and she was self-conscious:

> When I’m in an environment like university, or an assignment, a high-pressure environment where I know I’m less - well where there’s certainly a lot of negative emotions over the years that I’ve built up.

Angela’s concerns that she might be “less” were misplaced. As her narrative will confirm, Angela not only spoke English well, she used figurative and poetic language fluently. The hidden problems that were increasing her disengagement from her learning were ADHD and poor teaching. The rigid engineering program imposed a fragmented learning experience, which made it hard for Angela to “know what’s important”, because there were “too many details” and she was not provided with sufficient context to know what she was supposed to be learning:

> If I had known what the end goal was, it would have made it easier for me to understand, because I know why I’m doing the steps. I don’t know how to summarise. You’ll see me get stuck on one half sentence or one word and be like, is it? Is it? Is it? Because judging, or making decisions or judgements is also a crippling, or something at the very core struggle. Getting through the assessment period is brutal for me. I feel like, I failed again. I could have done this
better. For me, for my brain to tell me one week later that, oh this is why we did this, so why didn’t you figure it out back then?

A direct link between interest, learning goals and intrinsic motivation in Engineering Studies has been established (Nazzal, 2015, p. 78). However, because she was unable to engage with her learning, Angela became demoralised. Her demotivation stemmed from her inability to summarise what she needed to learn because she could not recognise the context, leading her to question “what’s the point?” of studying engineering. As her performance deteriorated, Angela succumbed to depression. Not knowing where to start or how to focus on her learning led to Angela trying harder, but with diminishing returns.

The whole day is just me procrastinating because I can’t write if I don’t know what I’m writing - then pulling my brain back from there to stage one, the unfortunate thing is that my brain is going to discover that there’s another option and start exploring that option as well. Then I end up - what I’ve got is a start of something and the end of something else, or the middle of something else. I find myself re-reading sentences, but at night when everything is silent, it’s easier. I certainly feel more interested, because I’ve exhausted my brain. At 2:00 or 3:00am is when I learn best, but unfortunately it means I only have a short period of time that I can learn, because once your brain gets tired, your body gets tired as well. So, by the time my brain has run around enough, that is like, okay, “I’m done. I’m finished. I’m going to focus now”. It’s 2:00 am. Then I guess I write my assignment within the next three hours and I hand it in at 08:00. It’s really a struggle.

She was sacrificing sleep as her days dissolved into procrastination and she could not find peace of mind to concentrate until she had “exhausted my brain”. Working at night led to Angela detaching from people in the university environment. Angela’s experience of academic underperformance is recognised by Prevatt and Young to be a “warning sign” (2014, p. 182). However, she first had to diagnose herself using an online self-test to find out what was wrong. Once she had some information about ADHD she consulted a doctor who
confirmed this was the case. Before she could turn her thoughts to setting the scene for studying again, Angela had to come to terms with herself:

The resistance to diagnosis for me was that, being afraid that who I think I am is really just the depression. I more readily accepted the depression, because that is like an illness. But with the ADHD I’m like, that’s lifelong. So, who am I then? That freaked me out. I’ve never been suicidal or suffered from anything else [before failing the unit] but that pushing myself, to the really depressed state. It’s all-consuming. It’s the alpha and the omega, the everything.

Angela recognised a number of important issues around scene setting. Her challenges included accepting the diagnosis of ADHD. However, she had insight that her depression had become “all-consuming” because she had been “pushing” herself to the state where she was unable to function or attend lectures.

While Angela was talking, I sensed how the university, the curriculum the “brutal assessment period”, the lecturers, then her diagnosis and counselling all influenced Angela’s emotional withdrawal from her studies. Angela told me that she had gone into “hiding”, but even in her absence Angela was conspicuous, because she was a female who was studying engineering, she wore dozens and dozens of long, beaded plaits, her skin was like black velvet, and she was over six feet (200 cm) tall. She provided some reassurance for my concern about her feeling estranged:

Partially because of medication, which can quiet my mind sometimes, my mind is slowly getting back… I’m slowly getting out of it.

Neither Angela nor I knew that the problems with the curriculum and methods of instruction in the engineering program that she described in February 2016 had been noted, researched and were to be presented at the Annual Conference and Exposition of the American Society of Safety Engineers in New Orleans in the June of that year. A conference paper presented by Zaghi reported:
While this group of students may offer significant benefits to the advancement of the nation, they are currently significantly underrepresented in engineering programs because of the major academic and emotional challenges that the rigidly structured engineering programs impose on them (Zaghi et al., 2016, p. 1).

Depression is a key point in Angela’s narrative, highlighting a warning sign about undiagnosed ADHD. It was her becoming emotionally unwell that led to her diagnosis and recognition that she was unable to meet the learning requirements of her degree. She needed to wait until the early hours of the morning in order to focus, and she could understand the content she needed to know for her exams only after the exams were over.

Angela was starting afresh at a different university the following week. She had a one-hour train trip to another city and I wanted to find some words of encouragement before leaving the little table underneath a footbridge where we had found a quiet place to talk before it was midnight. Looking up, I redirected the conversation to the properties of concrete and bridge building. Angela lit up with excitement about the potential that civil engineering, with roadworks and bridge building, could offer her country. Angela’s passion for engineering will remind her what is important in her studies, transformative practical help for people in undeveloped areas.

4.5 Scott: I need that piece of paper, so I'll just keep cracking at it until I get it

Scott insisted on returning to campus after he forgot the appointment and we sat in the Botanical Gardens while the birds sang with the change of light until just after dusk. I did not want to detain Scott with further questioning when the night fell, so his was a short interview. He was getting ready for the first semester of his second year of engineering as a mature-aged student and I had heard from other engineering students that this was a difficult program. He had been recently reassessed for ADHD. As an adult, he was party to the psychometric
testing which showed that his spatial and verbal intelligence were in the exceptionally gifted range but his working memory was significantly impaired.

Reassessment prepared Scott for improving his living arrangements so that he could focus on completing his degree. Scott had been wanting to help the family situation at home, “You know, you love them and all that [but] the atmosphere is not all that good”. Unlike the other participants, Scott did not talk a lot, but he could communicate the quality of his experiences by gesture, pauses and expressions, an example being his experience of anxiety being referred to as “dreading on things”. Since seeking help, he had gained insight into how his home life was making him depressed and affecting his learning and he made the difficult decision to leave home. Scott talked about the preparation he needed to do for the semester by keeping abreast of paperwork:

I guess depression does come into it - just by not putting one little piece of paper in the folder, just kind of the whole thing falls to pieces kind of thing, if that makes sense. The whole routine thing, it's [pause] I've never stayed on top of it. I sort of slide down a fair bit and then I sort of have to get myself out of it again and that happens very often … where like you sort of have to recover from that so you're not necessarily going to be all jittery or whatever.

Being reassessed for ADHD provided reassurance for Scott because his learning preferences were validated. He said he liked to vary tasks and he highlighted the importance of movement to his learning:

I'm able to work on more than just one task, whether it be for the same unit or not, it's kind of gaining the momentum I guess to get through all the assessments if that makes sense … with multi-tasking your subconscious seems to work on it when you're not sort of thinking about it, so that kind of works a lot more often than usual. I seem to work better moving around instead of, yeah, sitting down and focusing on the one thing if that makes sense.

Scott was aware he needed to work hard to learn in engineering. He learnt from his father:
I’ll get there eventually … Given that space, I’ve been able kind of understand everything. I feel for myself instead of being told what to do.

Scott’s mention of learning by “feel” instead of being “told” confirmed his preference for learning in his own time, by trial and error. This approach to learning is discussed by Parker and Boutelle (2009) in the context of the clear preference of undergraduate students with ADHD to be supported in determining their own goals. For Scott, it was important to his learning that he had his own “space” and that he was able to solve problems directly in real-world contexts. This was evident when he became animated while talking about concrete:

The good thing about engineering or what we've started with in terms of like constructing a bridge, yeah, models. Some of that is tangible, that sort of hands-on approach is definitely something [where I feel like I'm not at a disadvantage].

Determination was evident in Scott’s decision to progress through university on his own terms:

I do need that piece of paper, so I'll just keep cracking at it until I do get it. I mean I get discouraged very often but … even when I make the wrong decision more than once, I still get on with it kind of thing.

What helped Scott “get on with it” were being given the “space” to move around and move between tasks. He was confident of his ability to identify solutions to problems, and he was gaining insight into how he needs to have reliable partners to bring his ideas into fruition. He mentioned that going for a run or to the gym helped keep “the jitters” (anxiety and restlessness) under control. However, he said routines were something he had “never got the hang of” and at the time of the interview he was setting up in a new household and had not found a new routine for going to the gym.

Scott’s awareness of his anxiety may have had a positive influence on his motivation to set the scene for his learning by organising his home office and keeping fit, because he gave
the impression that he would like to have more control over his life and learning. His decisions were made with the intention to improve his learning opportunities to help him recover from depression and anxiety. Prevatt, Dehili, Taylor and Marshall (2012, p. 2) note a positive side to “anxiety associated with ADHD might actually inhibit impulsivity”. Scott was insightful about the need to manage “the jitters” and this may have assisted his approach to learning.

4.6 Michael: We need infographics and information portion control

A critical need exists in engineering education to draw on the non-traditional divergent thinking and risk-taking necessary for making radical technological breakthroughs. Literature suggests that individuals with Attention Deficit Hyperactivity Disorder (ADHD) characteristics demonstrate unparalleled creativity and risk-taking potential (Zaghi et al., 2016, p. 1).

Michael had good insight into ADHD, his learning strengths and weaknesses, as well as insight into the challenges in the context of the engineering program. A direct relationship was found between Michael’s comments and the pioneering work for engineering undergraduates with ADHD initiated by Zaghi (Zaghi et al., 2016). There was an opportunity to have two interviews with Michael, by Skype and face-to-face, as well as updates about his learning experiences over a period of two years. He was 23 years of age when we first met and was about to enter his third year at university. He first talked about being an “extremely visual person” and how he rewrote notes to help himself think:

I've written down the same thing, in just a slightly different arrangement and it's just to re-prompt myself, and jump start the memory. If I'm really stuck on something, even with coding, just drawing different diagrams will be immensely helpful.

Michael’s “niche strength” was data visualisation and he was able to apply his skills during an internship when he was working at a major hospital redevelopment site. His work helped
different professionals and tradesmen find their way around the site and identify work
operations:

They've got these hugely complicated systems across spreadsheets and technical drawings that
are very monochrome. I've been able to translate these into big, beautiful, colourful flow-charts
for all the tradies.

Students with ADHD have difficulty projecting time and can feel overwhelmed by the need
to plan for assignments.

Time seems to disappear with people like us and then at the same time, time can feel very slow
and you become frustrated with how long things are taking. You can think, okay there's a 50-
per-cent assignment, and with - oh my god that's a 50-per-cent assignment but there's 8-12
weeks until it's due. But there might be 12 one-per-cent tasks scattered across this semester. If
you just write them down, one by one, they all look exactly the same.

Michael discussed his experience of time and his strategy of using Gantt charts to visualise
time, which stemmed from his early childhood experience. His brother’s autism meant that
Michael’s parents had very little time. His father gave him computers to keep him occupied
and by the time Michael was 12 years old, he had taken control of the family finances using
Gantt charts. At the time of our interviews, Gantt charts were helping Michael see the semester
as a whole:

It's better to visualise [assignments] and split them up while you've got the chance. You really
have to get your head around that quickly and set some boundaries and set some goals early in
the piece.

Michael was emphatic about the value of visual information for his learning. He said that his
lecturers liked the visual texts he used in his assignments, and he expressed deep frustration
that the engineering curriculum and textbooks did not provide any visual information that
would help him process his learning. This was because he could see the relationships between the elements he needs to learn when they were presented visually.

Michael made the suggestion that both the presentation and assessment of learning in engineering would benefit from some simple techniques such as infographics. He didn’t want engineering academics to “make things bite-sized”, as in reducing information to their lowest common denominator. Instead, he emphasised the need for “information portion control” to avoid “information overload”. For example, infographics are holistic representations that can provide an overview of a topic and appropriate typography (clear and scaled typefaces) could help students with ADHD recognise priorities under examination conditions. Michael also identified a mismatch between the sophistication of engineering software and the hardware facilities available to undergraduate students.

In contrast to the difficulties he described with the density of engineering textbook learning, Michael came to life when talking about a free-choice assignment. Nazzal (2015) says creativity needs to be integrated into assignments and grading systems in engineering programs, and Michael’s ability to generate excitement about a car park indicated the importance of creativity, as his description below illustrates:

A simple website provided by the university showed the number of spaces available in the car park. All I did was get together a little Linux script and got it to grab it every 10-15 minutes. I don't think I've made any more a beautiful chart, because it gets bloody full just in the space of half an hour!

Unfortunately, after this interesting activity, Michael then found the return to textbook learning about statistics difficult, which made him aware he needed to ration his attention:

One of the biggest challenges I've had is completely focusing on an area of study for a good 3-4 hours and basically being disconnected from the outside world for that length of time. It's
amazing how quickly a call from someone asking a question about something will turn me into spending the rest of the day thinking about a better way for that to be fixed.

Michael’s comment revealed his deep engagement with problem solving, which was something he could be stimulated to think about “all day”.

Along with the other participants in Engineering Studies, Michael had not felt psychologically safe enough to disclose with ADHD to his lecturers or tutors, and he had not been able to solve the problem of how to engage tutors. He had had ongoing problems with asking tutors questions because they were quick to dismiss students “and move onto the next person”, leaving his query unanswered. In this situation, he could not find the right words to ask, and had rarely been in a situation where a tutor had recognised that he needed help with question formulation. Michael’s difficulties in communicating with tutors was situation-specific and contrasted with his verbal fluency in his descriptive stories, jokes and ability to liaise with architects, engineers and tradespeople at work. He had been diagnosed with social anxiety because he found himself “scrambling with anxiety” when dependent on tutors. An indication of Michael’s facility with language is found in his answer to my question about how he set the scene for his learning at the beginning of each day:

As a young Australian male, let’s say, most of my days have to start with just returning my desk to the showroom position. The problem is that there's a lot of stuff I don't need. I really like going and getting as many textbooks as I can on all of the subjects but it will be often that I can still have textbooks from something that's not relevant and I need the desk space for working on an assignment. Clearing the space is very important. The amount of dust that ends up on the desk after a couple of days' study is just amazing! Even just cleaning that off so it's almost like you've got a blank canvas to work on for the day.

From the start of our contact, Michael was attuned to setting the scene for learning. I teased him about ritually moving books from desk to bed and then back to his desk. His play on
words in the reply that he needed “a change of scenery” showed his ability to toy with the research problem I was investigating. Michael’s ability to organise time, location, conceptual relationships and order of works through visual representation, as well as his ability to create the sense of space when he started the day were important scene-setting strategies for his learning in HE.

4.7 Andrew: I’ve set the scene for success

Engineering (Hons) was Andrew’s second degree and he was about to start third year when we met for my interview with him. Of all the engineering students, he appeared the most confident with the engineering program. At the time of our interview, he was fit and recovered from being unwell during a two-year medication trial. Describing the insights he gained into unrealistic expectations of himself and others and developing his own “organic” approach to learning was said to be a “major breakthrough”. Andrew had many learning strategies and his approach to study began with moving house and building a large desk. In relation to undertaking learning tasks that required intense concentration, Andrew said:

I try to work my way up, so I'd probably do setting it out first and then try to [study] I guess as a more orthodox way of doing things … it will be like you're sitting there and you think you're doing something and then you're like holy crap, I'm studying! Okay, let's just run with this and see what happens.

When asked about how he organised his study, the space on his desk and his learning materials, he casually mentioned that he had “built a pretty big desk.”

I have to make sure I've got everything where I need it. Obviously, the medication helps [and the] massive desk helps with the monkey mind jumping from thing to thing. Like I think if it's there, I can see it. I can't do drawers [because] things disappear out of my mind and then I'm like, I've got to remember, and then things seem disjointed to me.
Placement of his learning materials was seen to be crucial to Andrew’s function in this quote.

Customising his environment and ritually placing things where they belonged was important to his sense of organisation and to integrating his learning:

I have to literally do it every single day to get it ingrained. Like cleaning the house. Once I go down that path of putting things in other places, that's really hard to come out of. It starts to spiral and then next minute, I've got books all over the house and then I can't find a pen. I really have to work hard not to get into that spiral where it's just - it just got out of control.

Andrew also indicated that the spiralling anxiety associated with disorganisation made him conscious of needing to “work hard” at keeping order. This was made easier for him because his partner was supportive:

She's really patient and understanding - I don't really have to explain things to her. Like well you know, this is a blah, blah, blah. There's no medical term. It's just like this isn't working and she immediately knows. She's very grounding and helps me.

Boxing was helpful for Andrew to stay grounded, keep fit and focused. Boxing was also a metaphor for engineering as a challenging learning environment:

I've found it's really, really good because the rounds are short…which matches my attention span…and burns off the hyperactivity. I don't have time to ruminate or reflect because I'm going to get punched in the face or kicked in the head. It does teach you to take on criticism. Like people will be, “You're not doing that right”. I think okay then, this is an opportunity to get better at something so when that happens in my engineering thing, I don't take it personally.

When asked whether he used technology as a learning strategy to help with organisation and study, Andrew said his synched “iCal is the number one assistive tool, apps wise”. He used it for reminders, notes, bills, registration details and managing his studies:

It gets me to class on time. It also links with my girlfriend's phone and my mum's phone for getting me to turn up to things on time. If I've got a one-off prac, which is easy to forget, it's all there, and I basically live my whole life off it.
Andrew would remind himself to use the strategies that helped him set the scene and in the case of group work, he found that visual tools stopped him from “spin[ning] off into various tangents”:

Information - it's so wrapped up in my head. It's easy for me to get distracted in the wording and it's hard for me to get it out. So, I do use a lot of mind mapping when we have a lot of group work. I'll just go, ‘this is my idea’ and I'll sketch it or draw it and be like ‘this is what we need’.

Visual mediums helped Andrew communicate the information “in my head”. He also needed to be taught strategies for the amount of reading he had to absorb and understand. Tasks he felt confident with got done first so there was more time for other items, but reading was a challenge:

A psychologist said medication is like glasses, you need glasses but you still need to know how to read. [She] they taught me a few strategies and stuff to help me read. Having your eyes dart around the page seems to be compounded with a computer screen. I was thinking, like, “Well maybe I could use a tablet”, I don't know, it just doesn't work. But the interesting thing is, with engineering, I do a lot of drawing. Like drawing machinery parts and stuff like that which is on the computer. No problem. I think if it's an object, then I can imagine it and it works better with me. But words, it just doesn't work.

Andrew’s visual and spatial perception was evident in his clear preference for communication using mind mapping and his ability to design objects using the computer. Despite these learning strategy skills, there were times when Andrew found himself unable to concentrate:

There's no point pressing on because I'd just be spending so much time, so much energy on something that's just not going to work.
However, there were times when he was unaware that he was not using his energy well, and at these times it was hard to shift his attention:

But sometimes it is a little bit hard when I'm in the moment to get out of it. Especially when medication starts kicking in and I'm laser-beam focused on something.

He said it was “generally afterwards I'll think about it and be like ‘that doesn't really work. I'm going to have to try something else.’” The “major evolution” mentioned above was when Andrew decided to trust himself:

Don't be so focused on other people telling you “I do it this way so therefore it will work for you.” Just let that go.

Freeing himself from unhelpful advice decreased internal pressure and being in the moment allowed him to become self-directed:

Basically, it has to be ready to go straight away or else it won't happen. If I'm not feeling it or it's not working, then I can let it go for a little bit. Then when it is working, I've got it right there and then. I can just pick it up and it’s ready to go.

When his routines and procedures became disorderly, he could remind himself that he had done what he could to set the conditions for success, and he could afford to miss a study day or session.

[Medication] is definitely part of the front line but I think I have the support there as well. Without my other supports like the iCal and my partner and stuff like that, I’d just be a bit lost without that, so I think they work hand in hand, like a handshake I guess.

To helping himself manage the days when he can’t focus or concentrate, his scene-setting strategy of self-talk is actually a mindset:

Like I say, we've set the conditions to win. Like we've set - we've done 90 per cent of the work. So, I think it's just a bit of self-talk and self-discipline kind of, but more positive reinforcement.
I can draw on that to think we've been here before and we've managed fine. Like I completed a degree before this with zero help at all. So that's been pretty good to draw upon.

Andrew said he was almost too reflective and “can definitely…overthink”, but, like the challenge of, his psychiatrist “challenged” him to meditate and this could make a difference:

You can go over mistakes a thousand times in your head. But yeah, that's not really going to achieve anything. I've had to really put some hard work into that. Especially like having a mood swing or feeling intense moods. When I'm in that, it can be quite difficult. But I try to meditate a lot - if I'm going down that path - to get me out of it. Like shock me out of it quickly.

It may be that a sense of humour was a survival strategy for studying engineering, such as “the scene was set for success” and he’d “set the scene to be awesome” on the days when he was experiencing mood swings and/or could not concentrate. During the interview, his emphasis was that it has been “a lot of hard work” to manage ADHD. However, he was experiencing the results of his efforts and could now say:

When the crunch is on and everything feels like it's going downhill, it is easy to get caught up in that spiral. But a lot of the time I feel like I've set the conditions to win, so there's no reason why I can't just push through a bit harder and just give one final push and it will be done forever.

Andrew repeated how much work was involved in setting the conditions to win. He was finding engineering less difficult than the other participants, because he was stable on his medication, in new accommodation, and in his relationship. He reminded himself that he was able to get his first degree “without any help” and he was determined to push through any learning obstacles. In this respect, Andrew’s self-talk was a strong factor in setting the scene as an approach to his learning. His ability to make friends easily had provided him with the skills he needed to ask for help with his studies. The impression Andrew conveyed about the treatment he had received indicated that he was well understood and able to be supported in
his recovery. Andrew also had the support of his partner, which added to his secure footing. However, the credit for the amount of effort Andrew makes to function to his best ability and fully participate in HE belongs to him.

4.8 Sandra: Problem solving ignites my brain

After her brother was diagnosed, Sandra thought that the symptoms she was experiencing as an at-home mother, such as “under-stimulation torture”, were likely to be ADHD and she was also diagnosed. Diagnosis precipitated major life changes for Sandra, including divorce. Sandra was a former officer in the Australian Defence Forces and she had a commanding presence as a result of her height, her direct communication, strong eye contact, ability to dress like a diplomat, and look cool and fresh even on a sweltering day. Urban Planning was Sandra’s second attempt to gain tertiary qualifications because she had “dropped out” of engineering. Although she had her mother’s unconditional support and approval, Sandra discussed the problem of her decisions and ambition being socially unacceptable and that this made her anxious. When I commented on her elegant diary placed on the café table and how it matched her outfit that she called “calming blue”, she replied:

The weekly pages I use the most because I can't think too far in advance. It's too - it makes me too anxious. I can only think roughly a week in advance.

Sandra repeated the benefit of anti-anxiety medication to help her excel at her studies. Unlike engineering, which she found to be “set in stone”, Sandra was relishing the new field she was studying:

Urban Planning is a problem-solving degree but on a more collaborative level; a lot of workshopping, discussion-based practical learning that allows you to talk out and think out processes before you actually do them, things that you can visualise, visual presentation; it’s
argumentative but also practical and logical and rational, which appeals to me. Any time there's problem solving my brain ignites itself and it's on fire. But if there's no problem solving and it is just regurgitation and something I probably already know, it falls asleep.

As a former officer in the Australian Defence Forces, Sandra was recognised for her capacity to work under pressure and to organise personnel, logistics and complex manoeuvres.

However, she found disciplining herself to keep order difficult without authority:

ADD people are messy. We always think that I'll do it later and [leaving things untidy] is all I do all week and then the weekend is my later. I just need my system. It’s all visual. I plug things together until it fits, and that's how I get through. It's like a feeling of - I use that analogy when I talk about anxiety like I can't breathe. I feel like everything's crushing me when I put a bag on the dining table, dishes in stacks. I need everything to be white, bright and open. When I clear it all away it feels so amazing and it feels an accomplishment, so that's why I do it.

Sandra emphasised that she also used visual methods of organisation, especially for her assignments:

I use Microsoft Word to make a chart and spread out like a bubble. I actually use the brainstorming method to write things up and make links. Whenever I'm in a group project I'll do a brainstorming session immediately because I want to get the big picture. By the time I come to the part where I'm going to write, I've written probably a skeleton and I've got all that prior planning in my head and it just comes out…like a story.

The routine of a peaceful bedtime for her son was one of Sandra’s most important scene setting rituals. She would pat her son to sleep and she was at peace knowing that she would not be distracted. Then she would start her university work:

I feel that time is sacred for me to work un-distracted. I know he's safe, he's warm, everything’s done and he's quiet. He also makes me feel not so lonely. He's a presence but he's not a distracting presence.
She said that when he fell asleep, she made sure she was comfortable so that her back didn’t hurt, and then she could write “for hours”.

During group work, Sandra had experienced fellow students being judgemental about her “bossiness”; however, she accepted that her ambitions could conflict with being popular. Instead of choosing popularity, Sandra acknowledged her ambition to excel and meet her leadership ambitions. She was attuned to her need for “authority” in order to bring out the best in herself, and she said she experienced study as her authority:

The more you demand of me to go faster, I can handle it. The harder it is, the more I thrive. I have a thirst for the system to be right. I came into the degree knowing I’m going to get the best marks I can get. I researched what first class honours were. I follow my scores. I keep my focus. I’m going to come out with first class honours.

With the unconditional support of her mother and good treatment for ADHD, Sandra had become self-determining and self-disciplined. A number of factors were working together to set the scene for her successful engagement in HE. In selecting a course in urban design, she had found her niche, thanks to the use of visual representation and engaging assignments that flowed “like a story”. In her case, the highly regulated and structured expectations and timeframes of a university degree were helping her to thrive. Nonetheless, Sandra had a clear understanding of the impact of ADHD on her learning. She had a firm basis of medical and maternal support and has invested her study with the status of her “authority”. In creating an orderly household and peaceful bedtime rituals for her son, Sandra was able to find self-acceptance.

4.9 Patricia: The space has to fit to me

Patricia was in her early thirties, married and the mother of a two-year old child. She lived and studied in a city 300km from Sydney, so our interview was conducted by Skype. During the interview, Patricia readily demonstrated how she had set the scene with her study
resources. Without hesitation and without moving her head or body, by reaching behind the couch, Patricia was able to show me one whiteboard after another while maintaining eye contact and talking about her study space:

I work on the couch. I have a 3-year-old, and sometimes when he gets too much, I go downstairs (Figures 3 & 4). I feel it’s all interlinked. The goal is to study every moment I have so I don’t feel like I have to fit to the space, the space has to fit to me.

She made the decision to centralise her learning from the couch to overcome the feeling of being “constantly being pulled back” into a central role in the household, which was making her learning disjointed. Having her plans and learning available at a glance on the whiteboard and in the notebook ensured Patricia’s learning information was clearly available at all times. With time externalised and cross-referenced on the whiteboard and notebook, she could readily see her progress. As she said:

It helps me to go, “This much time.” I can see a start and end date, but it’s not so good if there is a long time before an assignment is due.

Figure 5 Couch-based learning set up.
The whiteboard helped with organising time and sequencing and with “big-picture thinking” and it kept Patricia motivated to manage study (Figure 6).

I read during the holidays and during the time assignments are due, I start prioritising things that matter. I’m self-competitive, that’s what I use to keep myself motivated.

Patricia was a fast learner and because she “always works ahead” she was not plagued by the problem of procrastination. Additionally, “I write everything, everywhere, all the time” in her notebook. Visual tools helped her “see what I’ve already done”, and progress was reinforcing. She differentiated dates and results on the whiteboard with colour. Mind mapping set the scene for Patricia to organise her thoughts for critical writing. Layout, placement and representing the relationships in her learning captured and organised Patricia’s thinking. She said, “There’s a creative process – I get thoughts.” Blank paper, felt-tip pens, line, shape, colour and space connected ideas and created relationships. Boxing or circling information provided the focal point. The shape representing a thought bubble contained her research question.
I use A3 paper to get myself to deconstruct a question to check I’m covering everything so I don’t get stuck on what I like. It’s not just about brainstorming. I use colours [purposefully].

Through the process of outlining and making connections between the relevant information, Patricia was also assessing her knowledge and rehearsing the presentation and argument of an essay. The mind map created a visual representation of how each part of the essay would fit together and provided prompts that were readily available and could be easily picked up or put down as required. She changed colours when constructing her mind map to challenge herself to address less familiar areas of learning. When Patricia confirmed the transcripts were accurate, she returned them with further information, complete with yellow highlighter and bold type (see below):

Note: Interestingly: whilst I am very organised I am also super messy. It is an organised chaos. My mindset is reflected by my space, so the more in control I feel, the tidier my space is.

The discussion turned to her recent diagnosis as she reflected on lost opportunities:

If I’d known in primary school, or high school, or before…

Changes she had made since diagnosis included withdrawing from the online learning environment, as she found it too difficult to read online. At the time of the interview, Patricia found herself supported in her discipline, where she could be open about ADHD. She commented:

I’m in the [primary] Education course, so the professors and people get it. When I was diagnosed, I was given special consideration straight away. I didn’t expect that at all. I’m in my 3rd year even though I’ve done 4 years. I transferred from online learning. Going from online – now I’m going to classes, having text books and tutorials has helped.
On-campus learning facilitated social learning opportunities but Patricia was aware that ADHD behaviours put her “out of synch” with others. There were areas where Patricia “got stuck”:

I can see that it’s like … I hyper, it’s not just hyperactive, I hyperfocus on stuff I like, like maths. But I do get very stuck.

She was easily bored and had difficulty in waiting:

I get bored. I do start to think about other things. It’s a problem. Also, I tend to interrupt a lot.

Turn taking is very difficult for me. I’m already jumping three steps ahead. It starts annoying people. When I jump around a lot my friends cope, but not everyone does. I know I can get annoying. I’m over the top in groups and I get more stressed if people are slow. I have to pull back – it’s hard to do.

Under these conditions, she said, because she “works hard, I’ll give myself the day off”.

Patricia said she was intrinsically motivated to learn in higher education. Since withdrawing from an online degree she had been thriving in her studies. She was happier now that she could engage directly with the physical learning environment and her “professors”. She had also gone beyond acceptance of ADHD, saying:

You know I love my brain. It’s a funny brain, but there’s no one I know who thinks like me and I quite like that!

I wondered if loving an ADHD brain was possible, it appeared that Patricia was receiving unique validation from her lecturers. Like Sandra, the other mother in the sample, she had set the scene to manage her child and her studies efficiently and with pleasure. She was able to put into action what she was learning in her primary education degree. She showed that she had mastered a number of concrete scene-setting skills in the strategic placement of her learning materials. Her methods also applied to her assignments and reinforced her self-motivation, shown by how she placed coded information strategically using whiteboards and
charts for assignments and time frames and how she developed arguments. Patricia’s scene-setting strategies allowed her to be consistent in improving her learning engagement in HE.

4.10 David: I just set up and take up as much space as I can

David was diagnosed at age 6 with ADHD/ASD (Asperger’s Syndrome). He had been taking medication for 20 years, providing a long-term view of the benefits of early intervention and the assistance medication affords in establishing learning habits. David gave serious thought to the question of how he set the scene for learning, then said he didn’t “exactly” have a desk. However, it was seen that when his learning needs became intense he found somewhere to study.

[Laughs]…I just cleared the dining room area and was just like “no one’s eating here. You can eat in the lounge room kind of thing” (see Error! Reference source not found.). So mmm. I think a bit of it is me just having my normal freak out with study and just being like, everyone being too afraid to come near me while I’m studying. But my study is anywhere really. Just set it up taking up as much space as I can.
When we talked about music he was immediately engaged. Music helped him manage sensory overload and changing tasks:

Well, especially on the train I [put in] headphones. That kind of zones out the rest of the world…it’s like transitioning something from one context to another for me when I’m writing and doing my study.

Connections between music and his external world were suggested when he said:

[I have] always liked to try and categorise stuff, even try and find patterns where there isn’t any kind of pattern…it could be stemmed from music because it is all about patterns and organisation. Yeah [Laughs] I’ve played the violin for 18 years, that’s an experience that must shape the way you think and take in experiences.

Music was soothing for him and he composed a 61-page score called *Sedna: The Lonely Voyager*, during a difficult practicum with a critical supervising teacher:

![Sedna: The Lonely Voyager](image)

**Figure 8 Sedna: The Lonely Voyager.**

The song, called ‘Sedna: The Lonely Voyager’, has a dual theme. Sedna is the Inuit goddess of the sea. She refused to take a partner so was cast into the sea by her father, which is where the Inuit style melody comes in. Sedna is also the name of a dwarf planet on the edge of the
solar system, which takes 10000 to 11000 years to make one orbit.

A Pinnacle vocational education scholarship\textsuperscript{14} enabled David to enter university. The key people supporting his learning were his partners, who took complementary support roles:

If they see me coming home and just look as if I’m having a shit day or just something, they’ll just be like oh, you know, you’ll be fine. When I just marginally failed my exercise phys exam, one of them played like the – “you know you can do better card” while the other was playing the “kind of thing”, so they kind of both act to make me challenge myself and at the same time also make sure I don’t push myself too far.

Figure 9 “My notes” (David)

David was studying for a degree in Education, which overlapped the two post-secondary courses that were a requirement of the Pinnacle Scholarship. Although his discipline was education, David did not find support from faculty at his university and found himself subject

\textsuperscript{14} A scholarship for young GLBT+ (Gay Lesbian Bi-sexual Transgender, plus) people
Figure 10 Piaget's terms of cognitive development.

Figure 11 David completing his essay on social context in Voced [vocational education]

to the criticism of a supervising teacher during his pre-service teaching. The encouragement for his learning that he got from his two partners set the scene for his learning by providing
structure and discipline. “It’s just kind of like – the alarm bell”, and they would bring him back on task or give him reminders to get back on task. With reference to his inquiry into social cognition (Figures 6, 7), he said:

The people who are teaching us at university just don’t have that understanding …they don’t know how to deal with [ADHD or ASD].

A few months after this research conversation, David sent word that he had been chosen as the student representative to sit on the platform with the dignitaries during his graduation, and he invited me to view the live-streamed ceremony. Following the degree awards and distinguished speeches, David delivered his address to the audience. He talked about “growing up on the spectrum” (Autistic Spectrum Disorder) and recalled the regular travel by bus to a special-needs learning institute for speech pathology and physiotherapy and on his return to the primary school, the learning support teacher would say, “here comes trouble”. The camera panned on spellbound faces in the audience. After a short pause, David continued to talk about the regular appearance of pre-service teachers in his classrooms from the university where he now stood on stage, and that it was a Y6 pre-service teacher who could relate to him who had inspired him to study education.

4.11 Jennifer: Medication definitely changed my life

Jennifer said medication had “definitely changed my life”, but she was “really sad” about lost opportunities from many academic struggles before she was diagnosed. Prior to diagnosis, she had abandoned two degrees, and then started again from the beginning. She was preparing a Master’s degree by coursework and thesis at the time of our interview and this is a snapshot of her story:

15 His lecturers and preservice teaching mentor may not have given David recognition, but his university held him in high esteem. He invited me to watch his graduation ceremony which was to be livestreamed because he was selected to represent the student body and give a speech, described in Appendix D.
I definitely am a big-picture person and that's one of my problems I've had before I was medicated. I'd start a project and not finish it, always because I'd had these great ideas and be so energised by it and then when things started to not fall into place I would abandon it. Being recognised that I did have a cognitive disability really helped me because I could see that I had a problem.

I like to get ahead of the work before it gets out of control. I need time to absorb the material. I try and have all different coloured pens and highlighters and work through it that way so that's - I use that kind of stationery well I think. I think I have a creative brain more than a mathematics brain so I'm always wanting to connect the dots [but] attention to detail has never been a strong point for me and I'm finding it doesn't matter what I do or how long I spend on a project. I will always overlook something or not do it properly.

Jennifer talked about times when she had made minor mistakes by overlooking dates in emails, which ended up costing her large blocks of time.

It's like a fuzziness I just can't escape…but it's always there. Not knowing if I'm going to be good at research also adds to that. Not wanting to disappoint my supervisor but everything I do seems to annoy him at the moment which is really frustrating. I don't know. I need to stick this out because I'm used to - when I get in a tough position I try to find a way out.

Jennifer qualified her frustration in terms of efficiency. She managed restaurants where she could allocate roles to people so that they were not repeatedly disadvantaged by making the same mistakes in the areas of their weakness; in other words, she found it best to create opportunities for people to work to their strengths. On the day we met, Jennifer had a number of commitments for Orientation Week. She was anxious about the tone of her supervisor, feeling that nothing she could do would be satisfactory and knew it would be dangerous for her career if she disclosed to him that she had ADHD. The week before she had been informed that the two units she had expected to be teaching had been cancelled due to lack of enrolments. All these factors would impact Jennifer and probably increased her expressions
of frustration and anxiety on the day we met. Unexpectedly, Jennifer was hospitalised with glandular fever the day after our interview.

4.12 Caroline: I wish ADHD had a colour

Caroline qualified and worked overseas as an organisational psychologist, changed direction and had nearly finished her research doctorate at the time of our interview. In 2013, Caroline was failed in a clinical assessment, but successfully argued that the diagnosis she had made was correct and that the test instrument used was invalid for gifted people with ADHD. Her argument about the validity of the test of everyday attention is supported by Pettersson, Sonderstrom, & Nilsson (2015, p. 1), who found discriminative validity of neuropsychological testing was found to have “poor ability” in the case of ADHD. Arguing the case for a diagnosis of ADHD to be appropriate for a highly intelligent, young, privileged woman led to Caroline’s own diagnosis.

Throughout the doctorate and PhD, I'd been struggling more than I'd ever struggled before… I was like, this isn't coping, so I saw a psychiatrist. I'm in an environment where I'm constantly being challenged against the things I'm not good at, constantly. I'm always battling that. I work two jobs and I've got my PhD. Then thinking, well, okay, if I'm advocating other people to take medication, I'm advocating for other people to get diagnoses, what a hypocrite am I if I don't at least see if this is what's going on for me? So that's kind of - I don't even know how I started that conversation, were we talking about inattention?

Caroline’s mother was instrumental in helping prepare a defence when examiners disputed Caroline’s clinical judgement during examination and had been providing intensive support for Caroline’s education since she was “2 1/2 years old”. Caroline provided a vivid description of the difficulties caused by the inattention that comes with an ADHD brain; she said it was like channel surfing:
It’s like there’s a television on one side and it’s telling you really important factual information about something that is going to be the most important thing in the world and then the other TV that you've got on is like channel surfing really, really quickly. So that's the one that you're paying attention to but every now and again you know that there’s something going on over here that you've got to, and so every now and again this one, like so one gets louder and one gets softer. As a deadline approaches the really important TV's volume goes up but this one gets softer but it's still there. You can still tap into it, into the crazy channel surfing, and then it kind of like swaps backwards and forwards.

It was in my mind when they sent me email, but I didn’t remember the details. I was like oh yeah, I kind of do remember being told that. It would've been something really factual that despite learning it, and at the time probably thinking it was incredibly important, but actually my brain was channel surfing and I couldn't do anything to actually retain that fact.

In terms of taking a while to answer I'll often think of something, but then not know if it's right or if it's the result of me not listening to something. Because often I'll think I know the answer but I think, well that's weird, I can't know the answer if other people haven't said it yet…I just don't trust my brain.

Caroline seemed to feel sufficiently secure during the interview to bare her soul. It seemed like a relief for her to be able to talk to someone about the pressure she experienced in hiding her ADHD:

I've often said I want invisible illnesses to have a colour. I want things to be a colour so if one day I looked purple it could be like this is what's going on for her, if one day I looked green they'd be like her ADHD is just ruinin’ her day, let's try and put some things in place to help her out, or let's try and be a little bit lax. Just with a colour, and so it could be like, I don't know…like…plaster on my arm or something.

Although Caroline’s discipline was clinical psychology, she did not feel safe to tell her research supervisor, the employer in the clinical psychology practice, or friends, that she had
ADHD. Her desire for ADHD to be coloured suggested that she would like ADHD to be visible in order to be able to receive support, understanding and accommodation for ADHD without having to explain or risk the need to defend herself, just as a player would not be expected to play tennis if they had a broken arm, made visible by a plaster cast. The problem with an “invisible illness” is that it needs explanation, justification and acceptance. Caroline was able to defend her clinical judgement about a case for ADHD, but she had yet to be in the position where she had had to defend her own ADHD, although the stress of hiding ADHD was present when she was telling the story about forgetting a password:

My heart just dropped and I was like, I can't even get a password right. I've been at that job for a month and they kind of headhunted me...but they don't know I have the ADHD because I don't really, I don't tell anyone...I just get through life and - but then I, it was just frustrating. I'm always stressed about it but I never - and I always feel cranky that it like...I could try as hard as I want and it lets me down. It's so hard when you do all this and you have people employ you because of what you see in an interview or what other people tell and then you get there and you just get me - sorry, I'm getting upset about it. You just get me.

I stopped the recording at this point because Caroline’s wellbeing was more important than the interview. Of note is that Caroline was the only participant unable to tolerate medication, which may have led to the impression that she was overly emotional. Caroline recovered and wanted to continue and resumed her professional persona so quickly that I was reminded not to underestimate people with ADHD. In the right environment, with the right support and at the right time, she could perform challenging tasks, despite changes in mood.

Caroline talked about what set the scene for her to be engaged in HE, and that was people sharing their experiences:

I learnt the most from people and being able to talk about an experience, or if we could watch a video, like watch a showing of something and process it that way. But yeah, experiential
things were by far the best way I could learn. I mean how that isn't how everyone learns boggles my mind, I - blows my mind, but whatever [laughs].

In contrast to difficulties with attention, Caroline said ADHD was helpful for theory:

But when it comes to, say, the metaphors, a recollection of when we've been able to put theory together by association somehow, I think those gates are opened. The details just run out like the horse has bolted…

Caroline responded on the day of our interview to a request for photographs with a number of examples of how she set the scene for her learning by differentiating information according to colour, format of paper and notes, and pens according to their positioning around her computer and placement on her desk.

![Figure 12. Post-it notes, 2016.](image)

I stick post-its (Figure 10) of important things I REALLY need to remember onto my desktop so I will be able to see them.
I tend to prefer to think on blank paper than in the notepad (but this varies).

Caroline did use lined notebooks, but to “hold” her ideas or when designing a model, her written thoughts were organised through positioning on a blank page (see Appendix C).

I guess it exists as little ideas that I can’t grab a hold of in my brain but if I put it on pieces of paper it, yeah, it comes to life. Then it starts to make sense and I can work from a basic model, I guess, that I can then put onto paper and grow and make more sense of it that way, yeah.

Drawing a distinction between making a concept map and diagram “because it depends on what it is that I am doing”, Caroline said her notations were “diagramming”.

I seldom get the things on the to-do list done (Figure 11), so when I need to write a new list I have to keep transferring things over. The info in the bottom "priorities" section is info I know I am going to need for my PhD so I always keep that at the bottom when I write a new list. I have started keeping previous lists at the back of the note pad with a bulldog clip just in case I need something on them that I didn't transfer.
Figures 14 and 13. Data chart and calendar.

The data chart (Figure 12) is for my recruitment of participants. This chart has two purposes. My PhD supervisor kept asking me how many people I had per group and I could never remember so it acts as a constant reminder. Second, it is rewarding to put a sticker on each time I am one step closer to reaching the target. Now that I have finished recruitment I still have the chart up as a quick reminder to me about how many participants I have in each group.

The main way I organise my schedule week-to-week, month-to-month, is through my outlook calendar (Figure 13). I try to colour coordinate as much as possible so at a quick glance I know what's happening.

I just need lots of paper around with me to be able to sort out my thoughts. And bullet points. I only think I’m a visual-spatial learner because my mum happens to be an expert in visual-spatial learning in children who are gifted and have learning difficulties, and she constantly tells me I am visual-spatial when I complain to her that I can’t do things! Ummm…and so, but I say “but I can’t do it in my head” (said expressively) and [mum] will say, “that doesn’t mean that you’re not visual-spatial” (said with inflection and then freely laughing). Yes, it is about “holding”. Definitely…so when I think about, like it exists as little ideas that I can’t grab hold of in my brain, but if I put it on a piece of paper it comes to life, and starts to make sense, and I can work from a basic model that I can put on paper, and the thoughts or ideas can grow and I can make more sense of it that way. But I definitely do write a lot more on paper than I type. Yes. The paper is my first [choice] (Caroline).
4.13 Tara: Nothing can destroy super focus

Figure 15. I like to be close to nature.

Those who survive are the ones who most accurately perceive their environment and successfully adapt to it (Megginson, 1963, n.p).\(^{16}\)

Tara had adapted to her environment from a young age, when she saw education as a way out of a low-income, alcoholic family. She gained her education and found a place in the corporate world. It was her confusion when a software programme was changed that led her supervisor to tell her that he thought she had ADHD. After diagnosis, she left her husband, her work and America and came to Australia. At the time of the interview, she was about to start her fieldwork for her urban design doctoral studies.

Remarkable arrangements of plants, inspirational quotes, photographs and objects that provide sensory stimulation and moral support set the scene for Tara’s learning, which she also takes outdoors (Figure 13). Pictures of nature and the places she has been personalise and enrich her office and she uses a “vision board” for affirmations and inspiration:

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\(^{16}\) Megginson (1963) “Key to Competition is Management”, *Petroleum Management* (1964) 36(1): 91-95
When I won the Three Minute Thesis competition, you know, each award that I get I post them up there on the wall to remind myself that I got this.

Needing to “pick up on skills” when her PhD materials were becoming unwieldy, Tara asked her colleagues, “tell me, just a simple tip” regarding organisation:

It seems so, you know, elementary and it's so upsetting that the brain doesn’t work in that elementary, such as simple thing, that people are like, “god, you actually need help with that?”
All I need is somebody to be patient and a little bit of communication and it gets me rolling…because that’s what I need to learn, is like, how to organise.

Tara used concept mapping to set the scene for her research because there were “so many concepts [and] it helps me have a clear plan link”. She also used alarms to remind herself to breathe deeply and keep her feelings in check throughout the day.

I do meditation throughout the day. I noticed that I can get that even more super focused. Until I learnt to meditate it used to be like I have a thousand thoughts running through my head all at once, and how do I organise that?

Being in “super focus” is very hard in the times when Tara needs to be social:

My focus zone, like people can already tell that I'm so super focused they're just like, “oh I'll get back to you later”. I can't really engage with them because it's difficult to change that focused brain and what I'm doing, to talking, especially with a PhD because all you're doing is analysing, analysing, thinking, thinking. A really great strength of an ADHD brain because I can get super focused at the thing and nothing can destroy it. Nothing. I feel like I can work under a hurricane or any kind of noise or anything. How do you bring yourself back here on earth and do that?

Time was needed for organising and planning and Tara preferred handwriting when she needed to be “open” for brainstorming because word processing “closes” her in. With handwriting:
Figure 16. Settings for thesis writing.

I like it better, everything by hand when I really need to be open and be a brainstorm because I feel like typing closes me sometimes. I use lots of different colours, pastels, neon, whatever, green, blue, pink, purple is my favourite colour, you know, orange.

The research conversation turned towards Tara needing to think about writing up her studies to submit her thesis:

It's really about getting a nice schedule and staying with that and a routine to set the scene for completing a PhD. But I also know that I have to be flexible on myself and not force the time. I have a blanket and a pillow that’s under my desk. I can just nap 10 minutes sometimes. Catnap is what I need to reground and get back into it.

Tara started talking about a routine that would keep her on track:

I'm just going to be writing, writing, writing. I really like that idea [of writing outdoors]. Nature and mother earth…is very grounding, very comforting and grounding means like feeling I am safe. I am secure. Watching birds brings me extreme joy. I can laugh and I love watching them. I love the ibis. They're so funny. They're like little miniature clowns to me.

When her thoughts turned to other people Tara needed to remind herself that she had strategies for coping with distractions:
I feel everyone's energy and it's just not my type of energy. I'm not that comfortable being around that. I really prefer to be outside because I'm not like connected to all the different energies.

Figure 17. The reading hammock.

Tara recognised her function would improve if she completed writing her PhD thesis by spending more time outdoors. We had re-situated our interview, taking it from her office to the Botanical Gardens, and immediately after our discussion, Tara provided photographs of the settings she was envisioning where she could write. She had taken down the scene that she had set in her office that had served her learning during the first stages of her research engagement in HE and prepared herself to work outside the office environment.

Tara’s discussion about “energies” in the office had more meaning nearly two years after the interview in the Gardens and I heard that the problem with her supervisor had resulted in an intervention (discussed in Chapter 5, Teaching and Learning in HE). However, when I revisited the transcription from before this event, I was surprised to see how fluidly Tara shifted from talking about the idea of working away from the office and in the Botanical Gardens as in a future context to talking in the present tense about missing the use of her
desktop computer by working outside. Tara’s fluidity, her cleverness, liveliness and speed of thought, illustrate her qualities of eloquence and ingenuity.\textsuperscript{17,18}

Starting from her early life, Tara had survived a number of challenges. She said life “in the corporate world” of America was brash and harsh, nor had she found support for her PhD candidature. Despite these challenges, or maybe due to these challenges, Tara prioritised nurture as an approach to learning. Tara set the scene for her learning with an abundance of nurturing and creative elements by surrounding herself with plants and other natural objects, affirmations, and meaningful photographs and artworks. At home, Tara had set herself up for sensory and spiritual engagement within her garden and through her meditation practice. She was completing her PhD on her own terms and in her own space, as well as preparing for major changes as a result of planned single parenthood.

Elemental scene setting enabled Tara to creatively and successfully engage with highly complex, transdisciplinary research. Although invisible, Tara’s heartfelt values set the scene for her research inquiry and self-determination in the conduct of her research. Tara’s values were evident in her trailblazing commitment to care of the environment and betterment of the lives of people with low incomes.

\textbf{4.14 Benny: I can “see” concepts}

Benny was an urbane, witty, high achiever and I met him on Skype because he lived in Western Australia, which is 3,933km from Sydney. He was about to start the research component for his Master’s degree in Organisational Psychology and was teaching university courses at the time of our first interview. It was during Benny’s second year at university that he was formally diagnosed and I inferred that he had some doubts about ADHD. He

\begin{itemize}
\item \textsuperscript{17} \url{https://www.merriam-webster.com/dictionary/mercurial} 30/12/17
\item \textsuperscript{18} \url{https://www.vocabulary.com/dictionary/mercurial} 30/12/17
\end{itemize}
questioned himself and was disappointed that he couldn’t be “calm” like his partner. Although he said that medication helped him study and “with examinations”, he did not elaborate on how he came to be diagnosed or how medication assisted his learning.

The question of scene setting for learning seemed to mystify Benny:

I think the sad thing is I don’t actually [laughs] set up my space when I sit down to study. I just make a little - I just push everything to the side, make a little space, and then just do everything within that space. I think that kind of frustrates my partner quite a lot, because I just leave things lying around. Then as long as there’s a square of space in front of me, I just use that to study. I can’t focus at my own place. It’s better if he is at home, but not really in the same room. I don’t like people looking at me doing work.

In his capacity to be “centred and calm”, Benny’s partner grounds him and provides him with security, support and stability:

He’s the stable force in my life. I need someone to send me somewhere last minute, he helps. He just really keeps me on track. [ADHD] is more of a subjective experience, that constant trying to keep on top of everything that feels overwhelming. Organisation is incredibly tough rather than natural.

Benny tried using productivity web-based applications for better organisation, so he could be reminded “to do this, and a reminder to do that”, but:

It’s hard to predict when exactly you’ll be free to do those things like, I just bought this productivity app. There is no meditation today, but when? Like, it asks me for a reminder. Like, three o’clock? But at three o’clock, I might be somewhere or I might be – and then I – after the reminder comes, I just forget to do it anyway.

Benny also found electronic alarms for better organisation were counterproductive:

I don’t have any electronics around because it’s stimulating to be looking at things and going through information or talking to people.
Wistful about the elusive ability to be organised, Benny said he wanted “a normal adult life” and to be like other people because he did not like feeling dependent on his partner for reminders about how to go about day-to-day matters that involved timed organisation like appointments. His discussion of electronics also highlighted that he enjoyed being stimulated by people contact:

Talking to people is one of the large things that gives me a lot of – main things that gives me a lot of stimulation.

Although Benny had legitimate fears, it was clear that his social life and his partner brought him great joy. He did not appear to be in fear of losing the relationship with his beloved partner, who provided the stage where Benny could set up his scene for studying, which was “a little square of space”.

During our second contact, Benny disclosed that his parents were far from affluent and he described his father as violent. Benny did not have a stable environment for studying at home, and it was his aunt who had set the scene for his learning by financing his education at an elite international school overseas, and then continuing to support his tertiary education in Australia. Benny indicated that he had been living in an unpredictable and fearful home environment and that he needed to learn how to study quickly and pack up his study materials quickly.

After he talked about creating a small square of space on his partner’s desk to study, I asked Benny how he went about his learning, for example, how did he set the scene for studying for an exam. Benny was deep in thought. After a few moments, he raised an Artline200 FINE 0.4 pen, held the pen and made a slight gesture as if he was gathering his thoughts. He was making strong eye contact. I mirrored his action by raising the same pen but remained silent. For the next part of the interview we were both locked by eye contact
and deep concentration while Benny was looking for the words to describe what happened when he was studying for exams:

It’s very odd… and… I don’t know if… it’s almost… as though I see concepts… very much… so… see

I remained silent. During a long pause, Benny reflected on his study process and started matching his reflections and experience to the theoretical learning he had gained by studying Organisational Psychology. He was then able to detail his experience:

Audio information from conversations and presentations seems to be difficult to hang on to and process, but when things are laid on visually I process it really quickly and can think about it much more effectively. The theoretical model that I would study, then I would try and visualise it. Then the components within it and then I can explain from there. But if it was a chunk of text, I can’t.

Mathematical… calculations… yeah… that’s something that I find quite hard. Like, graph equations. X2 plus 2x or – and then it come over like the night light.19 Don’t – I just don’t understand. I can keep trying, but I can’t really do it. But the interesting thing is, when I study and if they have this concept linked to that concept to that concept… so there’s a model, right? Maybe there’s a model of, say, working memory, for example. You have a phonological loop and a visual-spatial sketchpad. If I write these terms, like, in word – executive function does this, this, this, this, and the next line, phonological loop does this, this, this, this, I can’t remember. So sometimes what I do is I write executive function, I write phonological loop, I

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19 Benny is bi-lingual and I believe that he meant “night time”, such as when the light is fading and night falls. When recalling events throughout the interview, he was also imagining and describing the physical symptoms, and this is a fitting description of the sensation of inattention; trying to see but there is not enough light or trying to feeling your way around an unfamiliar environment in the dark.
write visual-spatial sketchpad and I draw a box around each, so that it becomes an image and that helps me to remember it much better.

After Benny talked about how he made diagrams, I asked him about the use of the particular fine-liner mentioned above and whether he used blank paper. He said he needed a particular black fine-liner pen and six blank lecture templates, which had the same appearance as a PowerPoint presentation by a lecturer. At the top of each template he would formulate one of the six questions he was going to use to integrate the semester’s learning. While Benny was writing these questions, an inchoate image of the theoretical constructs he needed to learn started to formulate in his mind:

The theoretical model that I would study, then I would try and visualise it. Then the components within it and then I can explain from there. But if it was a chunk of text, I can’t.

Benny said he could “see” the relationships within the constructs and between the theorists that he needed to know about for his exams. The relevant words and relationships became clear to him immediately as a visual text, in the form of a diagram he drew on the blank paper by making simple notations with his pen. This diagrammatic information could easily be reproduced the following day, in different configurations according to the examination questions. In respect of diagramming, he described focusing his attention as straightforward because he was familiar with multiplicity:

I know how that feels when our brain already has a tendency to try and process so many different things at once.

However, this kind of information processing did not apply to “normal” life:

Multiple things to juggle just makes it harder! I am currently overwhelmed with trying to live a normal organised adult life like everyone else is but struggling so hard. It’s tough. I need to get on top of things.
Registration with his university’s disability support service entitled Benny to six vouchers per annum for specialist ADHD coaching. Without elaborating, he said he found the service beneficial because the coach did not push him to organise himself in a conventional way, but rather to use visual cues:

> If I’m planning something, that scares me, because I feel like I’m being controlled, so the coach said, “Okay, how about just generally? What are you going to do on that day?” That worked for me, because I think not so much planning worked for me, but the fact that I had something up there, I could quickly see. The visualisation helped so much.

Benny sounded guilty for not being organised and being a “last-minute study person”, although self-evidently he can prepare for exams in a very short time. However, he did get ‘on top of things’ with the help of deadlines, which provided him with focus:

> Constraints is definitely a huge part of it. Yeah. Especially – and that is why I’m – I think maybe that’s why I’m a last-minute, because with the last-minute thing, you have this limited time. Just got to get it and just do it.

In a joking way, I told Benny that he didn’t prioritise his learning, rather “the learning prioritises you by deadlines”. He laughed and replied,

> Yes. This is why I love deadlines. I just tell myself or emotionally, like, remember that something that I really have to do. I threaten myself almost. I have a very, very strong sense of fear of failure, which is why that drives me. Like, if I don’t get this in time, my whole future – I’m going to fail at this thing or something like that. That is – and just try – it just gets me done – to get it done.

Benny’s strong fear of failure drove him to meet deadlines. They kept him focused and on track. Benny’s preferred study elements involved working in his partner’s study and knowing his partner was at home. With these factors setting the scene for studying, Benny’s understanding of theoretical relationships happened quickly.
Benny’s early learning was founded on the view that hard work will overcome obstacles and bring success, with the measure of success being financial and/or awards for academic performance based on standardised tests. However, hard work never helped Benny master mathematics, routines or certain organisational functions like remembering appointments. He was highly anxious; there were high-level performance expectations of him from his family and he was constantly analysing things that “push and get at him”, asking himself over and again “Why am I anxious? What’s causing the anxiety? What’s, like, da da da da da da da da”.

Twelve months after our first contact, Benny’s academic performance was directly linked to his opportunity for permanent residency and he expressed his fear in the strongest possible terms. It became clear why he was anxious. Neither his neurological diagnosis nor his homosexuality would be accepted in his home country and he told me he would suicide rather than go home, revealing the origins of his “very strong fear of failure”.

4.15 Sara: Being able to sit through a 2-hour lecture is like a miracle!

I spoke to Sara at the end of her first year in Psychology. She was living in in a large light-filled house in Canberra with other university students, one of them a cousin of hers. At 18 years of age, she was the youngest participant in the study. We used Skype for the interview and her presentation could genuinely be described as hyperactive. Our appointment was at 9 am, and after we had been talking for about 15 minutes, Sara carried her laptop from the kitchen table to the stove while she cooked eggs, return to the table, talking, eating, taking medication and checking her phone. Sara attended to a barking dog that was let inside, then opened and closed a drawer while she was standing. When she was seated again, the archway from the kitchen to a leisure room framed the movement of people behind her, like the extras in the background of a movie. One of them returned to the archway, communicated some information to Sara and before he exited stage left, Sara finished her breakfast and I had a clear view of him and the glass doors while she put her dish and cutlery in the sink.
Not once did Sara lose her train of thought, or even stop talking, despite all this movement, including when I was being transported up the stairway by laptop to see her bedroom. She was so proud that she had learnt how to tidy up her room she wanted me to see what she had achieved. She said the transformation diagnosis and medication had made to her ability to gather all the things she needed for her studies, and to her consequent grades, were “like a miracle”:

In contrast to my Cs and Ds\textsuperscript{20} all the way through years 10, 11, and 12, my results at the end of the last term, I got three high distinctions. [Medication] is like magic. I thought being able to sit through a two-hour lecture was a myth. It’s still so new to me to actually be able to do that effectively that I can't believe it. It’s like a miracle.

Sara said in hindsight:

The depression and anxiety that I suffered was related to not understanding why I wasn't good at things that I knew that I should be good at [when] I could go into oral presentations and run a class with almost no preparation because that switch would flip and I could just do it.

However, she recognised that her approach to learning in high school was not going to be sustainable in HE:

I’d never heard about hyperfocus before, so one of the things that I’d written off ADHD because of was because I was like well…because you just get such an incredible level of focus and if someone is asking me questions, it's like this kind of high stakes, engaging, verbal thing…but it's always in that really intense way where everything else kind of disappears. It’s sometimes I'm sure a little bit much for other people, but I do find it really, really useful sometimes.

Prior to diagnosis, Sara “didn't realise” intentions, thoughts, behaviours, strategy and skills could be tactically deployed for studying; it was either hyperfocus or not studying at all.

Now, she asked people:

\textsuperscript{20} In Australian school grading, “Ds” are a score equivalent to a pass grade (50-65%), not a distinction.
“What do you do when you're studying?” It's really odd question, I think, sometimes, because people just kind of do it.

Sara said she needed “dual processing” to function because having two tasks that provided appropriate challenge increased her ability to concentrate:

[I] need a specific level of environmental input, because if you're not getting enough input, you're just bored and frustrated and you have to create it for yourself by moving or doing things or something because there's just nothing happening and it's just awful.

However, when she was performing more than one task, such as cooking, talking on the phone and studying, something outside her control caused her to lose focus:

Then you can't hone in on one thing and you lose perspective and can't prioritise which of the inputs you're supposed to be - everything's the same size, everything seems to be of equal perceptive importance, and it's really difficult to specify no, no, these things don't matter. I find it hard to prioritise, so if there's a noise - I can't filter out –

In terms of input and output, Sara was accessing counselling and coaching support. She was motivated to learn about ADHD and her own experiences while she was learning about Psychology, so it was likely she would situate herself to gain further awareness about prioritisation. Organisation was her focus at the time of the interview. Sara liked electronic devices and alarms were helping her become more aware of time:

Yeah, or something that I started doing as well in the last little while is I set alarms on my phone to be able to track time better. So, leading up to if I have an appointment at 9:30 and I know that I have to leave the house at 9:15, I'll set one alarm for 8:45, one alarm for 9:00, and one alarm for 9:10.

A number of factors were helping Sara to set the scene for her learning. Her live-in coach was her cousin who was ‘ahead of her’ in a psychology degree. She had the support of counselling and insight into the skills she needed to learn to engage with her university
studies. These would help her to sustain attention over the course of her degree. The enthusiasm she brought to the scene-setting strategies of packing her bag was clearly evident in how she developed a set of sequential instructions to teach herself how to pack her bag, which she recited extempore:

Step 1: Deal with the peripherals.

The main thing that I do is that I have to figure out what I want on and what I want in the periphery, and then I have to set things up so that what I want in the periphery is physically in the periphery, because otherwise it will be too much. It will get too disorganised in my head and be too many things.

Step 2: Have the thing I’m actually working on.

So, I'll have the thing that I'm taking notes in or the thing that I'm actually working on right in front of me, and then whatever I'm looking at to reference or things like that to the side of me.

Step 3: Check: do I have everything I need?

Then to try and make sure that I have everything that I need, I have my content in one place, so my lecture slides or the things that I'm referring to are usually on my laptop, and then I'll take my notes into a separate book, which I also have one of those books where I have all of - I don't have a separate book for every class. I have one book that has dividers in it, which is also useful.

Step 4: Control/organisation book.

Then I have a separate book for making lists and plans of what I need to do.

Step 5: Packing a bag.

Make sure that I have everything that I need physically there, because if I have to do and get something, I don't know how long that journey is going to be and I don't know - less so now that I have the medication, but I don't know whether I'm going to be able to come back and sit down.

Step 6: Bag is packed.

So, I kind of have - pack a bag with me and have my computer, have my computer charger, I have my phone charger in case I need my phone or my phone's dying, I have the different
books, I make sure that I have a glass of water or a cup of tea or whatever I want, and I kind of have everything within an arm's reach before I try and really settle into it. I have my pens in a little pocket in the side of the bag, and then I have my laptop, my organising book and my two books in the body. It's a big kind of tote bag type thing. Then I put all my chargers in.

For task management and monitoring, Sara showed enthusiasm equal to packing her bag in learning about how to form habits. She did this by using a web application called Habitica. The break-down of timely task completion into stages, along with the electronic rewards for her efforts, meant that Sara can get immediate feedback from Habitica. The principles of gamification employed by Habitica are similar to the kinds of reinforcing reward systems used in poker-machines, although the reinforcers are of course intended to improve day-to-day function, and in Sara’s case, set the scene for improved participation in HE as she decided what area of organisation to target. Sara said using Habitica to break down tasks had helped her concentrate on her studies:

I’ve never been able to keep my room tidy until the last few months, and it’s because I’ve been doing this five minutes a day kind of thing, which is a lot more manageable.

So, it's kind of like going on a trip and you want to have everything with you, because if you forget something, you can't just go back upstairs and get it. That's not a simple thing for me to do, because it means deciding to leave what I'm doing, it means knowing what I have to do once I get upstairs, it means knowing where I was up to when I come back downstairs.

With the aid of Habitica Sara was less likely to become distracted by needing to look for learning materials. Also, with greater self-awareness, Sara was prompted to plan and use visual cues as reminders:

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21 Habitica is a self-improvement web application with game mechanics overlaid to help the player keep track of and remain motivated to achieve their goals. [https://en.wikipedia.org/wiki/Habitica](https://en.wikipedia.org/wiki/Habitica) 14/12/17
So, if I know that I need to bring something with me today, then as soon as I have that thought, I will try and plan for how to make sure that at the time when I’m actually leaving the house, I’m cued to take that with me. So, I might put it by the door, which seems really simple...

However, the potential for organisation to become routine without prompts was still tenuous. Her voice trailed off and she wondered whether it was realistic to expect that she would be able to sustain “habits”, although she knew the benefits of paying attention to gathering her learning materials:

I don't know. Routine is something that's a really difficult concept for me, and I know it's really good for me, but I don't know if it's ever going to be natural, whether it will ever be habit…I don't know how I would have done it before medication.

It took me so long to learn about having everything in one place, because I'd never really been in one place.

Previously Sara had no control over retrieving learning materials or any sustained interest in task completion. Now, at the time of the interview, her cousin/housemate/study-buddy was providing coaching to helping her finish university work.

People who work in libraries, categorising things. I don't know how you would do that. Pretty much anyone who can just finish something…That, to me is just miraculous. To be engaged with something right up until the end.

Sara had learnt to ask herself, “Do I have everything I need?” in order to “have my content in one place”. She kept all notes in one book that was divided into sections and special mention was made about her organisation book: “I have a separate book for making lists and plans of what I need to do.”

So, I pack a bag, have my computer, have my computer charger, I have my phone charger in case I need my phone or my phone's dying, I have the different books, I make sure that I have a glass of water or a cup of tea or whatever I want.
Sara said that before she was diagnosed and learnt how to pack her bag, how to go about studying “never really made sense”. Now she recognised the value of having “everything within an arm’s reach” before she started trying to studying. With everything in reach, she could “really settle into it”.

Sara’s ability to coherently list such detailed information about her bag confirmed her comment that she had been able to excel as an orator during her secondary schooling. Before she knew about ADHD and hyperfocus she called her ability “The Wild Card”. She was not able to use “The Wild Card to wing it” at university and was confronted with the insight that she would not be able to complete a four-year degree unless she could master routines, habits, organising her materials, the housework and her assignments.

4.16 Data chapter summary

This chapter presents the data collected from a heterogeneous group of 13 participants who had been medically diagnosed with ADHD. Attentional similarities were seen in the group. These included the challenges occurring in algorithmic learning (procedural/lock-step/sequential functions), inattention in the context of fine-print types of detail, difficulties with learning that required them to summarise, prioritise and read from screens and a difference in the perception of time. A strength was seen in the participants’ associative thinking, which was expressed in figurative language using metaphor.

A strength in visual perception is also represented in the data. A number of participants expressly referred to their predisposition towards problem identification and solutions and some mentioned their need to “see” the big picture in order to engage with their learning in HE, because they could “see” solutions, patterns and relationships and in Benny’s case, “see theory”. Most of the participants expressed their need for the personal support and appreciation of their partners. Exceptions were found in the narratives told by David and
Caroline, who could take support for granted because it was unconditionally available; and Tara, who placed emphasis on creating nurturing environments as core to how she set the scene for her learning. The interplay between diagnosis and their studies showed the various stages within diagnosis and acceptance of ADHD, and how their understanding of the impact of ADHD on learning in HE motivated them to develop learning strategies that improved their learning engagement. A summary of the participants’ learning strengths, challenges, and learning strategies is presented in the Data Summary Table (see p. 144).
## Data Summary Table

<table>
<thead>
<tr>
<th>Participant</th>
<th>Learning strengths</th>
<th>Learning challenges</th>
<th>Learning strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monique</td>
<td>Well-established learning strategies as a result of early identification. Determination and strong work ethic. Reliable, supportive relationships and financial advantage. Clear, achievable goals. Awareness of her ability to see “the big picture”.</td>
<td>Anxiety, and difficulties following verbal instructions. Difficulties with activation, which affects her confidence in the context of learning task commencement. Dyslexia</td>
<td>Reframe and timetable all assignment materials at the beginning of each semester. Ask her mother, boyfriend and university friends to help her focus by providing encouragement and/or reframing questions. Writing everything down</td>
</tr>
<tr>
<td>Angela</td>
<td>Awareness of her intellectual capacity and passion for civil engineering and ability to see a bigger picture</td>
<td>Challenging curriculum in Engineering Studies. Difficulties with prioritisation and summarisation which exacerbate poor test-taking abilities Difficulties with boredom and lack of engagement from university lecturers. Isolation. Undiagnosed and struggling with ADHD led to failing an exam, suicidal ideation, withdrawal from social contact, withdrawal from one university and finding the same curricular challenges at the next.</td>
<td>Diagnosis Ongoing treatment Perseverance Change of university House move</td>
</tr>
<tr>
<td>Scott</td>
<td>Awareness of his exceptional problem-solving abilities in engineering contexts and ability to see the big picture Mature ability to seek professional help and make difficult decisions</td>
<td>Anxiety and depression Very poor working memory Difficulties with organisation of learning materials apparent in self-described cycles [of chaos and control]</td>
<td>Attitude of acceptance and perseverance Reassessment of cognitive strengths and weaknesses House move</td>
</tr>
<tr>
<td>Michael</td>
<td>Awareness of strengths and weaknesses Big picture mapping skills Ability to design graphic organisers Strong work ethic and ability for high level performance in the field of electrical engineering as an intern</td>
<td>Pragmatic language difficulties and social anxiety Difficulties with prioritisation and summarisation which exacerbate poor test-taking abilities Shifting from an interesting field-work assignment to textbook learning and distractibility.</td>
<td>Use of graphic organisers to plan the semester’s work Seeking help for problems with distractions, feeling compelled to help others and difficulty switching social media off. Handwriting</td>
</tr>
<tr>
<td>Name</td>
<td>Strengths</td>
<td>Problems</td>
<td>Accommodations</td>
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<tr>
<td>Andrew</td>
<td>High levels of awareness of his learning needs and maturity, Strong work ethic, Big picture mapping skills, Concept mapping</td>
<td>Disorganisation of learning materials, Poor working memory, Reading difficulties</td>
<td>Putting into practice treatment advice, Positive attitude and self-talk, Maintaining his respectful relationship with a supportive partner, House move and building a large desk, Preparation of calendars, timetables and location maps, Handwriting, Boxing</td>
</tr>
<tr>
<td>Sandra</td>
<td>Delights in problem-solution, big picture challenges, Maturity and the ability to confront difficult decisions about marriage, motherhood and career, Concept mapping, Strong goal focus</td>
<td>Anxiety, Self-confessed “bossiness” makes her a misfit in the university culture</td>
<td>Accessing treatment, Self-determination, Successful merger of the demands of motherhood with self-regulation, Strict adherence to her learning strategy tools such as the use of her diary and notes to self, Handwriting</td>
</tr>
<tr>
<td>Patricia</td>
<td>Able to detach from opinion of others and take delight from ADHD, Concept mapping, Learning support from faculty</td>
<td>Less able to read the reaction of others</td>
<td>Self-determination, Successful merger of the demands of motherhood with self-regulation, Strict adherence to her learning strategy tools such as the use of her whiteboard and essay mapping, Writing everything down</td>
</tr>
<tr>
<td>David</td>
<td>Early identification means learning strategies are well established</td>
<td>Hostile learning environment, Difficulty in switching off from work to maintain relationships</td>
<td>Use of visual representation, Use of music for self-regulation</td>
</tr>
<tr>
<td>Jennifer</td>
<td>Determination, Self-awareness</td>
<td>Hostile learning environment</td>
<td>Determination, Working ahead</td>
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<tr>
<td><strong>Caroline</strong></td>
<td>Verbal skills</td>
<td>Unable to explain to others why she has trouble with details</td>
<td>Systematic use of graphic organisers, both digital and hand-drawn, using colour coding</td>
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<tr>
<td></td>
<td>Exceptional maternal support</td>
<td></td>
<td>Use of research skills</td>
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<tr>
<td><strong>Tara</strong></td>
<td>Self-determination</td>
<td>Hostile PhD supervisor</td>
<td>Self-advocacy</td>
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<td></td>
<td>Ability to confront barriers to learning</td>
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<td>Formal advocacy</td>
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<td></td>
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<td></td>
<td>Multiple strategies for improving the sensory environment</td>
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<td></td>
<td></td>
<td></td>
<td>Handwriting</td>
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<td></td>
<td></td>
<td></td>
<td>Colour coding</td>
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<tr>
<td><strong>Benny</strong></td>
<td>Ability to “see” theory</td>
<td>Routines</td>
<td>Accessing coaching</td>
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<td></td>
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<td></td>
<td>Using his partner’s study and presence for “last minute” study</td>
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<td></td>
<td></td>
<td></td>
<td>Using paper and a fine-liner pen, constructing diagrammatic representations of material needed to be reproduced under examination conditions</td>
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<tr>
<td><strong>Sara</strong></td>
<td>Ability to demonstrate knowledge in immediate situation contexts</td>
<td>Distractibility</td>
<td>Diagnosis</td>
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<td></td>
<td></td>
<td>Difficulties with structures such as routine, organisation of personal belongings necessary for spending a day at the university</td>
<td>Medication</td>
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<td></td>
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<td>Extreme restlessness</td>
<td>Treatment</td>
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<td>Support Group</td>
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<td></td>
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<td>Coaching</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Use of electronic applications to help form habits and reinforce packing all the things she needs to take to university.</td>
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</tbody>
</table>

Figure 18. Data Summary Table.
Chapter 5: Discussion

5.1 Overview

The findings in this chapter show how the participants set the scene for learning on the platform of diagnosis, medication, stability and support, a platform that assisted their understanding of the impact of ADHD on studying in the HE context. In this study, scene setting was heuristically used to describe the development of fit-for-purpose learning strategies and interaction with the environment, and the ever-evolving problem-solving skills learnt by trial, error and/or observation, all of which coalesced to set the scene for engaged learning in HE.

On the basis that all participants had a medical diagnosis of ADHD and psychosocial education, plus in-place support, the data derived from the interviews with them are then represented for interpretation in four clusters that discuss:

1. The platform of a medical diagnosis of ADHD and psychosocial support
2. Self-strategies: day-to-day regulation and functioning
3. Learning strategies: scene setting approaches to learning
4. Academic strategies: setting the scene for engaged learning in HE.

New information provided ecological validity for the contexts where symptoms of ADHD combine to produce poor academic outcomes in the highly regulated environment of HE, highlighting the need for further research into meeting the learning needs of HE students with ADHD.

5.2 Introduction

Preliminary research (Young, 2015) found participants set the scene for learning in HE though the dynamic interplay of interrelated learning strategies that were not fixed in time or place, but emerged within the framework of diagnosis, medication, support people and
greater awareness of the impact of ADHD on their learning. This research identified that diagnosis is the platform on which the scene for learning in HE can be set, confirming the importance of early identification of ADHD. Since medical and neuropsychological support were necessary to help stabilise the participants and their home and/or learning environments, diagnosis was the platform on which their scene-setting strategies could be built.

The data shows that scene setting is a phasic developmental process of *enskilment*, to borrow Ingold’s (2016) term for describing in-situ, perceptual learning, provided the base of medical, psychological and executive function are firmly in place. The participants were at varying stages of identifying their learning strengths and needs. Additionally, their access to psychosocial, financial and moral support influenced how effectively they developed insight, skills and support as learning strategies that set the scene to improve their day-to-day functioning, learning, participation in HE and, ultimately, the academic outcomes. The difference between the various stages of identifying their learning strengths and needs was most visible between those participants who had had the benefit of early identification and those under stress and recently diagnosed or reassessed for ADHD.

The development of individual learning strategies involves purposely reflecting and acting on discrete aspects of improvements in the function and regulation of the self, the environment and engagement in HE. It was the cumulative development of various learning strategies that set the scene for learning, achieved through the interplay of person-environment experience in the HE context. The skills involved in scene setting required selecting location and then the preparation, placement, and organisation, assessment, arrangement and maintenance of resources. Scene setting can act as a means of self-assessment and learning evaluation. The importance of setting the scene for visual assessment is seen in the data where participants described how they were able to make snap judgements about function according to the level of order in their learning and home environments. With
her pre-school child, Sandra was able to leave her home each weekday efficiently because her visual system of organisation enabled her to see at a glance all the items she needed to take with her. Andrew, Sandra and Patricia said that the state of visual order in their learning and home environments provided them with instant feedback on their state of organisation. If things were in a “mess” (Sandra, Patricia), they knew they needed to regain order in general and set the scene, in particular for their learning, in order to keep anxiety at bay. Patricia used a simple visual-spatial signposting method with a whiteboard and clearly worded blue text with red ticks next to the assignments she had completed to make her learning and progress visible. The combination of the whiteboard, list and ticks not only helped make her learning and her progress visible, it was, she said, also motivating.

The results of the reciprocal learning processes involved in scene setting is seen in how the participants became more adept at acting on intentions, decisions and actions, which led to the interpretation of scene setting as enskilment.

An example of enskilment is the context of the therapeutic relationships with doctors, counsellors and/or coaches. Participants needed to appraise what support they needed to set the scene for sustainable learning in HE and to access and organise support through help-seeking skills. In the case of personal relationships, they also needed to monitor themselves to ensure that the support they receive was being reciprocated; an example of reciprocity in relationships was Andrew’s electronic reminders to ask his partner about her day.

The association in the data between the need to harness attention by keeping distractions out and attention in led to the concept of metaphorical “gating” as an important strategy to set the scene for learning. Each participant needed to reduce distractions in order to hyperfocus on learning. The need to increase awareness of the gateway between distractions and concentration emerged from three sources, namely the data derived from this study, the neuroscience literature concerned with impulsivity, and Ingold’s differentiation
between intentional learning and attentionality. Examples from the data showing how scene setting acted to eliminate distractions, regulate emotions, focus attention and facilitate learning highlighted the need for attention to be gated. If there was insufficient structure in their setting to give an individual the necessary gating to hyperfocus, they may have required the support of “keepers”. The gating metaphor can be extended to gate-keepers, time-keepers and bookkeepers to anchor the participants and help them channel their attention while supporting accountability. According to the literature and the data, time disappears during the experience of hyperfocus and keepers in the data support accountability when they remind the participants about tasks, times and the places they are supposed to be. An important gate-keeping function was seen in the role of support people who helped activate participants’ attention, such as Monique’s mother’s ability to rephrase questions to give her a “push start”.

Misunderstandings, such as the participants’ experience of themselves being misunderstood and their misunderstanding of academic expectations is found in the comments they made about teaching and learning. These, as well as the impact of their behaviour on others in a classroom, has led me to consider whether “inclusion” as a fixed educational paradigm is appropriate in all contexts. The participants said they could concentrate on the activities they find difficult only when they were alone. Sandra said, “I create my space when no one’s around, there’s no distractions” and Tara said, “I need to work when no one’s there.” There is one exception to this, found in David’s case. David had ADHD and was “on the [autistic] spectrum”. He described how he could “set up anywhere”. During the interview, he realised that when he was setting up in the dining room because that was the only room in the house with air-conditioning, anyone else in the room would leave because he “would have been having one of his normal freak-outs about study”.

Andrew said he wanted to share his experience to help others, so that “no one has to go through what I’ve been through”. The data reveals that the participants were studying in areas that could solve problems and improve the quality of life for others and were drawing on their lived experience. However, the effort made in the face of poor or hostile teaching was costly for some participants. The participant who became suicidal and the young man who was hospitalised were both studying engineering. An associate supervisor was able to influence Tara’s principal supervisor to accept that his behaviour was harassment. This harassment spanned two of the three years in Tara’s PhD program and stopped only following formal sanctions.

Once they were diagnosed and able to understand clearly what made them different, the participants were able to articulate clearly their needs in order to function and participate in HE. Clear successions of scene-setting development are observable in the data, according to recognition of ADHD and access to support. Examples of the learning trajectory show the progress participants made after diagnosis, from surviving in HE to thriving, and even inspiring others. It can be seen that with greater self-awareness and the right support, the participants worked extraordinarily long hours to compensate for their difficulties with attention to detail, standardised teaching and convergent approaches to learning. In setting the scene to address distractions and restlessness, the participants could hyperfocus on critical reading, writing, study for examinations, research, theorise, solve problems, set precedents and be the best they could be. In the next section I will outline the four clusters of scene setting strategies for learning:

1. The platform of a medical diagnosis of ADHD and psychosocial support
2. Self-strategies: day-to-day regulation and functioning
3. Learning strategies: scene setting approaches to learning
4. Academic strategies: setting the scene for engaged learning in HE.
5.3 Cluster 1: Diagnosis, medication, counselling, coaching and support

The foundational cluster of strategies that set the scene for learning includes the medical diagnosis of ADHD, recognition of the impact of ADHD on learning, and access to evidence-based multi-modal treatment, including medication (Britton, 2012; Langberg & Becker, 2012; Meszaros et al., 2009; Schweren, de Zeeuw, & Durston, 2013; Wigal et al., 2011) and psychosocial education (Hinshaw & Arnold, 2015).

In combination with medication, psychosocial education and coaching and/or awareness of executive function helped the participants to focus their thinking and develop goal-directed behaviour and learning strategies. The participants drew on psychosocial education (Hinshaw & Arnold, 2015) to discuss and understand their experience of ADHD, using the discourse of executive function literature. When discussing the symptoms of ADHD such as inattention and forgetfulness, they made astute references to how their brains worked and were fluent in their narratives about hyperfocus and their altered perception of time.

5.3.1 Early identification.

The data clearly shows the benefit of early identification, advocacy and parental learning support, as seen in how Monique and David’s early access to support enabled them to cultivate long-standing study habits. The interview conducted with Monique in her family’s business premises gave me the sole opportunity to observe directly the interaction between a participant and a support person. Monique’s mother was an invited presence during the last 15 minutes of the interview, in part because Monique was starting to lose concentration. When Monique turned to her mother to seek clarification to a question, I saw her mother’s skill in rephrasing the question, which gave Monique a moment’s rest, time to shift position, refocus, and then respond.
5.3.2 Diagnosis.

Sara said that diagnosis “brought the solution, sustainable learning, into sight”; however, there were a number of other contributing factors, including psychosocial education (Hinshaw & Arnold, 2015), family support, coaching and such rehearsal strategies as developing comprehensive instructions for packing her bag and her commitment to learn how to develop habits.

The increasing organisational demands of their university work and having difficulties meeting the expectations of academe as well as their expectations of themselves led to eight of the participants becoming overwhelmed, seeking help and being diagnosed with ADHD. The other participants (Monique, David, Michael, Scott) had been diagnosed as children. Scott had been assessed for ADHD during both his primary and secondary education and during his first year of engineering as a mature age student, he was reassessed. The experience of psychometric testing transformed his self-confidence because it provided a clear explanation for his learning difficulties. This information helped him confirm his intention to persist until he earned his degree, no matter how many units he failed or how long it took him; he would learn to solve learning problems as they arose, by trial and error.

For Caroline and Angela, diagnosis precipitated an identity crisis. Caroline’s psychiatrist pointed out that up until she began her professional doctorate, she had been able to “compensate” for inattention. However, as the complexity of her workload increased, she was unable to remember details such as passwords. Undiagnosed with ADHD and unsupported in a foreign learning environment, Angela was unable to “get through the brutal assessment period” in engineering, a discipline that was described by four research participants as reliant on de-contextualised textbook curricula, strings of formulae that unsophisticated computer programs were unable to process, excessive verbal instruction and online learning. Because
four of the 13 participants were engineering students, a sub-section on engineering is provided below.

5.3.3 Medication.

The immediate benefits of medication for Jennifer and Sara meant that they could both identify the time when they started taking their medication as the time when their academic capacity improved. Jennifer, who had “dropped out of two degrees” but re-entered university after she was diagnosed, subsequently completed an undergraduate degree and had started working towards her Master’s degree. Sara found medication helped her to become solution-focused. Caroline was unable to tolerate medication, but each of the other participants confirmed their use of medication as the frontline strategy to improve concentration in formal learning environments; this was in keeping with the literature reporting on medication (Boonstra, Kooij, Oosterlaan, Sergeant, & Buitelaar, 2005; Mehta, 2004; Wigal et al., 2011). At the time of the interview Andrew had stabilised on his medication, having previously trialled different medications for two years and been unwell during that time. Despite his frustration about lost time, he could still muster “Yeah, front line and all that” about the value of medication. Benny said that sometimes he got caught in hyperfocus and found transitions more difficult when on medication, while Tara said that she found anxiety to be a side effect. David’s 20 years of experience with medication enabled him to provide a long-term view. Without medication, he said,

It just drives everyone nuts [laughs]. If I am off it, I can still do my work, but it will be a much slower process and I just need to stop and pause and go right, back on track kind of thing. Medication just hones the focus on what needs to be done compared to how it is being done.

The data confirmed the benefits of timing the use of medication as an exam preparation strategy (Gropper, Gotlieb, Kronitz, & Tannock, 2014) and for concentrating on reading
The importance of timing and awareness of priorities was emphasised by Andrew because he could be in “laser-beam” hyperfocus, but if he needed to change what he was working on, the transition was more difficult. Benny also mentioned the difficulties with transitions while on medication.

5.3.4 Coaching for executive function.

The benefit of specialist coaching to improve executive function (Costello, 2012; Emmers et al., 2016; Richman, Rademacher, & Maitland, 2014) was availed by only three participants. Benny was studying in Western Australia where universities provided access to a consultant ADHD coach. Sara had the benefit of a live-in coach, sharing a house as she did with her cousin who wanted to provide coaching and mentoring because she was studying psychology and was two years ahead of Sara. Tara accessed coaching through private means.

The role of an ADHD coach is to elicit and monitor goals, timeframes and provide structured assistance and accountability for the prioritisation and sequencing of learning tasks so that intentions are acted upon (Ramsay, 2016; Ramsay & Rostain, 2006). ADHD coaching as an academic accommodation is not widely available in Australia, although DuPaul et al. (2017) found that after medication and psychosocial education, coaching was the most beneficial service for tertiary students with ADHD, as it improved self-determination and grade point averages (DuPaul et al. 2017). Coaching also improved self-talk and self-regulation, with students internalising the voices of their coaches and following their suggestions (Meaux, Green, & Broussard, 2009; Parker & Boutelle, 2009). There were challenges in specific language areas for the participants, including self-talk and pragmatic language skills. The importance of pragmatic language for seeking help was illustrated by Michael’s experience, which is explained in the discussion chapter.

5.3.5 Support from significant others.
Monique, Sandra, Caroline, David and Andrew gained support from people such as parents (Gormley et al., 2015) and partners, as well as professional support from psychiatrists and psychologists. Competent, clear and present support people provided the participants with anchoring and help to make sense of their experience. This was found in the support Sara had with her cousin, David with his partners, Monique with her boyfriend, Patricia with her online groups and Tara with her friends. Michael and Angela both disclosed that they had social anxiety and did not have support to the same degree as the other participants. Benny’s partner was able to remind him of appointments and acted to ground him when he was anxious. David’s two partners acted like parents to ensure he was keeping well, provided encouragement when he “marginally” failed an exam and had to do a “sub”, and at other times, when he was distracted, they directed him back on task. Sandra said she could not have left her husband, become a single mother and re-enter university without her mother’s support. Andrew spoke of his partner with great respect and gratitude, calling her an “angel” and how “she gets it” when he couldn’t concentrate on anything. To ensure he did not neglect her, his iCal was set to remind him at 6 pm every day to ask her about her day. Jennifer had the benefit of a supportive friend who is doing his PhD in her department, and he was able to interpret some of the confusing interactions she experiences in supervision.

5.3.6 Summary (Cluster 1): Diagnosis, medication, counselling, coaching and support.

Diagnosis, medication, learning about ADHD, stability and support enabled the participants to make decisions about what they needed to set the scene for their learning. Through evidence-based support and greater self-awareness, the participants appeared to be able to draw on their strengths to withstand learning difficulties in learning environments that did not validate them and would make almost heroic efforts to improve their learning engagement in HE.
Diagnosis was the doorway to gaining a realistic understanding of how ADHD impacts the participants’ learning and medication helped with symptom management and thereby improved academic function. In combination with psychosocial education and coaching for executive function, these factors were the scene-setting foundation for function and participation in the HE context. The importance of early identification of ADHD and support cannot be overstated. The participants diagnosed as adults experienced major disruptions to their lives and identities, in some cases with great suffering. Those with greater support were clearly able to function and participate in HE to a greater level. In general, isolation and undiagnosed ADHD carries the risk of suicide, as found in Angela’s narrative. Cultural attitudes and stigma can also put students with ADHD at risk, as found in Benny’s narrative.

The participants who talked about their experience of anxiety at length during the interviews were aware that they were unable to rely on their memories and/or organisational skills. Benny, Jennifer, Caroline, Michael and Angela expressed self-consciousness about their learning challenges and difficulties remembering details, organising their thoughts, and understanding instructions and details, which in turn increased their academic anxiety. The findings in this study that describe how both anxiety and learning challenges were increased when they were paired confirm those of Weyandt et al (2013) that the anxiety experienced by tertiary students with ADHD increases problems with forgetfulness and dysorganisation, which can lead them to perceive that their cognitive impairment is greater than is actually the case.

5.4 Cluster 2: ADHD and the self

This section presents how the participants experienced ADHD and the strategies that helped them organise themselves and function in their day-to-day lives, thus setting the scene for their HE learning. There is very little information about the identity concerns or the self-hood
of tertiary students with ADHD in HE, although there are inferences of an unstable sense of self in the areas of self-concept, self-esteem, self-efficacy, self-talk, self- and other relationships (Corbisiero et al., 2013). I had to be persistent in my attempts to draw out stories where the participants had expertise or had experienced success because none volunteered information about their achievements. Instead, they were more likely to talk about their failures, values, feelings and concerns with sadness and/or frustration. However, regardless of major depression (Angela and Scott), how desperately awkward they felt about the social experiences they were encountering (Michael, Jennifer, Tara), or whether they were economical with words (Monique, Scott), they came to life and told stories with great flair about their delight in experiential learning opportunities that had captivated their attention.

When the participants discussed the strategies, they had developed that were reliable for setting the scene for their learning, they demonstrated their deep understanding of ADHD and their learning needs. Vivid examples of participants’ insightful scene setting strategies are found in abundance, and stories about their learning were told with great flair. Examples include Andrew’s decision to build a long, wide desk so he could make his work visible and accessible and Tara’s decision to write her thesis at home, where she could work according to her own rhythms. they were passionate and, in some cases, told stories with great flair.

5.4.1 What it is like to have ADHD?

The contradictions of ADHD such as hypo- and hyperfocus (inattention and intense concentration) appeared to keep the participants on their guard. Monique and Caroline come from privileged backgrounds, but although Caroline felt stressed all the time and Monique “hated” the feeling of frustration when she had not taken medication, both women wanted to provide services to improve the quality of life for others. Living with ADHD indicates an
inherent instability. Scott said he had to “recover quite a lot” from depression, anxiety and the problems associated with being dysregulated. Angela had been driven to despair not knowing what was wrong. “One piece of paper” out of place could be the start of spiralling anxiety (Scott, Andrew, Sandra). The environment was more variable for people with ADHD and the data shows that the participants’ efforts to match the HE environment were less successful than their efforts to make their environment suit them. Patricia expressed this as an approach to learning most directly by saying that rather than her trying to fit the space, “the space has to fit me”.

Success appeared to be a double-edged sword for a number of the participants. Angela “blitzed” state examinations in her country of origin and came to Australia by herself at the age of 16 to study engineering. However, despite trying harder and harder to concentrate on her Engineering Studies, she failed a unit. Angela did not know about ADHD until her thoughts turned towards suicide, came to the awareness that “this isn’t coping” and searched online for information about mental health. “This isn’t coping” was the same expression Caroline used to describe her feelings of failure, despite her successful defence of her clinical doctorate, that resulted in her being diagnosed with ADHD.

There are examples in the data where the participants were able to achieve results but were not able to achieve recognition for their learning needs, evidenced by difficult interactions with faculty. Tara won her faculty Three Minute Thesis (3MT) finals while

22 Observing Tara’s presentation (2015) was an inspiration. However, circumstances on the day had sway over the winning performance. A nation-wide spate of intimate partner homicides being reported in the media, and a precedent to family violence had been set when Rosie Battie, the mother of a child clubbed to death with a bat during cricket practice, in full view of children and parents on the cricket oval, was made Australian of the Year for her campaigning against domestic violence. The media had begun reporting that every week a woman was killed by a partner or ex-partner in Australia and in the week prior to Tara’s performance, in her city of Brisbane, there had been another woman killed by her former partner. Then, on the morning of Tara’s performance, news of another killing in Brisbane was being reported across the country. CCTV footage was being shown with the report of a woman walking on a suburban footpath near her home in Brisbane when her former partner, driving a large vehicle was seen to mounted the kerb and kill her. The legal studies candidate competing against Tara in the 3MT had researched the need to legislate for ambulance officers to have a greater role towards the prosecution of perpetrators of intimate partner violence and he won the university final.
withstanding weekly harassment from her supervisor. Monique had to overcome severe learning difficulties and repeated humiliations during her schooling, but effectively ran her own business while studying space design. David was unsupported by faculty in education and received heavy criticism from his mentor during his pre-service teaching experience, yet his university chose him to represent the student body at his graduation ceremony.

Relationships and domestic life could also complicate the experience of some of the participants. Andrew was able to complete his first degree with undiagnosed ADHD and was a responsible and devoted partner. However, his diagnosis of adult ADHD did not change his mother’s view of him as a wilful, naughty child. Sandra had achieved above-standard assessment in the Defence Forces for her leadership ability, but she was crushed by “under-stimulation torture” in her domestic life as a married, at-home mother. Scott knew how much harder it was going to be for him to “get through” university because his reassessment for ADHD revealed that his working memory was severely impaired. However, the assessment also provided him with the confirmation that his visual and verbal cognitions were in the profoundly gifted range, which gave him the confidence to use his problem-solving abilities in the HE context. Being reassessed for ADHD provided Scott with validation of his strengths and support for his learning weakness; however, he also needed to accept that his home environment was not supporting his learning and moved away from his family. Benny could rely on his partner to share his study and presence when he was cramming for exams, but the extent of intolerance towards ADHD and homosexuality in his family and culture led him to contemplate suicide. Caroline set a precedent for the identification of gifted, female academics with ADHD, but was constantly stressed because she could not safely disclose that she had ADHD, although she was working in a clinical psychology practice and was conducting research in psychology. Not only was Sara able to remain seated throughout a two-hour lecture, she alerted Australia’s peak youth mental health service to the “unique
potential” of people with ADHD (Williams & Taylor, 2006). However, she knew her success was predicated on her ability to stick to routines and was not yet confident that her enthusiasm for learning routines would last.

The circumstances the participants faced seemed to hone their imagination, humour and tenacity, and this was where distraction had a positive role to play in setting the scene for learning through re-situation (Fors et al., 2013). Young (2005, p. 809) identified the ability of tertiary students with ADHD to “positively reappraise stressful situations [and] bounce back” in the face of repeated disappointments. I witnessed a number of situations when the participants were able to bounce back after revealing distressing incidents that caused them to weep, most powerfully in the case of Caroline, who was able to release her emotions and immediately resume the interview, as well engage with the photo-voice research method, by sending a number of photographs with elaborated descriptions on the same day as the interview.

The infamous distractibility associated with ADHD can be useful for *work-arounds* (Saltz, 2017), meaning the participants found ways to work around a difficult situation, person or learning weakness. A more empowering situation was when the participants created a *turnaround*. In these instances, the participants seemed to conflate their contradictory experiences and become determined to turn that situation around rather than adapting themselves to their environment. Scene setting can thus be seen as a self-determining approach if the participants’ resolve firms into developing strategies to *turnaround* their situation and, in the context of this research, improve their learning opportunities in HE. Setting the scene became a way of adapting their environments to suit themselves, and there

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23 no relation.
is also evidence that the changes they underwent themselves, and the changes they made to their environments were also to the betterment of others.

In face of the harassment and belittling emails from her principal supervisor, Tara, the feistiest of them all, was validated by her associate supervisor. This associate supervisor who had been ineffective in her attempts to give feedback to the principle supervisor about his inappropriate behaviour and “jokes” and Tara was left feeling diminished. It was not until her repeated attempts to be treated reasonably were vindicated by her associate supervisor that it became clearer to Tara that she wasn’t a “dumb PhD” and said to herself, “Fuck that, maybe there is something wrong with him”. Tara was equally, if not more, outraged on behalf of the only other minority student in her group supervision. He had also received belittling emails, with comments like “Do you speak English?” As a result of the stand she took against her inappropriate treatment and that of a fellow research candidate, the supervisor was counselled and the whole department benefited.

As the participants become more self-determining, they seemed to understand that they learn best by following their own intuition, exemplified by Andrew’s “major evolution” when he stopped listening to gratuitous advice. Following Ingold (2016), enskilment for psychological development appears to emerge as a result of re-cognition, when participants can integrate and re-cognise a situation. This can occur within the context of shareability, the term used to describe safe communication in trauma theory (Freyd et. al, 2005) or a reflective space, as described by Kildea et al. (2011), where hidden feelings, uncertainties and the complexity of the ADHD experience can be discussed. What is described as academic impairment in terms of inattention or distractibility in the context of narrowly controlled and confined classroom experiences can be a boon in other contexts. The ability of people with ADHD to scan wide horizons through their visual perception (Gibson, 2014, 1997), daydreaming, and the wide range of attentional difference (Saltz, 2017) may provide clues for
the participants’ strengths in creativity, spatial relationships, associative thinking and figurative language. As in the participants’ ability to suddenly conflate experience and determine to turn a situation around, there is evidence that they can tolerate very uncomfortable situations using narrative and figures of speech, as found in their use of metaphor and humour, for *dialectic* reconciliation (Jackson, 2002) of an antithetical situation. If the literature describes tertiary students with ADHD as academically impaired, then the participants in my research were the antithesis, even anti-heroes of HE. I was humbled by the number of times they bravely set the scene for their learning, in face of the obstacles they had to surmount, and in some cases, without support.

Michael demonstrated that he could tolerate a dialectic situation that appeared to be irreconcilable. As mentioned previously, the academic transactions in studying engineering invalidated and traumatised Michael. The simple action of needing to ask for clarification about the expectations of an engineering assignment was so traumatising for him that he was diagnosed with social anxiety disorder, co-morbid with ADHD. Yet, studying engineering was also a validation in that the degree will provide him with the qualification and thus meet his goal to become an electrical engineer. An example of Michael’s *dialectic* reconciliation can be found in his gift for neologism:

Seated in the outdoor courtyard of the café in the heat of summer in Queensland was like an oasis, even though it was 40 degrees Celsius. Michael had been talking about how engineering examination booklets could be improved with appropriate use of typography and that he was constantly overwhelmed by information overload, when suddenly he was below my eye level. Alarmingly, he seemed to be folding in on himself and I perceived that I was witnessing his visceral experience of being compressed by the weight of engineering textbooks because I had the thought that engineering must be a very difficult subject indeed if it can tie this fit, strapping young man in knots as I watched him loop into the shape of a pretzel, with his eyes tightly shut. As quickly as he dropped and curled, Michael unfurled himself, straightened up, took an
immaculately ironed handkerchief from the pocket of his equally well-ironed checked shirt and mopped his brow. While I was thinking Michael was in danger of death by engineering, he was sublimating his agony by thinking up something clever for my entertainment by saying, “What we need is information portion control [to manage information overload in engineering],” and stared into the distance while waiting for me to catch on. I had been holding my breath, which slowed me down, but his quip broke the engineering textbook tension. Michael gave me a nod when I started laughing and said, “I thought you might like that one”.

Some participants needed to come to terms with “regrets” about lost opportunities. Jennifer grieved over her attempts at academic achievement in high school and the two degrees she could not complete. Patricia was sad that she hadn’t known about ADHD earlier. Andrew was angry “for a long time” that no one had identified he had ADHD when a school student, leading his mother to perceive him as wilful and badly behaved. It was a relief for him to be diagnosed and have a partner who “gets it”. Scott, Sandra, Patricia, Jennifer and Sara indicated that things improved once they could understand what was causing their underachievement. For other participants, the diagnosis of ADHD and/or disclosing with ADHD could be a threat to self. When Angela learnt that major depression was an illness from which she could recover, she felt reassured, but her sense of self was threatened by the shock realisation that ADHD was for life. Angela asked herself, “Who am I then? And that freaked me out.” Tara’s reaction to her diagnosis possibly reflects that of other participants:

When I was told I had ADHD – a disorder and a deficit, it was extremely harmful when I think I am not a deficit, I am a soul and I have a heart. At first, I tried on, “I’m ADHD, understand me”, but that was a stage – labelling. The ultimate stage is to get people – not get the world changed – I accepted myself. Be easy and gentle on my behaviours and focus on what’s right, inner strength and empowering yourself despite all this. That’s my goal.
Goal setting appeared to be key for those with ADHD. Distraction ruled when there was an absence of clear goals, clear reminders and clearly identified tasks. Being aware of their ADHD helped the participants identify their learning strengths and weaknesses and this was a good place to start setting goals, especially as identifying goals was one way of identifying distractions. The desire to be the best that they could be, work to their strengths and engage with their learning set the scene for making adjustments to their self-concept and for making difficult choices that nonetheless helped their self-determination, often by reappraising their circumstances.

Sandra’s new life involved revealing her ambition. She was acutely aware of the social approbation she would receive as a female and for being “bossy” in group work. When Tara was unsuccessful in asking that her supervisor treat her with respect, she called for arbitration. Angela withdrew from one university and moved cities to see whether studying engineering would be better for her in another university, even though this unfortunately was not an improvement for her learning. Andrew moved house so he could build a “massive desk” and could walk through a doorway into a garden. With his expanding view of himself as having set the scene for success in HE, Andrew’s approach to learning was now “organic”, he went “by feel” and he had learnt it was best to stop when “this isn’t working”. As it was for Andrew, the change of perspective about ADHD can be axiomatic. Tara, Sara, Jennifer, Patricia and Sandra all took on a different worldview when it became clear that no amount of effort was going to improve their attention to detail or improve the hostile attitudes that others had towards them. Tara said:

I used to think, “there’s something wrong with me”. The real growth is, “I’m not a deficit; maybe there’s something wrong with you”.
Patricia gave up the struggle to concentrate on reading online when she swapped her distance education course for “text books and tutorials”, but then had the problem of people in group work judging her for interrupting them. Now when she becomes dejected, like Andrew, she takes the day off.

The core features of ADHD, inattention, poor impulse control and hyperactivity, do not convey one of the core experiences of ADHD represented in the data. Hyperfocus was identified by Angela to be “my super-power and it also is my kryptonite because it trips me up”. This sentiment was echoed by Sara, who called hyperfocus “the Wild Card”, saying “It is fantastic”. Sara and Angela were the youngest participants in the sample, and at the time of the interviews had been diagnosed only recently. They were overwhelmed by academic expectations when they could no longer rely only on hyperfocus as their learning strength. Both young women needed to learn how to become organised by managing time and tasks, and to develop additional methods of learning to sustain themselves throughout the course of an undergraduate degree.

Andrew and Benny both referred to the difficulties in shifting attention if they wanted to work on something else when in hyperfocus. Benny found this more difficult when he was on medication so he had medication “holidays”. Sandra’s reference to medication concerned anti-anxiety medication, which was easing her transition into a new career path. Tara was strong about nothing being able to “destroy superfocus” when she was “in the zone”, and her mental abilities were further enhanced by meditation. However, she found it very difficult to communicate with people when she was in this state. When they needed to shift attention and communicate with others, the participants found it was helpful to have the support of medication and to be able to predict when they most needed hyperfocus.
If Tara’s claim that “nothing can destroy super focus” is valid the trait of tenacity in the participants can be associated with their ability to block out people, time and personal needs and become single-minded when in hyperfocus. Saltz (2017 p. 49) found that tenacity was gained in the early years of living with ADHD as a result of grit, “the constant struggle to understand and be understood”. Evidence of tenacity was found in the participants’ persistent attempts to continue their studies, despite HE being an invalidating environment. Examples are found in Angela’s experience of engineering, which drove her to thoughts of suicide, Tara’s experience of harassment by her supervisor, Caroline’s experience of inattention and fear of disclosing ADHD, but earning a double doctorate by the time she was 30 years old, Monique’s dyslexia and difficulties understanding spoken instructions and Angela and David’s deep commitment to becoming engineers, despite being diagnosed during the engineering program with social anxiety.

5.4.2 Anxious learners.

I can't think too far in advance. It's too - it makes me too anxious. I can only think roughly a week in advance (Sandra).

Anxiety is consistently represented in the data. The relationship between ADHD and anxiety can become circular when paired. Anxiety then impacts on self-concept and esteem, which then further impairs learning. Sandra recognised she needed to be free from anxiety in order to ease her transition to being a single mother and to succeed in HE. Sandra’s anxiety was described as the feeling of being crushed and unable to breathe, and she acknowledged her perfectionism in having to have everything looking right, including her essays and how she dressed, to feel in control. She gave top priority to anti-anxiety medication to help her manage her second attempt at earning a degree.

The male participants used metaphors to describe their experience of anxiety. Andrew referred to anxiety becoming overpowering if his control over orderliness started to...
“spiral down”. He knew when this was happening when he “c[ould]n’t find a pen”. Scott’s experience was described by the spiral metaphor: “one little piece of paper” might cause “everything to spiral down”. Scott also expressed the “need to recover quite a lot”, confirming the cyclic experience of chaos and control associated with ADHD, as found by Toner et al. (2006). Scott described anxiety as making him “dread on things”.

For Michael, there was no one who could help him stop ruminating over his studies, and he was further distressed by needing “a night in hospital”. Michael felt anxious and guilty because it was taking him so long to complete his engineering degree. His parents were working hard to make ends meet while financing both his degree and his brother’s law degree. Further complicating his feelings of guilt was his realisation that he needed to call on his brother when he felt as though he was sinking. This reversed the role that Michael had as the “protector” of a younger brother, who had autism. During our interview, Michael repeatedly referred to his brother, saying that any anxiety or learning challenge he was experiencing was incomparable to his brother, who had made great demands on his parent’s attention when they were younger. Michael was finding it difficult to comprehend that his younger brother, whom he had always supported, would have finished his studies while he was still struggling to “get through” his. Angela and Michael were the only participants who said they were diagnosed with social anxiety, and it was clear that their experience of studying engineering made them very anxious learners.

Caroline’s anxiety about disappointing the people who asked her to work with them informs my interpretation that anxiety seemed to be most intense when the participants feared they might not live up to expectations, of themselves and others. Fear of not meeting expectations was intensified when they were hiding their ADHD. For Caroline, forgetting to remember a password in a new job was an overwhelming experience. She was unable to disclose with ADHD and she was unable to feel worthy of her professional appointment.
Michael and Caroline were in the sub-set of participants (10 out of 13) who felt that it was unsafe to disclose with ADHD; this caused Michael to be “scrambling with anxiety” when he was inarticulate and his tutors withheld learning support.

I was agonising over how detrimental anxiety can be to learning when I was reminded of my response to Angela’s comment about hyperfocus being both her super-power and her kryptonite. My response regarding hyperfocus had been that strengths and weaknesses were the same thing and I realised I needed to extend this this view to anxiety. The participants gave the impression that their familiarity with anxiety meant it was both impairing and motivating. As a result, they also seemed to be driven towards anxiety to improve their learning strategies and systems and thus keep ahead of the threat of “everything” spiralling down. In the context of learning in HE, Harrison (2008) observed that students oscillated between anxiety about their learning and coherence in new understandings, which led to a different level of understanding that there was more to be learnt.

An example of how oscillating anxiety drives the need for coherence and focus is most clearly observed in how Benny set the scene for exam revision. Constraints provides Benny with mental focus, which was why he could say “I love deadlines”. He appeared to tolerate a tough-love relationship with deadlines and went on to say that he almost had to threaten himself to study:

A very strong sense of fear of failure is what drives me. Like, if I don’t get this in time I’m going to fail and that will ruin my whole future or something like that. It just gets me to get it done.

24 Kryptonite is the one weakness of the otherwise indestructible Superman. https://why-sci.com/kryptonite/ 2/1/18
He left revision until the last minute, stimulated his fear of failure by telling himself his whole future was at stake and managed his anxiety by going to his partner’s place to study. Under the condition of fear, and the concept of gating, namely shutting the gate on distractions and cloistering himself in his partner’s study to concentrate, Benny effectively enrolled his partner as both gate- and timekeeper.

Gating functions to protect the learning space from distraction, to contain anxiety and focus attention. Evidence for this claim is seen in how Benny used fear to stimulate his attention, activate hyperfocus and contain fear or anxiety by working in his partner’s study, where he felt safe. Having set the scene for activating his attention, Benny became calm and focused to a level of lucidity whereby he could “see theory”. Benny’s capacity for abstract conceptualisation is a function of his capacity in visual-spatial cognition. Evidence of his strength in this domain was found in the fluency with which he placed words, lines and shapes to indicate abstract relationships and process complex information through diagrammatic elicitation. He did not need to encode the information he drew and learnt into his working memory, which he said he found very hard to do. Instead, he could reproduce theoretical constructs and relationships under exam conditions by recalling the spatial relationships he had drawn the night before the exam.

The contrast between Benny’s fear of failure and his claim, “I love deadlines” gave rise to the gating metaphor. Benny needed to have a reliable person like a gatekeeper who could provide a safe/controlled environment and anchor him. His anxiety was contained in a controlled environment that was free from distractions, including choices, because he had the pressure of a deadline. These were the conditions that set the scene so Benny would visualise his learning. Benny’s need to find a coherent sense of self in order to focus on his studies was driven by oscillating anxiety. In this respect, anxiety can both impair and motivate learning. Benny may not have been aware of the role anxiety played in focusing his attention.
Evidence that his spatial cognition had been an unconscious process was found in his email stating that he had not previously had a conversation about his cognitive ability. What appears to be anxiety-driven perfectionism (Sandra), obsession (David), feistiness (Tara), hyperactivity (Sara), risk-taking (Andrew’s boxing), or being a “last-minute study person” (Benny) may be a way of creating sufficient tension or stimulation to generate fear and hence generate adrenaline. This then created the calm, or set the scene, for these participants to hyperfocus.

5.4.3 Emotion.

The emotional dysregulation overlapping ADHD (Corbisiero et al., 2017; Morstedt et al., 2016; Musser & Nigg, 2017; Shaw, Stringaris, Nigg, & Leibenluft, 2014) informed my interpretation that it was only after they became emotionally exhausted from learning challenges in HE that the participants who had been diagnosed as adults sought help. Caroline became overwhelmed and felt like she was “failing at everything” before she accepted she needed to be assessed for ADHD. A university tutor told Tara he thought she had ADHD after she became overwhelmed by a change of software.

Becoming overwhelmed by emotions to the point of major depression can carry serious risk. Angela described this state as “the alpha, the omega, the everything” that led to suicide ideation, which prompted her to search for online information that might help her identify what was wrong. Unfortunately, female adult ADHD is not well recognised in Australia. A psychiatrist confirmed Angela had ADHD, but a psychologist providing mental health support for youth, who claimed expertise with 17 years of experience with male juveniles with ADHD, denied that Angela could have ADHD, insisting it was anxiety causing the problems in HE. New motherhood, marital problems and “under-stimulation torture” masked ADHD for Sandra, and it was not until her brother was diagnosed that she sought a second opinion and she was also then diagnosed with ADHD.
Caroline expressed her emotions verbally, in sighs, gestures and tears because:

Well, I’m constantly stressed. Sigh. I just get through life, but I just get frustrated. It’s just frustrating. It’s like I’m always stressed about it, and I always feel cranky because [of ADHD].

5.4.4 Self-talk.

I’m rubbish with attention. Even though I’ve got the answer I don’t trust my brain (Caroline).

A range of attitudes towards the experience of ADHD were expressed in the data. Caroline might have been the participant carrying the greatest performance burden. Her achievements were at the pinnacle of societal standards and she was clever and compassionate. However, she has hidden ADHD from all except her family, husband and one friend, and this added to the weight she was already carrying.

Patricia was the only participant who indicated affection for ADHD, found in her comment, “I love my brain. It’s a funny brain, but there’s no one I know who thinks like me and I quite like that!” Finding this hard to believe, I pondered over Patricia’s comment and found confirming evidence in her environment. Patricia was enjoying her studies and her child and had set up her household to centralise her learning so that it did not conflict with her parenting role. Patricia’s story showed a participant giving herself positive recognition for her ADHD and receiving positive recognition from her lecturers in return.

Michael and Monique discussed the need to articulate a question or a task in order to know how to start something, prioritise or organise. There were times when Michael had been able to formulate questions, and these were the times when he said, “I’ll get it just by vocalising”. In other words, he could answer his own question. Monique’s mother would direct her to vocalise in order to know what to do; as I observed this when she cued
Monique’s attention by telling her to “just say it”. Self-talk is noted in the literature to be largely absent in people with ADHD.

Accepting ADHD improves self-acceptance. This helped the participants to encourage themselves during cycles when their concentration was poor, and there is some evidence of positive self-talk as a scene setting strategy for learning in the data. Tara gave herself encouraging talks, speaking in the third person, “Tara, be gentle, you’ve got to be gentle with yourself.” The importance this practice had for Tara’s learning was found in her background and her research. She had indicated an extremely harsh upbringing in a low-income family and she was now researching the efficacy of urban design programs to help restore the self-esteem of low-income families, encourage them to set goals and plan ways to be able to pay their bills.

Andrew used expressions such as, “I’ve set the scene for success” and “I’ve set the scene to be awesome”. Some of Andrew’s comments using wordplays on the research question may have been made for my benefit, but there is evidence that he “got to put quite a bit of mental hard work into” maintaining order. Scott said, “I’m going to keep cracking at it”, although he often got discouraged. Encouragement to learn from his father’s mistakes helped Scott to accept his learning challenges. He could rely on himself to try again, even when he felt discouraged.

5.4.5 Pragmatic language.

There appears to be no literature concerned with the pragmatic speech, the speech events involved in help-seeking for adult ADHD. Michael provided a clear example of the contrast between finding the capacity to give help but difficulty in asking for help. Michael’s internship set the scene for him to shine. He was able to solve two logistical problems that
were impacting teams of architects, electrical engineers and tradesmen coming to a large-scale hospital redevelopment. Dozens of people arriving on site were having problems identifying where they should be going, which prompted Michael to take initiative. He designed a common visual language so that people with different roles could find their way easily around the building site and understand where their role fit into the redevelopment scheme. Through the use of colour, scale and infographs,\textsuperscript{25} Michael provided a cost-effective, immediate solution of large-format wayfinding signage.\textsuperscript{26} Directions, tasks and the order of works were instantaneously recognisable. The system directed traffic, including different teams to different locations, and established a common visual language to communicate information between the various professionals and tradesmen. In order to develop the infographics, Michael needed to communicate with different people from different teams and identify the core problems around work flow. In the real-world situation of problem solving, where people are working towards the same goal and reduce the frustrations associated with being lost and improve work efficiency, asking questions was not difficult for Michael. Yet, as a result of his lack of success in being able to formulate questions and gain satisfactory responses from tutors about his university coursework, he was crippled by social anxiety disorder.

Michael described feeling the pressure of time and being “unable to enunciate a question”, to be “scrambling with anxiety”. He was aware that the engineering tutor has a time allocation of two hours at the help desk per week to service 200 engineering students,  

\textsuperscript{25}Infographics (a clipped compound of “information” and “graphics”) are graphic visual representations of information, data or knowledge intended to present information quickly and clearly. They can improve cognition by utilizing graphics to enhance the human visual system’s ability to see patterns and trends. Similar pursuits are information visualisation, data visualization, statistical visualization, statistical graphics, information design or information architecture. \url{https://en.wikipedia.org/wiki/Infographic} 1/1/18

\textsuperscript{26}Wayfinding is currently being used in the context of architecture to refer to the user experience of orientation and choosing a path within the built environment. \url{https://en.wikipedia.org/wiki/Wayfinding} 1/1/18
who all had assignments due at the same time. Michael’s repeated difficulties with “enunciating a question in a way that it can be understood” had been perceived by tutors as him attempting to gain an invidious academic advantage, with the result that tutors were facile and dismissed him quickly. He was unable to formulate his question and became inarticulate, because he needed to understand a whole system in order to know how the parts fit together but didn’t have a point of entry into the topic. It was as if he was supposed to know about the topic that had not been adequately introduced. Compounding Michael’s anxiety was his self-consciousness, because of his experience that tutors “know how to make themselves emotionally unavailable”.

The context and structure of Michael’s description of this situation provides a sad picture of disengaged tutoring, which caused him to be “scrambling with anxiety”. The emotional content is found in the words he used about being made to feel as though he was a “shady” and “dodgy” person, and that the tutors “know” how to be “emotionally detached”. Our face-to-face interview afforded me the opportunity to witness Michael’s visible distress when he was talking about the academic culture, demonstrated by his tutors’ lack of care or interest in his learning. I interpret this as unprofessional, lacking in respect and lack of accountability. The transcription shows Michael’s difficulties in formulating questions (pragmatic language) in his disconnected syntax, and in his disjointed speech that did not follow a coherent line of thought. It is also seen in this paragraph of the transcribed interview that Michael did not use personal pronouns accurately (“I” or “me” or “my” or “mine”). In other sections of the transcription, he refers to himself abstractly, as found in his response to my question about how he set himself up for a day’s study. He said, “Well, as a young Australian male, you could say…”. In this context, he was setting the scene by using his gift for spontaneous storytelling and humour and buying himself some time to think of a punchline. However, there was no disruption to the pace or flow in the telling.
Research shows ample evidence of poor impulse control and executive function deficits, with emotional dyscontrol being a distinct part of adult ADHD (Adler et al., 2017). This information is useful for identifying *what needs to be turned around*. Executive function research informs my interpretation of the pressing need for pragmatic language enskilment for highly intelligent, kind, thoughtful and keen young engineering undergraduates like Michael. The impact of unaccountable, careless tutoring appears cruel to me. Michael was not yet conversant with the challenges he was experiencing beyond his awareness that he could not make himself understood when asking for academic guidance. The scarcity of research in this area calls for research and speech pathologists/language coaches who could help Michael develop pragmatic language skills. He was highly conversant with his altered perception of time and information processing difference and had taken full responsibility for developing learning strategies so that he could participate in HE using his visual cognition. This suggests that he could be coached to employ his gift for irony and neologism to develop help-seeking skills.

### 5.4.6 Figurative and expressive language.

The data confirms White and Shah’s (2016, p. 275) findings which describe tertiary students with ADHD as demonstrating “originality, novelty and flexibility” for innovative thinking. Their work informs the connection I make between the participants’ capacities for divergent thinking, visual perception and metaphorical associations, evident in how they expressed themselves using figurative language, humour, irony, neologisms and in stories. Caroline confirmed that people with ADHD have good episodic memories, “particularly detailed memory for personally experienced past events” (Skowronek, Leichtman, & Pillemer, 2008, p. 25). This is shown in her story about being able to recall what people were wearing and every emotion her patients discussed, as well as her own, on the day when she forgot a password. Halperin (2016) suggests that executive functions may yet prove to have a role in
the amelioration of ADHD symptoms. The evidence of meta-cognitive strengths in this research such as metaphorical thinking, use of neologism and the visual imagery used in their expressive stories lends support to the suggestion that people with ADHD have the potential to be coached for executive function, and/or have the potential to re-cognise their thinking and find their own ways or routes to improve executive functions.

5.4.7 Summary (Cluster 2): ADHD and the self

The data demonstrates great capacity for problem identification and innovative problem solving, achievable with good support and strategic partnering. Strengths were found in storytelling, associative and metaphorical thinking, and a sense of irony and humour were assets that helped the participants engage with their significant others, who provided support. The participants developed strategies that combined to set the scene for learning to manage distractions, emotions, attention, impulsivity and learning difficulties and recover from setbacks that impacted their learning. The metaphor of gating illustrates that the purpose of scene setting for learning was to self-determine and create a controlled environment for learning by eliminating distractions and thus enable the participants to hyperfocus.

A number of factors found in this study, such as the participants’ identity concerns, academic anxiety, and their need for learning support in the areas of administration, organisation, time management and help-seeking language skills are poorly understood by the participants themselves, as well as in the literature. These factors appear to be greatly increased by inhospitable learning environments and are in need of further research if they are to assist tertiary students with ADHD understand their experience and inform counsellors and professional educators.
5.5 Cluster 3: Setting the scene for engaged learning in HE

An assumption of this study was that students had a place, or space for their learning, so it came as a surprise when both David and Benny seemed perplexed by the question about where and how they studied:

> It is kind of sad. I don’t really have a study space (Benny).

> There’s no study space really [long pause] I just do my normal freak out [to claim space] and everybody clears out (David).

Caroline also had to think hard about what she did when she was studying:

> I don’t really know if I have a set thing that I do. I have had the same desk for the last four years, and it just keeps evolving, but I did just move desks recently (Caroline).

Awareness of the orchestration involved in setting the scene for learning increased as participants engaged with the inquiry. David had not needed to think about his approach to learning. Being able to say, “I just set up” to study highlighted the benefit of early identification, which is worth repeating. Setting up for study was a way of life for David and Monique, because they had been taught well, had good support and for the previous 20 years had been practicing how to set the scene for their learning.

5.5.1 Approaches to learning.

A variety of scene-setting approaches to learning acted to help the participants “work towards working” (Andrew). At the start of each day, Michael set the scene for learning by clearing his desk, so he had a “blank canvas”. Sara talked with great enthusiasm about the accomplishments that set her up for good study habits because she was prompted by her smartphone application to remember to unpack the dishwasher, what items she needed to have in her backpack and self-monitor to ensure she had had enough rest and could sit through two-hour lectures.
Learning strategies that assist concentration and help manage the oscillations of anxiety can occur through additional stimulation and/or movement include dual processing (Sara) and multitasking (Scott). When Scott was stuck on a problem, he found it better to “go for a run” than to stay in the same position trying to concentrate, because when he was free to move, the solution “[would] come” to him. A different approach to learning was stimulated by the anxiety associated with deadlines; these acted as a constraint that provided both Caroline and Benny with focus, whereas subject choices that provided “intrigue” set the scene to motivate David’s learning.

Mastery learning, the step-by-step approach, was evident in Monique’s business-like method for time and task management. By “pulling apart” her coursework information and organising her timetable for the semester, she clarified her responsibilities and was aware of how much work she needed to do before she could reward herself. Sara also used the mastery model and a reward system involving Habitica, a smartphone app that delivers electronic rewards for practicing good habits, to set the scene for her academic learning. An explicit example of scene-setting mastery is found in the sequential steps she followed to prepare for studying. The “five-minute” electronic prompts for tidying up helped Sara function in HE by limiting distractions; these prompts ensured she tidied up her room and could see clearly where everything was that she needed to have in her bag.

Andrew’s “set up” or system of organising his learning was to clean and study every day. It had “taken a while” to work out where and how to put things in their right places, and he had to do it every day:

I work my way up. Set up. And then you’re like “holy crap, I’m studying”. Oh, well let’s run with this and see what happens.
Andrew’s use of iCal for time management ensured he was reminded about appointments and commitments, and he had set daily alarm for 6 pm to remind himself to ask his partner about her day. Reminders helped him demonstrate his love of his partner and show his appreciation of her support for his studies. Stability and reliability reduced his stress levels and improved his engagement with learning.

5.5.2 Making thinking, organisation, time and learning visible.

Visual representation made thinking, time and learning visible to the participants. The use of visual tools not only helped the participants make time visible, they represented learning conceptualisations, externalised and organised learning principles and reinforced learning by representing progress. Each participant processed information and organised their learning materials and understandings of information in terms of patterns, spatial relationships, how things fit together and then being able to see how things worked. By externalising information like due dates and completed work on whiteboards, they made time visible.

The visual and spatial scene-setting strategies used by the participants reveal the most reliable, effective and sophisticated, yet simple, approaches to learning. Patricia’s comment, “the space has to fit me” is evidence of her self-determination to ensure everything was “within reach” so that she could use every moment available to study understates the profound influence that influencing her learning environment has on her psyche. Prior to her decision to centre her learning on her couch, her learning had been “disjointed”. Simple placement of her learning materials next to her couch solved this problem. Patricia’s photo-voice and narrative in Chapter 4 provide evidence of how a cheap whiteboard, tucked behind her couch, and inscribed with a few words written with a blue and a red whiteboard marker, helped her assignments come together. She could compete with herself to improve her progress and “work ahead”.

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In Sandra’s case, focus and motivation were found in aesthetic choices of designer décor, clothing and diaries, which helped her coordinate her learning by matching patterns and colours. Her “thirst for the system to be right” is seen in how she used her pattern matching skills to organise activities and resources using colour schemes. The appeal of aesthetics helped her to feel “calm” and the colour blue inspired her to engage with her diary and notes, which in turn helped with recall. Sandra had also created an organisational system using visual cues for “check-down” as she was leaving her flat each morning with her 4-year old son. Tara’s need for inspiration, self-affirmation and encouragement to help her approach her learning was found in her vision boards displaying quotes, photographs and achievements, such as her 3MT award.27

All data suggests that as an approach to learning, handwriting, diagramming and mind mapping for planning, conceptualisation and articulating thoughts were preferable to a computer. Benny and Caroline provided accounts of their ability for abstract conceptualisation occurring through the formation of an inchoate image as they were thinking about theoretical relationships. With blank paper and a fine-line pen, they were able to construct theoretical conceptualisations (see above). All the participants learnt well through the construction of mind maps, diagrams, charts, designs and symbols. Visual representations that purposefully used colour, scale and space helped the participants project and externalise their learning. Although Andrew used the computer for engineering drawings, he needs to use mind maps and visualise information in drawings on paper to stop him from “spinning off on a tangent”. He said that something drawn was something that he could imagine, and this was what made his learning effective —“words – it just doesn’t work”.

27 3MT, Three Minute Thesis award.
Tara found the solution to organising “the thousand thoughts” running around in her head was to hand write a clear plan link, “and then everything just happens”.

Visual learning was found in Monique’s planning schedules, drawings and notebooks. Sandra organised her household, her grooming and her study materials using colour-coordinated and spatial systems so she just had to match, place and “plug everything together” to tidy up. Michael constructed Gannt charts, coloured infographics and made drawings, and Patricia, Sandra, Tara and David used vision and/or white boards. Caroline said she “always” had to have paper next to her, and Michael talked about his need to start the day with a cleared desk, which represented a “blank canvas”, in addition to the various paper formats he used for different kinds of thinking.

5.5.3 Managing distractions.

Limiting, eliminating or reducing distractions was a mixed experience for some of the participants. Michael found “the hardest thing to do is to be disconnected”. He knew he needed three- to four-hour blocks of time to study and a call from someone would lead him to “thinking about a better way to do something for the rest of the day”. Monique talked about “transporting” herself upstairs or downstairs so that she wasn’t disturbed by her parents and Scott moved out of home altogether, because “the atmosphere isn’t that good” and it was affecting his mental health. Angela couldn’t study until her brain was “worn out” and she could study in the early hours of the morning without distractions when the library was open for 24 hours. Sandra’s rule was that she could avoid distractions by restricting social contact to the groups she joined at the university to build on her leadership skills.

For other participants, simple solutions helped eliminate distractions. By moving house, Andrew was able to build a fit-for-purpose desk without drawers. He found drawers a distraction, and the simple answer was to eliminate them. Patricia found it much easier to
study by having her couch as her learning space. Prior to centralising her study materials, she found herself needing to shift her attention from studying at one end of the house to her toddler’s activities in a different location. After she set the scene for her learning from the couch, she no longer felt her learning was disjointed. Tara set the scene to reduce distractions and improve focus by completing her PhD at home. Sandra made a rule that she was not allowed to socialise on weekends when her son was with his father. Weekends were the time for putting everything in place for the coming week and she was able to meet her need for social contact through university activities.

Sara’s story about packing her bag and Habitica app also reflects the need to eliminate distractions, highlighting the impact of distractibility on day-to-day function. In order to identify, predict and eliminate distractions, which can occur even when moving between levels of the house, the participants may have needed the external support of “gate-keepers” to stabilise the learning environment. Alternatively, and/or with the help of coaches, they could be trained for executive function skills, through the education of attention.

5.5.4 Summary (Cluster 3): Setting the scene for engaged learning in HE.

Scene-setting practices revealed the participants’ personalities, temperaments, goals and needs and the data shows common areas. The participants’ creative potential for setting the scene for HE learning present a different view of the discourse on academic dysfunction that is represented in the current literature on tertiary students with ADHD. Each of the participants was driven to delve deeply into their learning and was frustrated when their opportunities to learn were limited by poor teaching. The participants’ motivation contradicts the view that students with ADHD have low motivation and a preference for shallow learning (Simon-Deck at al., 2016). The participants in this study used a variety of learning strategies as approaches to learning that set the scene for reducing distractions, containing anxiety and improving concentration. The spirit of self-determination, a thirst for holistic learning, vivid
humour and evidence that the participants would go to extraordinary lengths to “set the scene for success” (Andrew) is found in the data.

5.6 Cluster 4: Teaching and learning in HE

Patricia was the only participant who indicated that had received faculty support. She was amazed to be “offered academic accommodations” by faculty, although she said she “did not need them”. Poor teaching and learning had an adverse effect on Angela and Michael’s learning progression. Angela found it “a struggle to get feedback on anything, especially from lecturers”, which confirms Krause, Hartley, James and McInnis (2005, p. 83), who found “only a minority of students [with ADHD in HE] felt that teaching staff gave helpful feedback on a regular basis and took an interest in student progress. The feedback Angela received was in the form of assignments returned after the exam period, which rendered the feedback useless for academic purposes. Feedback provided after the semester left Angela in the situation where she said, “I didn’t know how to tell what was important and what wasn’t.”

5.6.1 Learning engagement.

Patricia was thriving in her course, because she could apply what she was learning from her own experience of being a student with ADHD directly to her studies in primary education, and she had a small child to guide. Through my listening to Angela, I recognised that we both needed to make our learning visible and that we both need to make our learning concrete, in that we learn in and from contexts. In other words, we need to have some connection and to be in relation to someone or something meaningful because we learn directly from observing and talking to people. Benny said that it was talking to people that gave him a lot of stimulation. Caroline said:
I guess what I learnt the most was that from being able to give examples of what I was supposed to be learning. Like how that isn’t the way, that it’s not recognised, that’s how everybody learns, blows my mind, but whatever. I often learnt the most from being able to talk about an experience or watch a video of something happening and process it that way. Experiential learning is by far the best way I could learn.

Angela, Scott and Andrew talked about their need to have learning contextualised and both Scott and Michael became highly animated when talking about model making and data collection. Michael was expressive in his communication, but at the time of the interview, Scott was depressed and withdrawing from nicotine. He had forgotten the interview and rushed to campus in the late afternoon and looked tired. However, he may have been feeling in general, in the context of talking about the model bridge, he lit up like a Christmas tree. There was a vast contrast between Michael’s ease of communication and learning during his internship when he could see what was happening, how people are behaving, identify problems, ask questions and anticipate where he could provide solutions and how he became inarticulate when asking a question of a tutor.

5.6.2 Reading.

Brief references were made to the difficulties participants experienced with reading from screens, and in Patricia’s case, from online learning. She needed to change modes from studying online to “textbooks and tutorials” because she found that “reading online is too difficult”. David described the experience of reading online as “horrid” and Andrew said that with ADHD “your eyes dart around, and it’s compounded on a screen”.

5.6.3 Administrative and organisational skills.

Tara said, “I need to learn how to organise”, which could be a chorus for all people with ADHD. Learning how to organise involved asking someone to show her what to do, as
discussed in reference to seeking help. Attention to administrative details, organisational skills, time management and asking for help are not strengths in the data, with the exception of Andrew, who said that he makes friends easily and could seek out expert help when the need arose. Angela needed to learn how to organise support by learning how to ask for help. Scott needed to learn how to organise himself to get to the gym and Sara needed to learn how to organise a backpack. Both Monique and Patricia said they were “super organised” and messy. Sara held librarians, “the people who can categorise things”, in awe.

Tara said she needed to be gentle with herself, because “it doesn’t turn out pretty” if she forced herself to be organised and she couldn’t find things. When Tara asked people to tell her how to organise papers, they found it hard to believe she was in genuine need of such help, for example, how to use indexing tabs for her research folders. Tara said she needed people to be patient with her and that “just a little bit of communication” would get her “rolling”. The spiral down from stress to distress about maintaining order warrants further examination. There was a lack of awareness about the help-seeking strategies that the participants needed to develop, which stems from lack of discussion in the literature. Help-seeking strategies would benefit both function and participation in HE, and the literature shows consensus on the limitations of seeking advocacy through campus disability services. Toner (2009) found self-advocacy to be an important development in feeling empowered in HE, and this is an area in need of research.

Inattention to detail hindered in the highly regulated, online transactions required in HE. Mistakes that upset the participants are evident in Jennifer’s experience of sending out information to an organisation known for attention to detail, with the wrong date listed for an important event. Although she was aware of the date, she had made an error and could not pick it up. Having deprived herself of access to a personal computer and desk space for months, she found out about the error only when she checked with the person responsible for
allocation that she had been sent an email about access five months earlier. Jennifer accepted that her mistakes were her fault, but as a behavioural economist and former manager of restaurants, she said she would like to think that there could be a better use of human capital in HE, so that people can work to their strengths instead of becoming lost in “the heaving bureaucracy”.

5.6.4 Learning and regulation.

The actions of those with ADHD are governed predominantly by the immediate context and its consequences, while the actions of others are governed by internally represented information such as hindsight, forethought, plans, rules, and self-motivation (Toner, 2009, p. 48).

Setting the scene for regulating themselves, their children and their learning was managed well by the two participants who were mothers. They were able to meet the need to regulate their children with routines for child-care, sleep time, meals and tidying up. As a single mother, Sandra found that patting her son to sleep before she started studying was a soothing experience and she could and “settle in and write for hours”. This could be interpreted as self-regulating for Sandra or highlight how the “presence” of a significant other can anchor people with ADHD; this is seen in the narratives provided by Benny, Monique, Andrew, David and Caroline. These participants had parents and/or partners who played significant scene-setting roles in their learning for accountability, time-keeping, gate-keeping and peacekeeping.

Andrew’s decision to stop taking advice from others about how he should be organising his studies gave him the opportunity to become more attuned to finding his own methods and routines for study, and the start of his sense of self-regulation. In another example, Tara provided a wealth of detail about the many strategies that set the scene for self-regulation and mood management, such as meditation, music, nature and healthy eating.
Tara provided the most novel scene-setting strategy for self-regulated learning by keeping a small bale of straw under her desk on campus. She could comfortably get under her desk when needing to “catnap” and found it funny when people looking for her were not aware she was under the desk.

David disclosed with ADHD + ASD and he taught me that not everyone identifies with a place or is interested in creating a learning space. I became embarrassed at how many questions about place and space I kept asking David, with too little effect. It was a question about music that opened the door to David’s world and he invited me inside. While David talked about using music to block out people’s conversations when travelling to university on public transport, I had the simple thought “oh, he’s doing it by music”, i.e. dealing with being on a crowded train. When I asked if this was the case, David said. “Yes” and this opened up a discussion (See Chapter 4) about how he experienced music. He had a well-established sense of timing through music and music set the scene for managing moods, boredom, transitions and a dispiriting experience with his pre-service teaching mentor.

5.6.5 Learning support.

Scott came to the realisation that “an idea is nothing really” without “people on board” to help him bring good ideas to fruition. His need for consolidated support was what set the scene for him to enrol in engineering as a mature-aged student and during his first year, to be reassessed for ADHD. Support influences learning opportunities and outcomes, as seen in the vast difference in Angela and Caroline’s family, socio-economic backgrounds and access to support. Caroline was given the opportunity to have her final examination for her professional doctorate reviewed. She was able to spend one weekend with her mother in a “house full of ADHD literature”, then successfully defend her case. Since then, she has been awarded two doctorates and was chosen for a highly prestigious professional position in an overseas clinic. By the time Caroline had achieved these goals (before she was 31 years old),
she had travelled and worked overseas, changed her career path, married and, while writing her doctorate, was living in one of the most exclusive suburbs of Sydney. Two years after diagnosis, Angela had changed universities, but as a result of her second university changing the engineering program to fit a trimester model, all students and lecturers were under time pressure and she was still struggling to manage her undergraduate studies.

5.6.6 Engineering

Of the 13 participants in this study, four – Scott, Michael, Andrew and Angela – were engineering students. According to the data in this study, the engineering students experienced some of the highest levels of stress. Scott, Michael, and Angela lamented the lack of context-based teaching and learning activities, although when they talked about model making or data collection they became happy. Angela was acutely aware of the mismatch between how she learnt best and the transmission form of teaching in engineering. Simply put, by being shown the geometry involved in engineering “on an actual column” rather than on a piece of paper she could understand the context of her learning, and this could keep her from becoming dispirited.

Sandra “dropped out” of Engineering Studies because she was unable to find sufficient intellectual and creative stimulation to help her concentrate on rote learning. Her decision to study Urban Planning set the scene for Sandra’s learning engagement because it met her need to be a problem solver and matched her learning temperament. Unlike Engineering Studies, which she found to be “set in stone”, teaching and learning in Urban Planning involved visualisation, visual representation, consultations with her lecturers and the opportunity to use descriptive language in her assignments.

Michael said Engineering Studies curriculum materials, textbooks and examination booklets made it harder for him to participate in HE, because trying to learn from dense
chapters of text made him unsure of where to focus his attention, what he needed to
concentrate on, and in what order:

It is hard to interpret…you have to see between the lines, if there are any lines.

Angela said:

Even people who don’t have ADHD have said that we need our lecturers to learn how to
teach. What I need for you is to put it in a logical or sequential manner…present it in a way
that makes sense or be clear at the beginning what it is that we’re aiming for.

Disjointed, inexplicit teaching using de-contextualised situations was the antithesis of the
problem-solution learning Michael experienced during his internship at a redevelopment site.
The site was teeming with people from different professions who were seething with
frustration because they had no clear means of recognising what, where or when
contingencies dependent on the order of works were to be meshed (organised). The problem
was exacerbated by factors including the loss of time, not only because the site was
enormous, but because the architects, electrical engineers and tradesmen used terminology
specific to their discipline or trade and meanings were misunderstood. Michael immediately
recognised the “big-picture” problem, which involved difficulties with communication,
orientation and navigation could be solved by universal design using wayfinding signage
(colour and scale) and infographics to improve work efficiency.

Michael’s lack of engagement with his engineering program stemmed from his
online, procedural, depersonalised and de-contextualised learning experiences. Michael’s
ability to see the communication and orientation problems during his internship provided
insight into his own learning needs in engineering, which were to understand the terminology
and procedures and to orientate himself in Engineering Studies. However, he did not find
there was a common goal in the teaching and learning:
Tutors are not reinforcing a process. What you're doing is learning a single way to solve a simple question, when what you need is multiple ways to solve any question that's thrown at you. You go away and do these questions, you're going to run into speed bumps. You don't feel like you can go and take those specific speed bumps to someone because tutors are focused on their own studies. [Their interests] aren't targeted towards [students]. They say, just email me a question. But sometimes you need to have a one-on-one chat with someone about what you're getting stuck on.

Angela’s comment confirmed Michael’s experience:

I think the people teaching me need to care about what they’re teaching.

Michael could see how the clarity he brought to the redevelopment site with the infographics and signage he designed could be applied to the context of university examinations:

There is a need for clear criteria and clear typography should be used in examination booklets for Engineering Studies because the way the text is laid out [for people with ADHD] makes it very hard to process the information (Michael).

He said:

I get good feedback for the visual texts in my engineering assignments, but lecturers still rely on large amounts of content to get their point across and it's just not digestible for me, as opposed to when something's visualised. It's a much higher success rate [for me] when I'm actually getting my head around the issue.

The participants with engineering experience presented a picture of rigid methods of instruction and assessment. As highlighted by Zaghi et al. (2016), de-contextualised teaching and learning does not fit the needs of engineering undergraduates with ADHD, who at the same time have the great capacity for solving serious problems in real-world situations. Nazzal (2015, p. 84) suggests that student creativity could be supported by engineering education by fostering the core problem solving attributes of “problem identification,
knowledge and experience” (Nazzal, 2015, p. 84). The need to provide specific support for engineering undergraduates with ADHD has resulted in the development of a new pedagogy so that they can develop their unique potential for exploration and innovation (Hain et al. 2017).

5.6.7 Stigma

Although universities can provide learning engagement and social ambience (Crook & Mitchell, 2012), few participants reported that social engagement with peers was beneficial to their learning. Michael referred to age peer interaction as anxiety provoking and Angela had isolated herself to the point of shutting herself away. Patricia was aware that her peers rejected her for hyperactive behaviour and she needed to “take the day off” when she found it “too hard”. Tara referred to being uncomfortable around the people in her program, “their energies and not mine” before the harassment she experienced had come to the fore. Although she said that the supervisor’s behaviour towards her improved, she found she needed to complete her PhD at home. Sandra knew she was not socially popular because she took control of group work and was perceived as controlling. The participants described their willingness to share their motivation, drive and ability to quickly provide big-picture solutions in group work, which benefited group members and their peers, but they were also socially ostracised for being “too much” (Sara), “bossy” (Sandra) or “interrupting” (Patricia).

The majority of participants (10 out of 13) felt psychologically unsafe to disclose with ADHD, and for good reason, as found in the harassment Tara experienced for disclosing with ADHD. This confirmed the literature that has identifies the risks of disclosure as social humiliation and fear of jeopardising future opportunities (Barnard-Brak, Sulak, Tate, & Lechtenberger, 2010). The challenge of “overcoming lecturer suspicions, indifference or lack of awareness” was found to be the greatest difficulty for students with ADHD (Shelvin et al. in Toner, 2009, p. 74).
Tara’s experience of harassment confirmed this possibility in her account and documentation of the issues that intensified over time during supervision. A confrontation erupted as a result of her tutor’s refusal to acknowledge ADHD, prolonged baiting during group supervision, inability to receive feedback about his behaviour from the associate supervisor, denial of bullying behaviour and trivialisation of ADHD. When Tara confronted his bullying behaviour, her supervisor revealed his rivalry with her, and increased his bullying from competing with her to becoming oppositional; that is, he reversed roles and put himself in the victim’s role by claiming that she had no empathy for him. After 18 months of provocation, Tara received an email ridiculing her for arriving late to supervision, being distracted and distracting others. Tara had tried to discuss ADHD with him previously, providing simplified professional literature about difficulties with self-regulation. She was provoked into a confrontation telling him:

You pick on me and the other guy.

Tara elaborated:

My research is on empathy and he accused me of no empathy for him. We had a big argument in his office. I’ve learnt to stand up for myself instead of playing victim. I wouldn’t submit. It’s really difficult. I really don’t have one supervisor that’s knowledgeable in my area so there’s no research support, which makes it more challenging [especially] when the supervisor wanted to get me. They want to call their office transdisciplinary. But you need a culture of acceptance [for that]. I have so many disciplines it makes it difficult, like environmental science, psychology, social work.

I came from a low-income, alcoholic family. I never thought I would survive my childhood. I thought education was a way out. I put people with degrees on a pedestal…
People don’t understand [ADHD]. It really hurts. You can always tell. My supervisor made fun of me. I felt so intimidated. It hurt. I felt embarrassed. I had to tell myself that “I can think so much more broadly. I can think so much faster”.

They [supervisor will] edit your thesis and speak in their own language. It’s really hard if you have an ADHD mind. I have a different way of seeing the world. And when they talk about suggestions, the way their write and think in the singular. Short emails – “I don’t understand you”. He would think I’m retarded [and I would think] I’m so dumb. I’m a horrible PhD.

Supervisors are not in a heart space. They don’t have patience or know how to communicate. I ask more questions and get some clarity. It’s taken me a long time to learn and it’s taken my supervisor a long time to learn. He used to be, like a bully. He’s from [country] and then he recruits all these students from [the same country] and they have their way of communicating.

Although arbitration was successful in stopping the harassment by her supervisor and her self-determination should be celebrated, Tara’s experience hints at a dark side of institutionalised discrimination. Concealment can adversely affect recognition of ADHD in general, and there is a view that it is self-handicapping by restricting access to learning support in particular (Thompson & Lefler, 2016). There is only one account in the data of ADHD-specific support offered through the Disability Support Services, namely Benny’s access through university-funded, certified ADHD coaching provided by an independent consultant. Rather, the data provide evidence of systematic and numerous barriers to learning, in keeping with a study finding that universities are hostile to the cognitive difference of students with attention deficit disorder (Arnold, Easteal, Easteal, & Rice, 2010). A study examining lecturer perceptions of tertiary students with ADHD found 25.7% of faculty thought that they “should not accept alternative assignments or provide copies of lecture notes to students with ADHD” (Vance & Weyandt, 2008, p. 307), with the second largest
Lack of environmental reciprocity or recognition for ADHD from the university environment is found in the privileging of text-based materials and digital transactions for communication; lack of visual cues; opaque registration systems for enrolment and little recognition that students with ADHD need help with language skills and behavioural strategies involved in help-seeking. The prevalence of stories of victimisation by teachers, lecturers and supervisors in my study calls for further research, as these stories indicate that there are some shared attitudes and behaviours among professional educators.
5.6.8 Summary (Cluster 4): Teaching and learning in HE.

The data provides few examples of a good fit between a participant and a faculty. Patricia’s experience of being offered accommodations was unexpected. Benny said he enjoyed the company of people in his office, and his university provided him with access to executive function coaching. Data about strategies that might work in helping student with ADHD pay attention to administrative details could not be collected, indicating this problem is yet to be mastered by any of the participants. Being unsuccessful in accessing help to understand how to perform tasks is represented in the data as a distressing experience. Analysis of the teaching and learning experiences in HE highlights there are very few examples of support for ADHD-specific learning differences and needs, although the data is saturated with evidence that visual cues in teaching and learning will improve information processing for students with ADHD. Equal learning opportunity support for people with ADHD has been examined by Jansen et al. (2017), who found that visual cues and multiple means of representation, expression and engagement, described as activating methods of teaching students with ADHD, as well as providing a universal learning design for improving teaching for all students, needs support. Evidence for what can improve the learning experience for students with ADHD in HE has been tabled in Figure 19 (see p.197).
<table>
<thead>
<tr>
<th>Participants’ need</th>
<th>Teaching and learning strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>To make learning visible and accessible</td>
<td>Infographics</td>
</tr>
<tr>
<td></td>
<td>Data visualisation techniques</td>
</tr>
<tr>
<td>To “see” how all the elements of a learning task fit together</td>
<td>Visual representations, including diagrams</td>
</tr>
<tr>
<td>Visual stimulation to activate motivation</td>
<td>Visual cues</td>
</tr>
<tr>
<td>Sensory engagement</td>
<td>Visual representations</td>
</tr>
<tr>
<td>Links between transdisciplinary theories</td>
<td>Graphic representations</td>
</tr>
<tr>
<td>Systems management for administrative tasks</td>
<td>Make time and tasks visible using flow charts</td>
</tr>
<tr>
<td>Sequencing and prioritisation</td>
<td>Use of typography, meaning size and colour, to denote hierarchies of importance and group information</td>
</tr>
<tr>
<td>“Information portion control”</td>
<td>Provide a holistic representation of the semester’s learning, and manage the amount of relevant information in time and context</td>
</tr>
<tr>
<td>Recognise and support the development of skills for organisation and time management</td>
<td>Graphic organisers, Colour coding, Systems for making time visible, Embedding timetabling and time estimation skills within curricular expectations</td>
</tr>
<tr>
<td>Recognise and support the development of the visual-spatial abilities of students</td>
<td>Encourage and reward the use of visual representation in assignments, Recognise the conceptual and integrative value in the use of drawing, diagramming, mapping</td>
</tr>
<tr>
<td>Self-determination</td>
<td>Provide a democratic approach to group work and avoid penalising students who prefer to work alone.</td>
</tr>
</tbody>
</table>

Figure 19. Teaching and learning strategies for students with ADHD.
Michael needs to make his learning visible and accessible. He needs to “see” how all the elements of a learning task fit together, which can be achieved using infographics and data visualisation techniques. Patricia uses visual cues to stimulate her need to compete with herself. Tara uses visual representations to nurture herself, as well as visual tools so she can see the relationships between the transdisciplinary theories she links in her research. Caroline uses comprehensive visual codes to organise her research. Monique, Scott, Michael, Andrew, Sandra, David, Jennifer, Caroline, Tara, and Benny made explicit references to the use of drawing and/or diagramming and colour, which set the scene for their learning.

5.7 Summary of Chapter 5: Discussion

Scene-setting strategies were presented in four clusters. Cluster 1 discussed the strategies of diagnosis and support for the participants’ medical, psychosocial and executive function needs as the foundation on which strategies that set the scene for learning can be built. Cluster 2 discussed the strategies that set the scene in order to regulate the self and manage day-to-day functions so the participants can set the scene for academic activities, which demonstrated how they were learning to regulate their environments. Cluster 3 discussed the individualistic strategies that the participants developed/used to approach learning and engage with learning tasks, showing them to be highly motivated and willing to make an effort to develop and improve scene-setting strategies in order to improve their ability to engage with learning in HE. Cluster 4 discussed the teaching and learning experiences of the participants in HE, highlighting the need for increased use of visual cues and professional education training to improve understandings of ADHD. The lack of information about helpful support from Disability Support Services calls for further research.
Chapter 6: Conclusion

The participants were at varying stages of gaining insight into the impact of ADHD on their ability to function and to set the scene to engage with their studies. Scene setting is seen to have been phasic, in that there were clear successions of development as the participants sought to stabilise and improve the quality of their lives and learning through the strategies they developed to set the scene for their learning in HE. The relationship the participants have with the places where they create their learning spaces becomes apparent to them. How their spaces affect learning appears to be based on their need to create and protect a controlled environment. By restricting distractions, the participants are able to enter their concentration space of hyperfocus. It is through greater self-awareness and support that led to greater self-determination as they create and further developed techniques to set their learning scenes so they can work to their strengths.

This study confirms the participants’ heuristic capacities of prehension, the act of taking hold, and the attentional resource of apprehension, the intuitive form of learning by sensing, which facilitates direct learning. Divergent thinking, creativity, visual perceptual intelligence and abstract conceptualisation are evident strengths, which can be observed in how the participants set the scene to function well in HE and in how they developed visual-spatial signposting, visual representations, mind mapping, diagrams and charts to make time, tasks and their learning visible.

Strategies that set the scene to eliminate distraction and harness their attentional resources so the participants could draw on their great learning strength of hyperfocus were conceptualised as gating. Hyperfocus hinges on gating to keep attention focused. Support people and coaches assist with gating attention by acting as gate-keepers, time-keepers,
bookkeepers and peacekeepers, and by reminding the participants to activate and maintain their gating strategies. Effective reminders could be simple prompts and visual cues.

Areas of vulnerability showed up in narratives about depression, suicide ideation, social anxiety disorder, general anxiety, dyscalculia, dyslexia, stigma, hiding and experiences of invalidating teaching and learning. To this end, it was important that the participants’ learning was supported. Anxiety appeared as a nefarious experience in the data as a result of the internalisation of stigma, shame and social anxiety. However, a paradox was found in the association between anxiety, containment and setting the scene for learning. This was seen in the examples from the data where anxiety was associated with high-level cognition, as found in Benny and Caroline’s accounts of visual reasoning. Greater understanding of the impact of anxiety + ADHD on learning may benefit students with and without ADHD if anxiety resilience can be understood.

Positive self-talk was a scene-setting strategy for learning. It was critical that the participants could encourage themselves. The need for support in communication, including communication with the self, is highlighted as a need for further research. The participants learnt by trial and error and needed to be able to tolerate repeated failures in the course of problem solving. They worked mostly in isolation because they needed to avoid distractions; however, lack of fit with peers in HE was also isolating, therefore understanding and monitoring self-talk was critical as a means of understanding and supporting the mental health concerns of students with ADHD in HE. Lack of fit is also evident in narratives about institutionalised stigma. The human and financial cost of abandoned degrees, transfers and drawn-out degrees were a source of great personal and financial distress for affected participants, as well as for the wider community. Better understandings of the circularity of the impact of anxiety and ADHD on self-concept and esteem, as well as on learning, are needed to improve public and professional misconceptions about ADHD.
Misconceptions about ADHD can arise for others, such as in the case of a person with ADHD being capable of concentrating on something of interest, but incapable of applying themselves to administrative tasks. It follows then that the well-established view of disorganised work and home environments in the case of people with ADHD is contradicted by the high levels of organisation participants like Andrew, Sandra and Patricia bring to their home environment. In the first place, this is evidence of the portraits being awash with information about the range across the spectrum of ADHD symptoms and experiences and supports the view of there being cycles of chaotic experiences and how the participants strive to return to having a controlled environment. For example, Andrew is highly organised, but lives in fear that he may not be able to maintain his organisation in the knowledge that one piece of paper out of place and him not being able to find a pen can cause everything to spiral down. This research presents a snapshot of a range of experiences across the spectrum of ADHD, and the given context of the participants’ experience at a given time. As circumstances change, it is probable that the participants will be in different stages within cycles of chaos and control.

This study sought to improve knowledge about what might improve academic engagement, retention and graduation for students with ADHD in HE. The scene-setting heuristic contributed to improvements in the participants’ attitudes, learning experiences and outcomes, including improved grades by: a) accepting a formal diagnosis of ADHD, medication and ongoing professional psycho-education b) the support of family and friends c) preparation and maintenance of the places where they study, including their use of resources and most importantly, d) learning about the self. The findings contribute ecological validity for the neuroscience literature and new information about the learning processes of students with ADHD in HE in the examples of their strengths and skills, inner resources, self-efficacy, self-esteem, and coping and learning strategies to master ADHD in HE.
Access to support was of great benefit in helping the participants to balance their strengths, weaknesses and vulnerabilities. A number of factors could support students with ADHD. In the first place, an epistemological shift in the public perception of ADHD is required. Due respect must be given to people with ADHD for the reality of living with this condition so their anxiety can be reduced. Such support as strategic pairing can occur through psychosocial education, coaching, scaffolding and mentoring. The level of recognition and support they had for their learning greatly influenced the participants’ capacity to learn in HE. Clear, available support helped the participants to regulate anxiety as well as their day-to-day living. When they were able to contain their anxiety, the participants could work to their strengths, and they present in the study with high-functioning ability to learn from experience endurance, problem solving and the ability to bounce back, “against the odds” (Willcutt, 2012, p. 25). Specialist support using evidence-based interventions such as executive functioning coaching and social skills training would help in the management of the relational, administrative and organisational aspects of HE, including self-care, reciprocity and/or balance in relationships and time management. As a duty of care, Disability Support Services need to provide training for lecturers and research supervisors to assist in potentially recognising and making referrals for students to be assessed for ADHD. Lecturers are in a unique position to identify students with undiagnosed ADHD who become overwhelmed by academic expectations and are at risk. Instruction on alternative pedagogic approaches could be provided by Learning and Teaching centres, to the benefit of many, not only students with ADHD. Lecturers need to be encouraged to integrate visual teaching methods such as visual cues, information graphics, visualisation techniques such as mind mapping. This would benefit many students and would specifically tap into the cognitive strengths demonstrated by the participants in this research.
The participants in this study showed us what diversity looks like. They demonstrated that they had clear understandings of their learning differences, and what supported their learning. They were highly motivated to develop and evolve learning strategies that set the scene for them to engage with teaching and learning in HE and had the ability to articulate consciously how others could cater for this diversity. They provided both very simple and complex ideas about catering for diversity. The research highlights the benefit of learning strategies such as visual cues to focus attention, of prompts as reminders about time and tasks and of clear directions. The need for professional educators to be able to listen to students with ADHD is highlighted, because these students need help to discipline, organise and summarise the many thoughts constantly teeming through their minds and I include myself in this category of student.
Coda

*If you are going through hell, keep going* (Churchill).\(^{28}\)

Time and emotional distance will be needed in order to evaluate the impact of ADHD on my doctoral education and vice versa. I was fortunate that some people acted to mediate between some unsatisfactory experiences during my candidature, which secured the representation the participants’ voice in this thesis. The PhD has not changed my perception, which is expressed in Churchill’s quote above, that formal education is hostile to ADHD. People with ADHD have a different way of learning, experiencing time, and a different reward system. An example of this difference is that unlike my peers, who are excited about the prospect of graduation, I have no sense of achievement. Instead of a sense of achievement, I experience a very strong sense of relief. This is the case in all tasks where I feel little control. The relief that the task is over is akin to finding something that has been missing. Therefore, the first word in my thesis, *When the glasses go missing*, also has the last word. On the day of the supervision meeting to discuss the examination results of my PhD, my car keys went missing. Two weeks later, the car went missing. It was towed away after being left on a clearway for 36 hours. Hyperfocused on the preparation of a cold studio for the coming winter, I was setting the scene to find the expressionist painter who went missing when she was a research student.

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\(^{28}\) [https://www.brainyquote.com/quotes/winston_churchill_103788](https://www.brainyquote.com/quotes/winston_churchill_103788) 17/5/18
APPENDIX A

ETHICS APPROVAL LETTER

MACQUARIE UNIVERSITY

01 April 2014
Dr Trudy Ambler
Learning and Teaching
Faculty of Arts
Macquarie University
NSW 2109

Dear Dr Ambler

Re: Learning strategies of women disclosing with a diagnosis of ADHD in the context of higher education

Thank you for your application for the above project. The Human Research Ethics Committee (Human Sciences and Humanities) considered your application at its meeting held on 28 March 2014.

This research meets the requirements set out in the National Statement on Ethical Conduct in Human Research (2007) and your application has been approved.

Details of this approval are as follows:

Reference No: 5201400307
Approval Date: 28 March 2014

This letter constitutes ethical approval only.

The following documentation has been reviewed and approved by the HREC (Human Sciences and Humanities):

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<tr>
<th>Documents reviewed</th>
<th>Version no</th>
<th>Date</th>
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<tbody>
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<td>Macquarie University Human Research Ethics Application</td>
<td>2.3</td>
<td>Jul 2013</td>
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<td>Participant Information and Consent Form</td>
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<td>One-on-One Interview Questions</td>
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<td>Letter of support for the project from Joy V. Toll DAM: Addults with ADHD (NSW) Inc.</td>
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Please ensure that in all future correspondence with the HREC all documentation has a version number and date.
19 March 2015

Dr Trudy Ambler  
Teaching and Learning  
Faculty of Arts  
Macquarie University  
NSW 2109

Dear Dr Ambler

Reference No: 5201400307

Title: Learning strategies of women disclosing with a diagnosis of ADHD in the context of higher education

Thank you for your correspondence dated 23 February 2015 submitting an amendment request to the above study. Your proposed amendment was reviewed and approved by the HREC (Human Sciences & Humanities) Executive at its meeting held on 17/03/2015.

I am pleased to advise that ethical approval of the following amendments to the above study has been granted:

1. Renaming the study to "Exploring 'scene setting' as a strategy to support learning for students with a formal diagnosis of ADHD studying in higher education".

2. Recruitment will be extended to males who also have a formal diagnosis of ADHD. A sample using both males and females will enhance and extend the research as little is also know about the strategies used by either gender to support their learning (Prevatt & Young, 2014).

3. The sample size will be 6-8 participants who will be both male and female aged over 18 years.

4. Additions to the interview questions about the way the learning environment is organised (scene setting) and questions to unpack understandings about this learning strategy.

5. The addition of drawing as a data collection method. Drawing will be included during the interviews to generate visual representations in the aid of visualisation of scene setting (organisation of the learning environment) and learning strategies.

The HREC (Human Sciences and Humanities) Terms of Reference and Standard Operating Procedures are available from the Research Office website at:
Exploring ‘scene setting’ as a strategy to support learning for students with a formal diagnosis of ADHD studying in Higher Education

Thank you for your interest in this research project. There are some ethical procedures that must be completed prior to making arrangements for interviews.

**Risks or Discomforts**

This project has been designed to be very low risk for participants. However, if you become distressed during or after completion of the one-on-one interview support will be available through Macquarie University counselling services which are open Monday - Friday between 8:00am - 6:00pm. The telephone number is (02) 9850 7498 Email: counselling@mq.edu.au

Any information or personal details gathered in the course of the research are confidential (except as required by law and/or negotiated with each participant). No individual will be identified in any publication of the results. Only the researchers will have access to the raw data. All data will be securely stored and will be held for a minimum of 5 years from last publication, after which time it will be destroyed.

Participation in this study is entirely voluntary: you are not obliged to participate and if you decide to participate, you are free to withdraw at any time without having to give a reason and without consequence. Your participation and/or withdrawal from this research will in no way affect your academic standing or relationship with Macquarie University.

Please find attached the Information and Consent Form. I will need you to sign and return this form before the interview.

You can print out, sign, scan and return the forms by email, or take a photo of the form with a smart phone and email to me: christine.young1@students.mq.edu.au

Or you can post them to the Chief Investigator:

Dr Trudy Ambler  
Associate Dean (Quality & Standards) Room 136, Building W6A  
Faculty of Arts  
Macquarie University NSW 2109 Phone: +61 (0) 2 98507938

If it is difficult for you to organise printing and scanning, or you are having IT glitches, let me know and I will post the forms to you. When consent forms are returned, a time can be made for your interview.

**Diagnosis**

This research project seeks to distinguish itself from other studies that relied on students to ‘self-report’ ADHD. Documentation acknowledging your diagnosis by a qualified health professional will be a requirement for participation.
Interview questions

Also attached are the interview questions. No preparation is required for the interview, however, if you have time to go through the questions, it may help to focus your thoughts making it easier to talk about organising your personal space during the interview.

“Photo-voice” and “graphic elicitation”

Photo-voice is the name given to the research method whereby the research participants can assert their own view over what photographs or drawings they provide mean for them. The photographs, or drawings, are to “capture” the strategies that assist organising your learning space. If you can provide photos before the interview, that may be helpful to focus our discussion. You will always own the copyright of the photograph or drawing. If your “learning strategy” is a person such as a partner, friend or coach, who can be identified, if they want to be included in the research, their written consent must be provided. Written consent is essential, because the research will become a public document.

Reimbursement

A generic $50 gift voucher from Coles has been decided as the most accessible way to make a gesture towards reimbursing you for your time.

De-Identification

You will be de-identified in the research text, which means you will remain anonymous.

Accuracy

Transcripts from the digital recording of the interview will be returned to you to check for accuracy if names, places or dates are mentioned. At this point, if you decide that you do not want information included because you recognise you could be identified, the information can be de-identified (e.g. if there is only one university in Westmead, and your friends or teachers know you have ADHD, you might not want that university named in the thesis).

Consent

This repeats what is written in the consent form and is a reminder that you can withdraw from the research at any time, even after the interview has been conducted and recording has been transcribed.

Questions?

Please contact me if you have any further questions.

Kind regards
Christine Young
PhD Candidate Macquarie University
APPENDIX D

SUGGESTED INTERVIEW QUESTIONS

How do you set up your study space to get started on your work? Probe: When you’re working in that space, how do you feel?

Probe: Do your feelings change when you move things around, and does that impact on your ability to concentrate?

Do you have any special techniques that help create order? Probe: How did you come to develop this strategy?

How do you organise your learning materials? Probe: Why do you do that?

Do you listen to music when you are studying? Probe: What sort of music helps you concentrate?

2. Time and technology

How do you prioritise your learning? Probe: What do you do to establish and challenge routines? Probe: Do you have any difficulties managing transitions? Probe: How do you make time ‘real’ / visible?

What types of technology do you use in your learning space?

Probe: Do you use any digital applications to help you manage ADHD?

3. Reflective space

Do you have a place where you reflect on your experience?

Probe: What helps you reflect on the experience of ADHD in the context of learning?

What contributes to persistence and confidence in face of inattention? What motivates and supports you?

Probe: Can you tell me something about the who, where, what and how you go about dealing with the complexities and uncertainties of ADHD?

Probe: Are you aware of hidden feelings about ADHD in the context of the university setting?

4. Managing Concentration

What helps you with concentration?

Probe: How does your environment help you manage distractibility? Probe: What things in your environment to help you remember?
5. Visual representation

Do you visualise how you can solve problems like organising your work space?

Have you ever used visual representation to help you think?
Probe: Do you use mind-mapping?
Probe: How does the process of mind-mapping work for you?

Do you have any ideas about how time and planning could be made visible for people with ADHD?
APPENDIX E

RESEARCH ADVERTISEMENT

ADHD

Do you have a medical diagnosis of ADHD?

Interested in consolidating ADHD learning strategies? Would you like to participate in a study on the lived experience of adult students with ADHD at university? You would be required to attend an information session, an interview, on a one on one basis, for one hour, make a sketch, take some photographs that represent your learning strategies and get $50 Woolworths eVoucher for your time.

The ethical aspects of this study have been approved by the Macquarie University Human Research Ethics Committee. If you have any complaints or reservations about any ethical aspect of your participation in this research, you may contact the Committee through the Director, Research Ethics (telephone (02) 9850 7854; email ethics@mq.edu.au). Any complaint you make will be treated in confidence and investigated, and you will be informed of the outcome.

For more information or to register your interest please contact

Christine Young christine.young1@hdr.mq.edu.au
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