The Teaching of Situational Awareness in Theatre Practice: A Matter of Horse Sense?

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Dedication

I would like to dedicate my work in loving memory of my father in recognition of his sacrifices for his family and for being such an inspiration, which I recognised all too late.

I would also like to dedicate this work to Barbra Stonham who I knew only a short time before she sadly passed away after a short illness before my research started. However, Barbra made a lasting impression on my life because of her commitment and passion for horses and their positive influences on her everyday life. I will always remember Barbra as a beautiful, kind, and inspirational lady.

An initial thought from the researcher

I hope you enjoy reading this thesis as much as I have enjoyed writing it.

Abstract

Situational awareness is considered to be an essential skill to prevent errors in the perioperative environment (Yule et al., 2008). Currently Endsley's (1995) aviation model is used to inform perioperative practice and teach situational awareness to theatre-practice students in higher education. However, it is argued within this study that the aviation model does not take into account the nuances of the operating theatre environment and as a result is incongruous in supporting the understanding or teaching of situational awareness in the operating theatre environment.

The study's original contribution to new knowledge is evidenced, by addressing the incongruity in a novel way, by exploring the horse-human-relationship at an axis with Lefebvre's (1992) rhythmanalysis. The research aim was to compare the experiences of horse-trainers and theatre-practitioners' situational awareness to explore if this revealed any educational implications to teaching situational awareness across a range of theatre practice programmes in higher education.

The study employed a qualitative exploratory methodology which used a purposive sampling design to recruit 7 experienced horse-trainers and 6 university theatre-practice lecturers to share their perceptions and development of situational awareness in their respective fields of practice.

Semi-structured interviews were conducted using a research-participant method to allow both researcher and participant to explore their own experiences to interpret the individual narratives. Braun and Clarke's (2022) reflexive thematic analysis model was used to subjectively and reflexively interpret the data and formulate the findings.

Four themes emerged from the reflexive thematic analysis: presence, professional curiosity, critical thinking and collective consciousness, as processes which support both horse-trainers and theatre-practitioners in developing situational awareness. Horse-trainers were found to use these processes unconsciously through their interactions with the horse, thereby becoming situationally aware. While theatre-practitioners only developed situational awareness if they moved beyond the Lefebvrian concept of 'dressage' and actively engaged in the themes stated above.

The study further contributes to original knowledge by reframing perioperative situational awareness to support theatre-practice students in higher education to move beyond Lefebvrian 'dressage'. The study thereby recommends the embedding of presence, professional curiosity, critical thinking and collective consciousness, which supports the horse-trainers' unconscious development of situational awareness, into an applied implicit curriculum which will enable theatre-practitioners in higher education to become situational analysts. To achieve this, informative educational sessions will be provided to staff on the new reframed definition of perioperative situational awareness with the aim to support the creation of an implied implicit curriculum. The aim of the implied implicit curriculum is to pay attention to modular intended learning outcomes, through the development of appropriate content, activities, assessments and reflective practices, enabling theatre-practitioners to become professionally situationally aware, in a similar way to horse-trainers.

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Chapter 1 Introduction

1 Introduction

The intention of this thesis is to explore the perceptions and development of situational awareness and its relationship within the perioperative environment and theatre team. The term perioperative literally means "around the operation" from the Latin "peri" meaning around (Woodhead and Fudge, 2012: 3) and denotes the whole patient perioperative journey, inclusive of the anaesthetic, surgery, and recovery phases. The perioperative environment is coordinated and staffed by a multidisciplinary team consisting of medical and clinical staff. My thesis is concerned specifically with the clinical staff, operating department practitioners (ODP) and nurses, who work alongside each other and are collectively referred to as theatre-practitioner, and this is the term used within my thesis to include both sets of clinicians.

While the role of the theatre-practitioner is to support medical staff and ensure patient safety across each phase of their perioperative journey, their route of training is different. An ODP is a highly skilled allied health professional who has undergone comprehensive training in all phases of theatre practice in the perioperative environment, while nurse training is more generic, but both are based on a competency-based curriculum (Health and Care Professions Council, 2022; Nursing and Midwifery Council, 2023). For further clarification each phase of the perioperative environment denotes a specific role, therefore the prefix anaesthetic, surgical or recovery is added before practitioner. However, they are all ODPs or nurses and classed under the umbrella term of theatre-practitioner. (refer to table 1: 1).

Table1: *Clinical Multiprofessional Team and Sub-Titles*

Role	Titles	Specialism
Clinical	Operating Department Practitioner (theatre-practitioner)	Qualified to work in all 3 phases of the perioperative environment, anaesthetics, surgery and recovery
Clinical	Theatre nurse (nurse) and Theatre-Practitioner	Qualified as a nurse and trained within the perioperative environment post qualification
Sub-titles: Theatre-practitioner Surgical practitioner (Scrub or circulating practitioner)- surgical environment Anaesthetic practitioner – anaesthetic room Recovery practitioner – post anaesthetic care		

The teaching of situational awareness in the perioperative environment has been problematic for two reasons, first, it has been based on the research from the aviation industry and second, situation and situational awareness are used interchangeably but have subtle differences in meaning (Hone et al., 2005). Situation awareness has been considered from an aviation perspective, where Endsley (1995) defines situation awareness to mean the perception, comprehension and future projection of one's surroundings that occur slowly and require systematic processing through operations of procedure and decision making. While Flin et al. (2008) suggest from a perioperative perspective, a simpler definition but essentially having the same meaning as Endsley (1995), situational awareness is knowing 'what is happening around us'. What is noticeable, in both definitions, is the lack of attention, to how in the perioperative environment situational awareness is a skill required to notice immediate changes within 'the everyday'. It is this subtle difference between situation and situational awareness and how it is perceived and developed in the perioperative environment that has guided my research. Traditionally, the perioperative environment has applied Endsley's (1995) situation awareness model to inform practice. However, I argue there are distinctions between the aviation industry and the perioperative environment that require consideration and should be represented in how situational awareness should be defined and conceptualised in the perioperative environment. Therefore, I argue throughout my thesis that situational awareness in the perioperative environment should go beyond the aviation industry's model of situation awareness as it does not align with the perioperative environmental needs. I also argue how theatre-practitioners within the perioperative environment require cognition and sensory perception to perpetually interact with the wider and complex perioperative environmental changes that influence and impact 'the everyday' events. Furthermore, Tower et al. (2019) and Endsley (1995) suggest decision-making and situation and situational awareness are synonymous, which I argue are distinct skills that support each other but are not reliant on each other .

To support my move away from the aviation model, I will explore situational awareness from a unique perspective, the horse-human-relationship, which encompasses similar needs for perpetual environmental interactions and a wider understanding of influencing factors that impact horse-human interaction. This recognition stems from my own work and

relationship with horses and feedback from discussions and conferences I attended (Appendix 1: 213-215).

Therefore, my thesis addresses the current 'gap' in the literature, which is to investigate how situational awareness is perceived and developed by theatre-practitioners to meet the complex changes of 'the everyday' perioperative environment. Further, there is no literature that brings together how the horse-human-relationship develops situational awareness in horse-trainers, or how this could influence understanding situational awareness in the perioperative environment. As such, the aim of my thesis is to investigate how horse-trainers perceive and develop situational awareness compared to theatre-practitioners. I also aim to conceptualise how this understanding can be applied to teaching situational awareness across various undergraduate and postgraduate theatre practice programs. Although the findings will have a significant impact on operating department practice programs in higher education, it is recognised the findings have the potential to impact and influence other healthcare professional programmes that can be applied to the perioperative environment, for example, nursing and nursing associate practitioners.

1.2 Thesis

Chapter 1 will introduce the reader to the research topic, the research aims and questions. I will contextualise my positionality as the researcher and outline my epistemological and ontological stance which ultimately informed the research methodology, lens, and design. However, as my research offers a new perspective on exploring situational awareness, chapter 1 will provide a brief description of the importance of situational awareness in the perioperative environment, and its importance to reducing risk, improving patient and perioperative safety, as well as reducing costs to the National Health Service (NHS). Chapter 1 will also clarify the importance the horse and the horse-human-relationship has to understanding how situational awareness can be reframed to improve understanding of situational awareness in the perioperative environment. Finally, chapter 1 will discuss how I have blended the more-than-human and Lefebvrian axis by mobilising aspects of rhythmanalysis (Lefebvre, 1992) to provide a lens in which to view how the rhythms of the horse, horse-trainer, theatre-practitioner, and their respective environments, impact on situational awareness. Furthermore, I will demonstrate how the more-than-human lens and

rhythmanalysis complement each other by creating an axis through their interrelated positionalities.

Chapter 2 will provide a review of the literature spanning each frame of reference, drawing attention to both the historical and current understanding of situational awareness and its role in the healthcare setting. Included will be an integrated exploration of the importance of situational awareness to perioperative practice and the perioperative environment. A brief exploration of the current curricula ethos and its potential and limitations for teaching situational awareness in theatre practice programmes, and its impact on motivational learning and self-development, will be considered. Chapter 2 will also explore the horse-human-relationship and the importance the horse's ethology has in affording the opportunity for situational awareness to transfer between species.

Chapter 3 will stipulate the methodological framework and rationale which informed the research design and data gathering method and alignment to the research questions. This will include the participant recruitment strategy and ethical considerations. This chapter will also highlight the impact the Covid-19 pandemic had on the design and implementation of my research. Finally, this chapter will outline why and how I utilised Braun and Clarkes (2022) reflexive thematic analysis to analyse my data, using my lens of the more-than-human and Lefebvrian axis, to interpret the meaning within the raw data.

Chapter 4 will discuss how I analysed the raw data and present my research findings under their respective themes. Emphasis will be placed on the perceptions of all the participant groups, individually and collectively, and highlight the data's important 'murmurs and traces', the term Lefebvre (1992) uses to reference the hidden 'rhythms' that impact 'the everyday', and therefore the development of situational awareness.

Chapter 5 will discuss the implications of 'dressage' (Lefebvre, 1992) on the development of situational awareness, and explore and discuss how the research findings answer the research questions. Research questions 1 and 2 will build on each other, bringing together the natural rhythms of the horse and the horse-human-relationship to understand how mutual situational awareness develops. These findings will be compared to the findings from the theatre-practitioners to help answer research question 3, which will provide the evidence for the final research question and main aim of the research: can the horse-

human-relationship provide insight into developing a curriculum to teach situational awareness in theatre practice?

Chapter 6 will provide a thesis summary, articulating my original contribution to knowledge and presenting my research recommendations. To conclude, I will critically reflect on the research process highlighting the challenges, limitations, and strengths of my research. I will continue by discussing the implications of the research and future research potential before concluding my final thoughts and briefly outlining - what next?

1.3 Background

Situational awareness forms part of the non-technical skills that support the science of human factors, to reduce risk due to human error (Rosenorn-Lanng, 2015). Therefore, the role of situational awareness in the perioperative environment is to reduce risk (Singh et al., 2006). Non-technical skills also include communication, teamwork, leadership and decision making, which, if supported, reduce the potential for 'never events' and adverse incidents (Flin, 2013).

Therefore, situational awareness within the perioperative environment is vital to ensure patient safety, reduce 'adverse incidents', 'never events' and minimise unnecessary costs to the NHS. To demonstrate the importance of situational awareness, the Health and Care Professions Council (HCPC, 2014), the regulating body for ODPs, incorporated "understanding the impact of human factors" as a proficiency required in perioperative education, although, this was not updated and extended in the amended standards of proficiency in 2022, it is still essential requirement to reduce risk. Human factors can be considered as the way humans interact with systems, other beings, environments, equipment and self (Rosenorn-Lang, 2015) and which have the potential to result in error, 'never events' or adverse incidents, due to interaction inaccuracies or procedural violations (Rosenorn-Lang, 2015; Shappell and Wiegmann, 2000). 'Never events', are classified as events that have: caused severe harm or death; occurred in the past; are a known risk that have existing guidance; are easily identified; and should not have happened (NHS, 2012)- these were updated in 2022 and 2023 (NHS, 2022; 2023). While adverse incidents are "unintended or unexpected incident[s] which could have, or did, lead to harm for one or more patients receiving healthcare" (NHS England, 2020).

However, even with the increased interest in situational awareness as a skill and concept (Endsley, 1995; Green et al., 2017; HCPC, 2022; CODP, 2018), it is reportedly, 10 years on, still underestimated, misunderstood and consequently not taught across the multidisciplinary perioperative team effectively (Fore and Sculli, 2013; Green et al., 2017; Sculli et al., 2011). Furthermore, the main influences to reduce error in the perioperative environment and increase situational awareness are based on the processes used within the aviation industry, which focus on cognitive skills and the immediate environment. However, situational awareness was originally referred to in Sun Tzu's Art of War (Green et al., 2017) but was coined by Oswald Boelke, a World War I pilot, who realised the importance of gaining awareness of the enemy under combat conditions before the enemy gained a similar and advantageous awareness over you (Gilson, 1995). Subsequently, the concept of situational awareness has received greater consideration since the 1980s, mainly due to the advances in technology, especially within the aviation industry. It has been identified within aviation that technology has the potential to distance humans from the current situation (Brennan et al., 2020). This is due to how non-human automated systems can distance the human from the developing situation (Brennan et al., 2020; Stanton et al., 2001). Nonetheless, situational awareness has been recognised as having the potential for a wider meaning by supporting other non-technical skills such as decision-making, performance, teamwork, and effective communication (Flin et al., 2008a; Korkiakangas et al., 2014). Therefore, although the term situational awareness was originally associated with the military and aviation it has, since the late 1980s, become considered an important element in other complex high-risk professions where there is a need to make decisions under stress to reduce error (Brennan et al., 2020; Gilson et al., 1994).

Therefore, I argue it is important to reevaluate how the aviation industry influences situational awareness and its impact on the perioperative environment. I believe more can be learnt by exploring how situational awareness is perceived and developed within the horse-human-relationship than from aviation to support theatre-practitioners. I believe by uncovering this new knowledge, it would support the effective teaching of situational awareness in higher education theatre practice programmes and ultimately enhance patient safety. Therefore, the overarching intention of this thesis is to explore situational awareness from two perspectives, horse-trainers, and theatre-practitioner lecturers.

My reasoning for this research was borne from my reflections regarding my development of situational awareness as a horse-trainer and theatre-practitioner. It was through these reflections that I was able to assess the 'gap' in the literature by compartmentalising how the aviation industry and perioperative environment require different perspectives of situational awareness to ensure safety. It is how Sarter and Woods (2020) describe situation awareness, as an operational process in aviation that uses technology to monitor and visualise risk over a set period, that demonstrates how the two environments should consider situational awareness differently. In contrast, Marshall and Touzell (2020) emphasise that in the perioperative environment, the multi-professional team needs to know the processes and procedures during emergencies and work with pre-designed checklists and team briefs, such as the five steps to safer surgery and the surgical safety checklist (National Patient Safety Agency, 2009; 2010), to reduce risk in set periods of time. Although these processes may appear similar, I argue that understanding situational awareness in the perioperative environment requires a different approach. It is important to consider how the multidisciplinary team needs to use their senses to monitor the internal and external dynamic, natural, and manipulated changes, in the patient and environment to reduce risk through human interaction. Therefore, I believe that there is a 'gap' in the research that explores situational awareness from a different perspective that aligns more closely with the perioperative environment.

From my reflections I felt the horse-human-relationship offered a unique perspective to explore how horse-trainers perceive and develop a sense of situational awareness compared to theatre-practitioners in the perioperative environment, because both groups need to be vigilant to living beings and environmental changes, without an overreliance on interactions between technology and processes. Therefore, my rationale of my research is inherent in the belief that the horse-human-relationship not only develops mutual situational awareness, but it has a greater affinity to the requirements of situational awareness in the perioperative environment than aviation.

As stated, my belief that the horse-human-relationship is a closer fit to exploring situational awareness in the perioperative environment comes from my own experiences as a horse-trainer and training as a theatre-practitioner. As a theatre-practitioner, I felt my own situational awareness developed naturally and intuitively, as if it was a part of me rather

than something I was being taught within the theatre practice training programme. Reflecting back, I realised my situational awareness had developed from my career as a horse-trainer, therefore, I felt that the exploration of how the horse-human-relationship enabled the development of situational awareness was an area worthy of investigation. However, to analyse if the horse-human-relationship offered an informed pedogeological approach to teaching the notion of situational awareness in theatre practice programmes, it is essential to understand how theatre-practitioners also perceive and develop situational awareness in their own everyday practices.

Therefore, because my research is a qualitative exploration of the horse-human-relationship and environmental influences, I wanted to employ a more-than-human lens to allow the horse and environment to have equal agency in the research. However, I also mobilised aspects of the Lefebvrian concept of rhythmanalysis (1992) as a lens to view and inform the research design, initiate the initial data codes, support the data analysis, and draw the findings together for the final discussion and concluding thoughts, to demonstrate how situational awareness is affected by the influences of 'the everyday'. Therefore, I created the more-than-human-Lefebvrian axis to provide a meeting point between the natural and human world to bring together how they both meet and impact each other. This axis will be discussed in depth later in this chapter.

1.4 Research Aim and Questions

1.4.1 Aim of the Research

The aim of my qualitative research is to explore the notion of situational awareness in the horse-human-relationship and its educational implications for the transference of knowledge to teaching situational awareness in theatre-practice education.

1.4.2 Research Questions

1. How can an understanding of situational awareness in the horse be used to inform teaching situational awareness to student theatre-practitioners?
2. Do the interactions within the horse-human-relationship provide information about the mutual development of situational awareness between horse and trainer?

3. Are there differences in the perception and development of situational awareness between horse-trainers and theatre-practitioners and if so, what do these differences tell us?

4. Can the research findings be applied to support curriculum development regarding the teaching of situational awareness for theatre-practitioners?

1.5 Positioning the researcher

I have ridden, worked and trained horses for many years, however after completing my equine science degree, I started training as an operating department theatre-practitioner and subsequently moved to higher education in 2008 as a senior lecturer in theatre practice. Therefore, understanding my provenance provides the motivating component for this research, as I have worked in all the fields represented in my thesis: horse-trainer, theatre-practitioner and university lecturer. However, while working in the perioperative environment as a team leader and manager, I realised how an acute level of situational awareness was key for theatre-practitioners to reduce risks and allow cohesive working which provides better care and patient outcomes. It is the theatre-practitioners' job to plan, prepare and monitor the patients' journey by assisting the medical team to always ensure patient safety.

By the time I had transitioned to university lecturer, research findings began to show that the majority of 'adverse incidents' in the perioperative environment occurred due to a lack of situational awareness, rather than clinical incompetence (Yule et al., 2006; 2008). I see situational awareness as the principle factor in all non-technical skills, and an essential skill, which complements competence, ensuring patient safety.

I found as a theatre-practitioner and horse-trainer I had been exposed to the need to be situationally aware to circumvent risk, respond to emergencies, and ensure collective safety through preparing, planning, and anticipating events on a moment-by-moment basis. Within both fields of practice, I found my situational awareness was dependent on my peripheral and immediate sensory awareness of the environment. As a horse-trainer, I found assessing my horse's mood and the environment was essential to reduce risk; equally, I found as a theatre-practitioner, assessing the environment was essentially my role within the perioperative environment and wider team. However, as a student theatre-practitioner, I

felt lost in my initial phase of training. Therefore, to understand my new environment, I turned to what I knew, which was the horse and the horse environment. By transferring this knowledge and my experiences to theatre-practice it enabled me to make sense of this new environment more effortlessly. As I became more comfortable in the perioperative environment, I found my situational awareness became more established, which I felt was because of my previous relationship with horses rather than my theatre training. Therefore, it is my own experiences of the horse-human-relationship which initiated my rationale to consider the horse as an agent which influences the development of situational awareness.

The decision to use the more-than-human lens comes from my own entanglement with horses and my belief it is a mutually beneficial partnership that creates human situational awareness. As a horse-trainer, I see horses as much as a teacher as I am a trainer, therefore, I wanted my research to recognise the horse as a central agent in the research to demonstrate how they offer insight into situational awareness. Equally, I recognised my positionality as an insider gives me a depth of knowledge between both frames of reference, giving me the opportunity to contextualise discussions by clarifying and interpreting the profession specific themes to support the readers understanding.

Furthermore, during my educational doctorate I have immersed myself within a range of theories, a particular theorist that resonates with me is Henri Lefebvre (1901-1991), specifically his theory of rhythmanalysis (1992). I feel this resonates with me because he brings together the internal and external influences of the natural and the human world to explain the existence, entanglements, and relationships all things have to each other, which knits together with the more-than-human lens as a concept that removes the essentialism of humans within the reality of the world. Lefebvre (1992) recognises this complexity by considering how the natural and the human world impact and collide with each other, creating and being created by causal events. Although Lefebvre (1992) does not consider the relationships and impact humans and horses have on each other's lives specifically, he does implicitly consider how the more-than-human influences the 'rhythms' of 'the everyday'. Therefore, I found Lefebvre's (1992) philosophy reflected my own positionality, by recognising how my own 'rhythms' and embodied experiences' with the more-than-human influenced my situational awareness in theatre-practice. To support the

development and clarity of my ideas I have presented at a number of conferences and share my initial thoughts with a variety of different groups to advance my methodology and lens within the more-than-human and Lefebvrian lens. (appendix 1: 213-215).

1.6 My Ontology and Epistemology

Ontology according to Denzin and Lincoln (2005: 183) "raises basic questions about the nature of reality and the nature of humans in the world". The definition Denzin and Lincoln (2005) put forward is pertinent for me as my world is shared with horses which impacts my way of being, equally my ontological view has expanded over time due to my ongoing exposure to different ways of thinking and addressing the research questions. Furthermore, my own reflexivity has demonstrated how my own 'rhythms' within 'the everyday' are influenced by the interactions I have with the more-than-human. The 'rhythms of the everyday', as described by Lefebvre (1992), are the outcomes formed from the impact and influences of the environment, and for me this includes the interactions I have with the horses. This stems from my own development and understanding of the world through my interactions with horses as a horse-trainer, but also the realisation of how this expanded to 'the everyday' of the more-than-human in the perioperative environment and its impact on my way of being. Additionally, I wanted the horse to have a central position in the research and felt using the more-than-human lens, and the 'rhythms' of the horse's natural ethology, would allow me to explore the uniqueness of the horse-human-relationship and how it enables situational awareness, to develop and transfer between species. By marrying these together, I feel my research will offer a more appropriate approach to the teaching of situational awareness in theatre practice and is therefore worthy of exploring.

As an experienced horse-trainer, theatre-practitioner and university lecturer, my view of the world has many aspects to draw upon and each influence my ontological framework. From a horse-trainers lens, I am drawn towards a position that humans and nature are inextricably linked - a view both Marx and Engels shared Engels and Marx, 1956). Engels wrote:

> In Part Played by Labour in the Transition from Ape to Man Engels (1934: 14) wrote "We by no means rule over nature like a conqueror over a foreign people, like someone standing outside nature – but … we, with flesh, blood, and brain, belong to nature, and exist in its midst…"

From this view I consider that humans and the more-than-human both have value within the communities and societies in which they dwell. Kohn (2007) describes it as being concerned with the entanglements between humans and other living things but equally this can be non-living things. Locke and Muenster (2015) explain that the more-than-human lens is used to acknowledge the interconnectedness and inseparability of humans and all other forms, living and non-living.

However, I am also a theatre-practitioner and university lecturer, which brings forth the humanist view of the world. For me this is the way as humans we view and respond to the world, this was termed by Edmund Husserl as phenomenology, a level of inquiry that focuses on how individual experiences impact on individual human concepts of the world (Hassan, 2023). Nonetheless, defining the essence of humanism for me, is the making of ethical decisions based on reason, empathy, and concern for human beings in conjunction with the more-than-human, for the benefit of one but not at the exclusion of the other. Dalke and Wels (2014), suggest more-than-human research finds epistemological frameworks problematic because as social researchers we are bound by our humanist lens. Therefore, establishing and releasing the tensions of essentialism over equality and similarities, proves difficult. From this stance I can say humanism influences my thoughts and actions, but more from a stance of the more-than-human world as inseparable interactions and relationships.

Nonetheless, how the 'rhythms of the everyday' influence perceptions are a matter of individual subjectivity, referring to the concept of reality as being fluid and independent of truth (Savin-Baden et al., 2013). Consequently, I consider human and non-human reality as individually unique to each individual and to each individual experience and thereby should be considered as individual truths. Taylor (2010) considers the impact of individual realities with social experiences, thus creating different social realities from individual perspectives but with collective understanding. Therefore, within a qualitative ontological ideology, realities can be agreed but how they are perceived is individualised and cannot be generalised, but can illuminate similar ideas to form concrete concepts with abstract understanding (Willis and Smith, 2000).

However, while my own epistemology derives from the understanding that reality comes from what Scott and Usher (1996) consider as unique experiences and perspectives of individuals, it is also entangled with my own perceptions. Therefore, how we understand the environment around us does not just rely on our visual or cognitive capacity but includes our sensory capacity and how situations affect our understanding and interpretations of the world around us. This means my own position as a researcher is influenced by my experiences as horse-trainer and theatre-practitioner, which affects my decision to interpret the world through the embodiment of the more-than-human lens and rhythmanalysis. Equally, Fryer (2020) suggests that events, and subsequent events in one's own life impact how perceptions are dynamic and altered within different temporalities. Therefore, my participant groups : the horse-trainers, theatre-practitioners, and I, are influenced by our own experiences, which formulate our personal perceptions as evidence of our truth between moments of time, and this understanding can be transferable across situations, emphasising situational awareness as a concrete abstract concept. This means situational awareness is a skill that can be individually developed but is perceived differently due to individual unique experiences.

In summary, my ontological position is centred to my conceptualisation that the world is made up of natural and human constructs that are affected and influenced by each other, which is the foundation of a reality that is dynamic. While the understanding and evidence of that conceptualisation of reality is a combination of my own and others' individual observation and experiences, which form the basis of understanding which alters between temporalities.

1.7 Exploring the Key Elements of the Research

At this juncture I feel it is pertinent to set the scene further and provide an overview of the key elements within my research: the perioperative-environment and the importance of situational awareness; and why the horse and the horse-human-relationship, with the aim to offer understanding of the different frames of reference and their critical relationships to situational awareness.

1.7.1 <u>Definition of Situational Awareness</u>

As suggested in the introduction, situation and situational awareness in the literature are used interchangeably but are considered as having two different meanings as Hone et al., (2005) clarified. Hone et al. (2005) explains, situational awareness is more about immediacy, whereas situation awareness is more about a slower process and is often sequential. In the perioperative environment the daily planning, preparation and carrying out of surgical procedures lies within the definition of situation awareness. However, in instances that require immediate action such as clinical emergencies, I would argue situational awareness is required. Therefore, the perioperative environment requires both situation and situational awareness. Due to the nature of the perioperative environment both sequential and immediate recognition of change is required, therefore throughout my thesis I will be using the term situational awareness to demonstrate how theatre-practitioners need to move between these two concepts.

1.7.2 The Importance of Situational Awareness in the Perioperative Environment

The importance of situational awareness in the perioperative environment was demonstrated by Yule et al. (2008) and Stewart et al. (2007) who suggest that most adverse incidents occur due to poor non-technical skills, primarily situational awareness, rather than technical incompetence (Leuschner et al., 2019). While Singh et al. (2006) suggest error occurs due to lost levels of situational awareness, equally, Leuschner et al. (2019) state 14.4% of surgical patients suffer an adverse incident with an estimated 5.2% being preventable. Additionally, consideration of surgical incidents has been reported in, Kohn's et al. (2000) report "To Err is Human: Building a Safer Health System" calling for the building of a safer healthcare system in, America. Meanwhile, in the United Kingdom the National Patient Safety Agency (NPSA) established in 2001, published the first list of 'never events' in 2009 (NPSA, 2009). Considering the perioperative environment specifically (which represents a small proportion of the calculated 'never events') between April 2019 and June 2023, there have been 579 incidents of wrong site surgery, 299 retained objects post-surgery, 131 wrong implants, and 22 occasions of incompatible blood products given (Never Events report, NPSA, 2019-2023). However, between 1st April and 31st May 2023, 65 'never events' were recorded in the perioperative environment alone. These statistics may appear

minimal over a three-year period; however, these events have devastating long term or fatal effects on patients, and their families, and cost the NHS millions in litigation and additional care each year. It is also worth considering these numbers represent a heavily restricted surgical service between March 2020 to May 2022 due to the Covid 19 pandemic. Therefore, I argue in the thesis that situational awareness is an essential skill that will not only have a positive impact on reducing 'never events' but provide safer patient care, while reducing costs to the health service.

However, whilst investigating the subject matter I found that the current literature focuses on understanding situational awareness as a largely mechanical cognitive process that relies on interpreting technology through sequential and logical thinking. Although this approach is used in aviation it has been transferred to the healthcare environment with developing reliance on health information technology. However, Patel and Kannampallil (2014) report the use of health information technology (HIT), although generally viewed in healthcare as a mitigating factor to reduce error, has little effect if not designed with consideration of situational awareness. I equally argue a reliance on HIT has a converse effect and limits the ability to be situationally aware as it removes the need to actively interact with the environment.

Nonetheless, there are some dynamic differences between the perioperative environment and the aviation industry (Gaba, 2011; Rogers, 2011) which have been blurred because situation and situational awareness has been used interchangeably. In aviation risk is managed through precise technological systems and operational procedures (Adams et al., 1995; Bartlet, 2017; Norman, 1991), the whole team rely on verbal communication to disseminate information as they are separated in locality. In contrast, in the perioperative environment the team are located together and led by dynamic and immediate changes created throughout the perioperative process, this requires a wider environmental level of interaction around simultaneous micro and macro data streams. Therefore, in the perioperative environment the whole team are core agents with less reliance on automated technology directly alerting them to danger, equally there is a need for them to be sensitive to non-verbal communication to read and disseminate information quickly. Therefore, emergency situations are more likely to be created by human error, such as, drug errors, retained foreign objects or failing to notice a deteriorating patient. Furthermore, 'never

events' can be caused by failure to notice and react to cues such as allergic reactions (NHS England 2018). Therefore, in the perioperative environment, individual and team situational awareness must come from self and the environment guided by knowledge, experience, and intuition (Casaway, 2013; Klein, 1989; Korkiakangas et al., 2014; Smith and Hancock, 1995). Nonetheless, there are similarities between theatre practice and aviation in terms of the importance of checking and preparing equipment as well as having sufficient knowledge and competence in the respective areas of expertise which are required for situational awareness. However, the major difference is the unpredictability of the perioperative environment that is often complex, fast paced, and dynamic, where the multiprofessional team must work together and continually exchange information to maintain a balance of patient safety and environmental control.

Therefore, I feel there is a 'gap' in the research to explore how situational awareness is perceived and developed by the clinical multidisciplinary team of theatre-practitioners with the aim to enhance patient safety, reduce adverse incidents, and promote the understanding and sustainability of situational awareness. I am approaching this from the horse-trainer's positionality as I believe there are more similarities between the horse-human-relationship and theatre practice than from the aviation industry. It is from these similarities that I hope to elicit flashes of insight that could inform teaching situational awareness to theatre-practitioners within higher education.

1.7.3 Why the Horse?

Within this section I will briefly outline why the horse is a useful subject to explore and develop understanding of situational awareness within the perioperative environment, which will be analysed further within the literature review. The natural ethology of the horse provides a biological and organic ability to be constantly situationally aware as a safety mechanism against predators (Irwin, 1998). This derives from their evolutionary characteristics: first, their unique eye structure provides a 360-degree visual capacity (Budiansky, 1999) of the immediate and the peripheral environment: Second, evolutionarily, adaptation is the horse's method of silent communication, which allows the horse to communicate within their herd and environment, intuitively and emotionally (Irwin, 1998). In essence, the horse's ethological characteristics make them intrinsically situationally

aware due to their sensory capacity, providing them with innate presence. These characteristics offer an analogy for the kind of situational awareness required in the perioperative environment.

As discussed above, the perioperative environment is complex and fast moving, requiring situational awareness individually, and as a team, to prepare, plan, or react to emergency situations. Therefore, the theatre-practitioner needs to have a peripheral visual capacity to see and interpret what is going on around them and communicate quickly and effectively between team members. If tunnel vision is applied, teamwork is unable to function efficiently, as the team need to be empathetically connected, to anticipate each other's movement and actions (Figure 1: 17), as occurs in a herd of horses. Therefore, the ethology of the horse illustrates an analogy of how theatre-practitioners could have a more developed sense of situational awareness if they could become more peripherally aware and develop an intuitive and organic sense of situational awareness, utilising an effective communication process throughout the team.

Figure 1. *List of characteristics that form the horse's situational awareness and influence the horse-human-relationship.* (Adapted from Budiansky, 1999)

1. The horse has the largest eye of any mammal.
2. The horse has 360-degree vision.
3. The human and horse have a connected relationship of mind and body.
4. Both species must adapt towards each other for interspecies communication.

1.7.4 The Horse-Human-Relationship

As suggested earlier it is the horse's natural ethology which provides a framework to understand how the horse-human-relationship allows for mutual development of situational awareness, providing the basis of my research and the foundation for my use of the more-than-human-Lefebvrian axis. This research will explore the horse-human-relationship through the interactions horse-trainers utilise with their horses, to understand how situational awareness is transferred between horse and human. The horse-human-relationship is considered unique, not only because of the level of body-to-body contact but also due to the requirement to develop a sophisticated level of communication between species to perform a variety of activities. These activities have been dependent on human

needs, from farming to horse racing and everything in between (Robinson, 1999). Consequently, these activities have created the need to develop a partnership between species that allows for the horse-human-relationship to be mutually beneficial, and which forms the foundations to my research question.

1.8 The More-Than-Human-Lefebvrian Axis

As stated earlier, my research aims to explore horse-trainers' and theatre-practitioners' perceptions and development of situational awareness through the lens of the more-than-human-Lefebvrian axis. This lens provides me with a way to view, compare and interpret both horse-trainers and theatre-practitioners respective ethology, training, and environments to uncover how their everyday experiences influence their development of situational awareness. This section will separately frame the importance of the more-than-human lens and rhythmanalysis (Lefebvre, 1992), by exploring how Lefebvre's (1992) theory of everyday interactions influences situational awareness, before viewing how the horse-human relationship develops situational awareness and its transferability into theatre practice and the perioperative environment.

1.8.1 The More-Than-Human Lens

Locke and Muenster (2015) explain the-more-than-human lens is used to acknowledge the interconnected and inseparable interactions between humans, environments, and other life forms to create cross-species social realities. Equally Carter and Charles (2013) advocate for research using the more-than-human lens, suggesting it has a lot to offer in the production of human knowledge. Meanwhile, Dowling et al. (2016) explains it is away to explore the complexities of the horse-human relationship. Therefore, both Locke and Muensters (2015) and Carter and Charles (2013) provide the foundation for my exploratory research lens of the horse-human relationship. Therefore, the more-than-human lens offers the opportunity to explore and understand how the relationship and interactions between humans and horses mutually influence each other (DeMello, 2012), specifically for my research situational awareness (Pacini-Ketchabaw et al., 2019). Although the more-than-human considers the decentring of humans, it does not aim to remove them rather to establish the duality of their relationship with other animals. While I have no intention of removing the

human element, which occurs in other more-than-human methodologies, the aim is to explore the horse-human-relationship as a co-production of knowledge by giving each agency status within the research (Birke and Thompson, 2018). Shapiro and DeMello (2010) clarify this position as viewing the horse beyond their relationship with humans, rather from the horses' lived experiences and our own human constructs of them. As Lorimer (2010: 238) states, it is hard to decentre the human-being and "put new concepts to the test", as it is not possible to separate yourself from being human. Consequently, my aim is to create a duality of space to recognise the interconnections between human and non-human relationships to form individual and mutual social realities of situational awareness.

It is important to note how the environment forms part of the-more-than human focus as it impacts on human activity as much as humans may impact on the environment (Ulmer, 2017). The environment is considered, from a Lefebvrian perspective in this thesis, as all that exists within a space that is not human, including the internal and external 'rhythms' which impact 'the everyday'. Lefebvre (1992) suggests the external 'rhythms are the natural and constructed 'rhythms' that impact 'the everyday'. While internal 'rhythms' within my research are concerned with what comes from within, and how they affect situational awareness, for example, emotion and energy levels, meaning they can be human and more-than-human. Therefore, both the internal and external environment has a relationship with how situational awareness is perceived and developed. Furthermore, the combined internal and external environment is saturated with unlimited and dynamically variable clues and cues, which requires situational awareness to be able to perceive, read and interpret them to provide meaning to inform action.

By using the more-than-human lens I am able to use a strategy of inquiry that brings together the environment, horse and human, connecting how the horse's natural ethology, and environmental stimuli impact on the perceptions and development of situational awareness for horse-trainers and theatre-practitioners. This is because internal and external environmental stimuli are common to both horse-trainers and theatre-practitioners' environments, creating a bridge to compare experiences. Equally the horse-human-relationship and perioperative environment is a two-way interaction, that I feel demands a more-than-human approach, because they are both concerned with living beings and

environmental stimuli. Kestenbaum (1977) and Savin-Baden and Major (2013:5) assert a strategy of enquiry "is the process of qualification and arguing the dialectic of the self and the world and how meaning comes into being." Therefore, as suggested by Råheim et al. (2016), it demonstrates the need for researchers' to be reflexive in their strategy of enquiry, allowing their own ontology and epistemology to guide and influence their research process to demonstrate their authenticity.

1.8.2 Rhythmanalysis

Rhythmanalysis is articulated through a complex accumulation of Lefebvre's (1992) last works published after his death in 1991. However, for simplicity rhythmanalysis can be considered as a way of thinking about how time and space are made up of multiple rhythmic interactions, and by analysing those 'rhythms' how we can develop an understanding of how time and space is constructed within different environments. Lyons (2019) suggests, Lefebvre's (1992) work on rhythmanalysis, allows for the understanding of rhythm from a multifaceted approach to appreciate the nuances of 'the everyday' through 'repetition and difference'. With consideration of both positions, I will explain within this section how I have mobilised elements of rhythmanalysis, with the concept of the more-than-human, as a lens to view situational awareness from the perspectives of horse-trainers and theatre-practitioners. It is noted that rhythmanalysis (Lefebvre, 1992) is borne from a Marxist theory and situated in humanist philosophies which do not traditionally fit with a more-than-human lens. However, Lefebvre (1992) is not prescriptive about how rhythmanalysis should be considered and encourages cross disciplinary research to explore and uncover new knowledge.

Lefebvre (1992) considers rhythmanalysis as one outcome connected by two parts, 'rhythms and analysis', creating rhythmanalyst, who are concerned with finding and understanding the 'rhythms of the everyday'. 'Rhythms' are concerned within the activities of 'the everyday', 'task and routines' that become mundane, unnoticed, and repetitive, for example grooming your horse or preparing the surgical environment; Lefebvre (1992) particularly uses reference to 'persistence' and 'change' within the moments of 'the everyday'. According to Lefebvre and Levich (1987: 9) what makes up 'everydayness' is the interacting and colliding of moments, "the concept of the everydayness does not therefore designate a

system but rather a denominator common to existing systems". Lefebvre and Levich (1987: 9) also refer to 'the everyday' as banal but surprising, as within the everydayness there can be a reveal of the "extraordinary in the ordinary", indicating over reliance of the replication of routine misses the 'differences' within the 'repetition' of 'the everyday', diminishing situational awareness. Therefore, it is the participants' understanding of their 'everyday rhythms' which holds the key to understanding their perceptions and development of situational awareness as unique and extraordinary.

A process of analysis is the second element of rhythmanalysis, which is concerned with becoming aware of 'rhythms' and analysing their importance within a 'time and space'. Lefebvre (1992) recognised that analysing 'rhythms' is concerned with engaging with all the senses to recognise the relationships that influence 'the everyday' and to understand their associations and interactions, thereby becoming a 'rhythmanalyst'. Lefebvre (1992) suggests the rhythmanalyst, picks up on the 'rhythms of 'the everyday', considers their situation and notices how the various 'rhythms' respond to each other. Therefore, the framework of my research considers the 'rhythms' of situational awareness through the 'rhythms' of the horse-human-relationship and the theatre-practitioners' relationship within the perioperative environment. The research itself has its own 'rhythms' which require situational awareness and a more-then-human lens to provide an avenue of analysis which expands beyond what can be seen to understanding what can be sensed, removing what McCormack (2013: 32) considers as the human "exclusive emphasis of the visual" and what Lefebvre notes as "sensory" engagement required to analyse 'rhythms'. Therefore, rhythmanalysis fits naturally with my research, as it allows for a framework that provides a lens to both explore and analyse the influences and the interactions within the 'everydayness' of horse-trainers and theatre practice - and the relationship the 'rhythms of the everyday' have to theatre-practitioners and professional situational awareness.

While examining Lefebvre's (1992) concepts of rhythmanalysis, I found he further illustrates, how the interactions of 'rhythms' in a 'time' and 'space', made up of 'moments' of 'repetition' and the banal, are interspersed with, what he calls, the 'liminal spaces' and 'moments of difference', concluding that it is across these moments where situational awareness is especially required. Therefore, I found utilising rhythmanalysis provides an

opportunity to view situational awareness from a position of interactions, required for theatre-practitioners, rather than just as a process of events, as seen in its use in aviation. Moreover, Lefebvre (1992) suggests rhythmanalysis should be used to explore and analyse 'rhythms' that make up different temporalities, allowing for the entanglements of opposite lenses, for example the horse-human-relationship and theatre practice, to come together to develop new knowledge. Lefebvre (1992) asks researchers to stop and listen and open our senses to the natural and constructed 'rhythms' of the world around us, enabling us to grasp the potential wisdom it holds for human society to learn from. Lefebvre (1992) equally advocates for the listening and understanding of self and one's own rhythm so the natural 'rhythms' of the planet can be conceived and analysed. Here Lefebvre (1992) suggests comprehending rhythmanalysis could start by understanding our own bodily 'rhythms', such as our heartbeat, as well as the 'cosmos' and 'cyclical' 'rhythms' such as the 'rhythms' between day and night. It is almost as if Lefebvre opened a portal, unintentionally, as a social Marxist, in which to consider the more-than-human world, by balancing the natural 'rhythms and the human constructed 'rhythms', to view the rhythmical entanglements of 'the everyday'. For Lefebvre (1992), and I agree, one cannot operate one without the other. Therefore, it allows for the meeting of two lenses, to explore how situational awareness is perceived and developed between species and within different environments through the consideration of the moments of 'the everyday' and their impact.

Subsequently, the horse-human-relationship interconnects with Lefebvre's (1992) theory of rhythmanalysis because it incorporates and expands on the primary consideration of the 'rhythms of 'the everyday', which as Lefebvre suggests influences everyday life. Lefebvre (1992: 206) states "What we live are rhythms - rhythms experienced subjectively". This implies that our own perceptions emerge from our own internal and external environments and are filtered through both our senses and how we are affected by them. Given (2012: 2) interprets rhythmanalysis as "based on a conception of people, places, and things (human and non-human) as having rhythms in relation to our minds and bodies" and the world we live in, our environments. This emphasises the way 'rhythms' are linked rather than fragmented, using these ideas. Therefore, within this idea 'rhythms' are viewed as abstract strands that connect and influence the moments of 'the everyday', and it is the moments of 'the everyday' that generate situations that requires situational awareness.

Lefebvre (1992) explains rhythmanalysis is "everywhere where there is interaction between a place, a time and an expenditure of energy, there is rhythm" (Lefebvre 1992: 15). Therefore 'rhythms', can be interpreted as being everywhere and are entangled and universal, there are constant murmurings of 'rhythms' that have both cause and effect on situations. However, Lefebvre (1992) returns to biological 'rhythms and nature and considers human space and time partly in nature and partly in abstraction. In other words, space and time are not only social constructs but have a primary place within the natural world. For me, this indicates that the natural 'rhythms' (which are cyclical) of the cosmos have an influence on the social 'rhythms' (which are linear), of human interaction, such as the horse-human-relationship has on developing situational awareness, or the concept of time has on human activity and situational awareness. As suggested by Brighenti and Kärrholm (2018), albeit not with this purpose in mind, rhythmanalysis as a research lens can move between disciplines towards a more diverse landscape, including, the more-than-human world that considers the 'rhythms and entanglements of the human with the more-than-human world.

Therefore, my research is exploring the more-than-human, by considering the entanglements of the horse-human-relationship in developing theatre-practitioners' situational awareness through the lens of rhythmanalysis. Consequently, I will be mobilising elements of rhythmanalysis as a lens which sits as an axis between the more-than-human and Lefebvrian rhythmanalysis (1992), as stated by Denzin and Lincoln (cited Lyon 2019:5) this approach "informs a study and the specific methods used to collect and analyse data". Simply I am working within an axis of the more-than-human and Lefebvrian framework to explore the influences horse-human-relationships have on developing situational awareness in horse-trainers and how this can be transferred to theatre-practitioners by considering the 'rhythms of the everyday'. Lefebvre (1992:1) suggests "rhythmanalysis can start in two ways, we can either study and compare cases, in other words focus on practice or we can start with a concept with full consciousness of the abstract in order to arrive at the concrete." Lefebvre (1992:1) continues, "rhythmanalysis follows this more philosophical route as it relies on more interdisciplinary thinking". Therefore, my thesis focuses on the 'rhythms', of situational awareness from a lens of Lefebvre's philosophical thinking, to consider how developing and perceiving situational awareness is influenced by Lefebvrian

concepts of 'rhythms' through 'dressage', 'space and time', 'repetition and difference', and 'presence' across two separate frames of references horse-trainers through the horse-human-relationship and theatre-practitioners and the perioperative environment.

For Lefebvre (1992), space and time are entangled, connected, and inseparable, in that they are tangible, produced and consumed within the temporalities of multiple environments. For my research, space and time is considered as the temporalities that hold 'repetition and difference' within the horse-human-relationship and perioperative environment. This encapsulates Lefebvre's (1992) concept of how the temporalities of time and space are built on moments of 'repetition' of the mundane, interspersed with 'difference'. Within the perioperative environment this is seen within specialities where the mundane of 'repetition' is interspersed with 'difference' through the employment of different techniques and equipment or time of day. This emphasises, Lefebvre (1992; 6) consideration that there is no 'literal repetition', where he says "there is no identical repetition …. there is always something new and unforeseen that introduces itself into the repetitive: difference." This concept is important as it connects the relationship 'repetition and difference' has within temporalities and their internal and external environments, which influences the individual perceptions and development of situational awareness, especially within the 'routines and tasks' of 'the everyday' in horse-training and theatre practice.

1.8.3 Mobilising Elements of Rhythmanalysis

The following section will demonstrate how I have used the lens of rhythmanalysis to understand the perceptions and development of situational awareness starting with 'presence' and moving on to 'dressage' and its relationship to 'repetition and difference', 'the everyday' within a 'time and space'.

With consideration of rhythmanalysis and the nature of situational awareness, there is a requirement for horse-trainers and theatre-practitioners to have 'presence' within the temporalities of 'the everyday'. To explore this further, I will define how Lefebvre (1992) interprets 'the everyday' and the importance in emphasis between 'present' and 'presence' and their position within my research setting. As suggested, Lefebvre (1992) expresses 'the everyday' as an assembly of 'rhythms' that are constructed between moments of

'repetition' and the mundane, interspersed with 'difference' within temporalities. Whilst 'presence' is attained through the analysis and understanding of the social, constructed, and natural environmental 'rhythms of the everyday'. Lefebvre (1992) explains 'present' and 'presence' as being different but inter-reliant "a dialectical relation, neither incompatibility nor identity: neither exclusion nor inclusion" (Lefebvre 1992:23). This is important, as it makes distinctions between the subject being 'present' in body but absent in mind (without conscious cognition), as will be discussed later, in the discussion around 'dressage'.

Having 'presence', rather than being 'present', allows for the seeing, sensing, and feeling of the environmental 'rhythms' and their impact between the mundane of 'repetition and difference' within 'the everyday', therefore, situating the theatre-practitioner within the 'liminal spaces', in essence allowing for situational awareness. Lefebvre (1992) continues to explain how 'the everyday' takes time to understand as it is fragmented into micro or macro levels that form biological, physiological, and economical 'rhythms'. Here I believe, Lefebvre (1992) is suggesting that 'rhythms' can be separated into internal micro influences that can dictate perception and understanding while the macro external environmental forces create natural, or constructed, 'rhythms'. However, to have a Lefebvrian sense of 'presence' requires a process of heightened understanding and learning, whilst the Lefebvrian concept of 'dressage', promotes the ability to be 'present' without 'presence'.

'Dressage' is depicted by Lefebvre (1992: 38) as representing "accepted values (that are taught), to learn a trade by following the right channels, but also to bend oneself (to be bent) to its ways," this includes the concept of breaking in, of humans, likened to training animals, in order to create and sustain acceptable behaviours, for example, to meet regulatory body standards for competent practice as required for theatre-practitioners. Therefore, 'dressage' is synonymous with human training, when training represents conformity to the social norms and constructs of communities, groups, or professions. In this thesis I am associating 'dressage' to the training of theatre-practitioners, horses, and horse-trainers to gain similar outcomes. Lefebvre (1992) explains his concept of 'dressage' as using 'repetition', as a method of habitualisation to create patterns of action to save time to produce similar outcomes. Lefebvre (1992:39) states "any action that is repeated frequently becomes cast into a pattern" " [this pattern] can be … "performed again in the

future in the same manner and with the same (reduced) economical effort". This creates less need to think or question but favours the following of instructions and becoming engrained in tasks, as in sameness and repeating behaviours.

Lefebvre (1992) considers habitualisation of 'dressage' in humans as a form of ritualisation, 'routine' and 'repetition', of the embedded actions or tasks that enable the desired actions and behaviours. It is ritualisation of 'routine' and 'repetition' that allows agents to be 'present' within the pattern and 'rituals' while absent in the mind, meaning there is no need for 'presence' only to be 'present' in body. Moravec (2022) considers Lefebvre's theoretical model of 'dressage' as not only describing the relationship between labour and economics but also how it affects human and animal relationships more generally. This idea of 'dressage' favours learning through practice, through predetermined learnt behaviours, which do not align to understanding and questioning practice. The main purpose of 'dressage' in a Lefebvrian sense is the breaking into 'routines' and 'rituals' to create unified conformed practice.

However, the notion of ''dressage'' which Marx (1867) suggests encompasses training in manufacturing, is the 'dressage' of the worker (labour), Lefebvre (1992: 39) expanded to affirm "One can and one must distinguish between education, learning and 'dressage' or training". Here Lefebvre (1992), I believe, is expressing how he feels the limitations 'dressage' places on autonomous action and thinking in relation to practice and self-development, should be eradicated in favour of autonomous thinking and learning. Lefebvre (1992) suggests mechanistic training through 'dressage', represents becoming accepted in society and/or community, or profession, by conforming to a 'repetition of practice'. Consequently, 'dressage' is analogous to the training aspect of fitting in and becoming ritualised to the requirements of 'the everyday' that is accepted in a homogenous curriculum which aims to meet regulatory standards of competency, such as theatre-practice training programmes. Whilst to develop self, to take it on oneself to know more beyond the curriculum, is a higher order level of learning beyond education and beyond 'dressage' aligning to Lefebvre's (1965) works of meta-philosophy. Here Lefebvre (1965) explores his interpretations of 'praxis' (practice), 'mimesis' (mirroring) and 'poiesis' (Self-efficacy) as ways of being and knowing. Lefebvre (1965) is suggesting praxis is a level of doing through 'dressage', and when coupled with mimesis is the ability to replicate 'non-

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literal repetition' through mirroring practice. Therefore, for Lefebvre (1965) 'praxis' is the action of practice, and 'mimesis' is the mimicry of 'repetition', which suggests 'dressage' encourages practice through the replication of 'routine'. Consequently, 'dressage' becomes a contradiction to learning, 'dressage' hides learning behind training linear thinking through 'repetition' and ways of replication. In these terms 'dressage' limits knowledge development focusing on ritualisation of 'praxis'. However, Lefebvre (1965) suggests there is a dialectic between 'repetition and difference', where difference is sought to make meaning of praxis', the gap between doing and knowing, theory and action, which leads to 'poiesis' through self-efficacy. Lefebvre (1992) explains this notion by arguing there cannot be any form of literal replication, therefore promoting the idea of creativity in thinking to interpret the 'difference's' that create non-literal replication. The term Lefebvre (1965) uses is 'poiesis' which moves 'praxis' and 'mimeses' forward into creative thinking, where, making new connections moves outside of 'repetition' to recognise the 'liminal spaces' between non-literal 'repetition and difference'. Thus, I am advocating throughout my thesis, bringing 'praxis' and 'mimesis' together, forms a method to align theory and practice which moves away from linear thinking to creating 'poiesis' to support the development of situational awareness in theatre-practitioners. Therefore, through 'praxis' and 'mimeses' the unseen effects of 'dressage' are stifling the development of higher order learning. From this perspective 'dressage' restricts human understanding and learning, which affects the ability to have 'presence' within 'the everyday'. Therefore, the ritualistic nature of 'dressage' as a model of training prevents individualised thinking, reduces learning within the moments of 'repetition and difference', as they go unnoticed, therefore reducing the ability to be situationally aware, but potentially supports a mechanistic and limited process of developing a foundational level of competency based situational awareness.

However, Blue (2017) brings forth a theory of 'praxis' defined as the unfolding of events within temporalities of more-than-human activity, connected by actions of 'repetition' which are linked by 'rituals' and 'routines' of Lefebvrian 'dressage', therefore supressing situational awareness as a concrete skill. This supports the idea that situational awareness is a concrete abstract concept, as it is required but often overlooked due to 'dressage' and thereby slips in and out of human consciousness often unseen and unconsidered through 'praxis'. Situational awareness as stated is defined as having three stages, perception,

comprehension, and projection (Endsley, 1995) but the very essence of situational awareness is held within the immediate and peripheral environment of 'the everyday' and becomes visible only when the familiar becomes unfamiliar. Within the perioperative environment the complexities and fast pace of an unpredictable environment require an understanding and sense of situational awareness. Within the horse environment, which is equally unpredictable, situational awareness comes from the horse and environment combined. Both, the perioperative practitioners', and horse-trainers' environments require action and reaction to maintain safety and avert an emergency, or dangerous situation, within different temporalities, therefore must move toward 'poiesis'.

It is by taking account of Lefebvre's (1992) ideas of 'the everyday' and considering the mundane of 'repetition' that we can look for the 'liminal spaces' of emerging 'difference' that requires 'presence', so they are noticed (situational awareness). However, incorporating 'dressage', potentially eliminates those 'liminal spaces' from our situational awareness. 'Dressage' removes presence in the moments of the mundane that, as Lefebvre (1992) suggests are individual levels of understanding the deeper influences that impact on the 'rhythms of the everyday'. Equally, 'presence' is influenced by temporality, where 'rhythms' can change at a macro or micro level and impact on the social interaction of communities, groups, or herds that in themselves create 'difference'. It is using these 'rhythms' in my research questions and data analysis, where the environment and interactions of both the horse-human-relationship and the theatre-practitioner's relationship to the perioperative environment, will be explored to understand their impact on developing theatre-practitioners' professional situational awareness.

The more-than-human lens and rhythmanalysis axis represent how the ethology of the horse demands agency in the research, due to the horses own natural level of 'presence', previously discussed. It is due to the horse's level of ethological 'presence' in the environment which transfers across the horse-human-relationship to create mutual situational awareness through the interaction of the cross-species interconnected 'rhythms'. It is both these forms of 'rhythms', which include the internal and external influences of the environment, that allow for the development of an interrelated, mutually embodied emotional dialectic. Therefore, it is the maintenance of mutual 'presence' within the horse-

human-relationship which influences perception and comprehension and therefore, by default, situational awareness because interrelated 'rhythms' evolve.

The process of rhythmanalysis as Lefebvre (2004: 12) proposes does not aim to "isolate an object, or a subject, or a relation, [But it] seeks to grasp a moving, but determinate complexity". Lefebvre (1992) considers 'rhythms' as aspects of moments made up of 'repetition' and 'difference', within a time and space. Lefebvre (1992) highlights the different levels of understanding 'rhythms' as 'present' or having 'presence'. In my research 'present' is considered to be what is understood through perioperative practice training ('dressage') as surface level of competence versus 'presence', the deeper understanding of the more complex perioperative environment through learning. 'Presence' has been argued in my research as a requirement to notice the liminal 'spaces' between 'repetition and difference' between moments, leading to situational awareness. Lefebvre further expands on his concept of analysis as the exploration and evaluation of 'rhythms' to interpret the moments of 'repetition and difference' within 'space and time', however, Lefebvre (1992: 39) warns that what is natural can be falsified in 'dressage', "Something passes as natural precisely when it conforms perfectly and without apparent effort to accepted models, the habits valorised by a tradition". In essence Lefebvre's (1992) concept of rhythmanalysis is allowing: the horse-human-relationship and theatre-practitioner, and perioperative environmental relationship, to be viewed as rhythms that change across temporalities and can be made meaningful through 'presence' to understand how situational awareness is perceived and developed.

However, for Lefebvre (1992), time and space are not separate, Lefebvre (1992) expresses how individual practices create their own temporalities. By this Lefebvre (1992) means individually, or an aggregation of people or others, make their own space within time, therefore space cannot be easily defined. Consequently, the horse-human-relationship and the perioperative environment create their own spatial practices within different temporalities. While Lefebvrian thinking separates time as 'free-time', 'constrained-time', and 'required-time', it allows space and time to coexists and infuses to create moments of 'the everyday'. However, each space-time continuum has its own 'rhythms' which are influenced through, and can affect, the 'rhythms' of an environment. Moreover, the subject (theatre-practitioner, horse-trainer) is not outside of the 'rhythms' but a part of it, the

subjects' senses are both part of, and form, an understanding of 'the everyday rhythms'. It is this premise which informs how I am using the lens of rhythmanalysis to compare the perceptions and development of situational awareness, between horse-trainers and theatre-practitioners.

In consideration of the perioperative environment, 'the everyday' is made up of the macro and micro 'rhythms' between process, people, spaces, and time, consisting of the mundane of 'repetition' of sameness (banal), including surgical lists, anaesthetic requirements, and procedures. This represents a level of ritualisation of working through temporalities, as the perioperative environment is made up of 'repetition', often within surgical specialities. Nonetheless, what needs to be recognised is how 'repetition' can be displaced within the moments of 'the everyday', which create the 'liminal spaces' before 'difference' emerges. This can be seen through individual patients within the perioperative environment undergoing similar procedures but there is 'difference' between ages, genders and physiological parameters, demonstrating 'difference' within 'repetition'. It is these 'differences' which create the 'liminal spaces', where 'difference' should be noticed and acted on through situational awareness. For example, changes occur in the patients' physiological status, changes in team members or changes within temporalities. To summarise the notion of 'dressage' represents how theatre-practitioners are trained to think and act and how 'dressage' creates conformity of practice, for example, adhering to a professional identity to meet and perform the same standards and follow the same process and procedure. However, the need to act and recognise the 'differences' within 'the everyday', through the moments of time and space, require 'presence' to be situated in the 'liminal spaces' between 'repetition and difference'.

Throughout the thesis I specifically consider the 'rhythms' that occur within the horse-human-relationship and the interactions and attunement which develops a mutual situational awareness across-species. Attunement within my thesis is closely linked to Lefebvrian 'presence' , meaning to be connected to and in tune with, the 'rhythms' of 'the everyday'. While for the theatre-practitioner it is the assorted bundles, bouquets, and garlands of 'rhythms' (Lefebvre 1992) that I will explore, in their training and practices, that influence the development of situational awareness. These will be connected and analysed

by exploring and interpreting the similarities and differences between horse-trainers and theatre-practitioners', 'rhythms' of 'the everyday' that impact on their development of situational awareness, and how the findings can be used to support teaching in theatre practice. For horse-trainers and theatre-practitioners it is the 'rhythms' which are both human constructs, and physiologically natural, that create the 'rituals' and 'routines' of 'repetition' while also providing openings for 'difference'. For me, it is the recognition and analysis of these 'rhythms' that provide the spaces to explore the perceptions and development of situational awareness across both groups.

1.9 Chapter Summary

Therefore, the decision to use the more-than-human-Lefebvrian axis to explore my research comes from my own provenance and has influenced my methodological research framework, design, and data analysis tool. Furthermore, Lefebvre (1992) considers how the environment is understood, by employing and using all the senses, which connects and impacts on 'the everyday rhythms' within the more-than human lens. Therefore, my research sits at an axis between Lefebvrian rhythmanalysis (1992) and the more-than-human, to consider how 'the everyday rhythms' of the horse trainer and theatre-practitioner, and their environments, are perceived and illuminated through cognition and sensory perception (Fryer 2020).

Moving the discussion forward, chapter 2 will utilise a scoping review to examine the range of available literature to formulate a synthesised critical discussion (Munn et al., 2018). The aim is to formulate a position of understanding of situational awareness as a notion, and how it is considered in the perioperative environment from the existing historical and current literature. The second part of the scoping review will explore the horse's ethology, and the horse-human-relationship and their implications and influences on mutual situational awareness.

Chapter 2 Literature Review

2 Introduction

There is a paucity of research literature regarding the perceptions and development of situational awareness in the perioperative environment from a theatre-practitioner perspective and its association to the horse-human-relationship. Therefore, I am unable to provide the current understanding of the perceptions and development of situational awareness from either perspective. Consequently, I approached my literature review using a proximal and approximal approach to synthesise what I considered to be important content to my thesis, by employing a scoping methodology (Munn et al., 2018). This included searching the wider literature that was concerned with the current understanding and knowledge base regarding situational awareness across aviation and the perioperative environment, including exploring current theatre-practice competency-based curriculum. I further explored how the horse-human-relationship develops a mutual cross-species situational awareness, as this is not an area that has been addressed within the horse-human research in any depth.

Using a scoping methodology allowed me to explore the literature using a proximate and approximate lens, exploring research data bases and the more peripheral literature, such as: PubMed; Medline; Web of Science and CINAHL; Researchgate; Science Direct and the wider literature pool, including books; regulatory body standards; reports; professional magazines; blogs, and associated websites to establish current understanding and thinking across aviation, the perioperative environment and the horse-human-relationship. This approach proved very valuable as many of the prominent thinkers of the horse-human-relationship are experts in their field but not necessarily researchers or theorists.

Therefore, initially my literature review used a proximate approach to gather information about situational awareness perception and development in aviation and the horse-human relationship. However, the current paucity in the research literature, regarding this aspect of situational awareness across both fields of practice, led me to move to an approximate approach to search the wider anglophone evidence to explore the current understanding of situational awareness from an aviation perspective and compare it with similar literature surrounding situational awareness in the perioperative environment and critical care. The

criteria for my literature review for this section was concerned only with the perceptions and development of situational awareness within the perioperative environment as well as how it fits into the current theatre practice curriculum model in higher education. As I moved out into the wider literature, I was drawn towards associated situational awareness elements such as team situational awareness, meta-awareness, and barriers to situational awareness within the perioperative environment, which demonstrates its complexities and importance to both the perioperative environment and the horse-human-relationship.

The second part of the literature review relied more heavily on an approximate approach, using the same scoping process. I started by exploring the horse ethology literature, as I was aware, from my own positionality and prior knowledge, this would start to provide a clear understanding of its importance within the horse-human-relationship. From this understanding I was able to move out to explore how the horse-human-relationship provided the opportunity to develop situational awareness and its significance to the perioperative environment. I was surprised to find a plethora of research on the horse-human-relationship, which I was not expecting, but it did inform my research trajectory. Much of the horse-human research did not match my search criteria, as my scoping review focused on the horse's ethology and the impact this had on the complexities of the horse-human-relationship including mutual interactions and the impact on human activity. Refer to appendix 2 (216-217) for an overview of the literature review strategy and inclusion and exclusion criteria.

2.1 Comparing Situation(al) Awareness

As outlined in chapter 1, situation and situational awareness have different meanings but are often used interchangeably (Hone et al., 2005). Although I am using situational awareness to consider both terms within my thesis, it is worth considering the differences between the two-terms in more depth to understand why this ambiguity is problematic within the perioperative environment. Situation awareness as described by Endsley (1995), who is considered as a leading authority of situation awareness in aviation, is a three-level model based on cognition and procedures, which is suitable for a slower more systematic process of thinking based on cognitive performance. Endsley (1995) defines situation awareness as having three elements, perception, comprehension, and projection within a

volume of time and space (Diagram 1: 34). Therefore, Endsley's (1995) model is concerned with an immediate situation within a given temporality and how that situation is perceived and dealt with. Therefore, Endsley's definition suggests situation awareness is, seeing, understanding, and responding to stimuli within a time frame, which on the surface fits any environment. Endsley's model (1995) equally draws on Dickinson's (1976) stimulus-response theory, whereby any response is guided by stimuli. However, although this works well as a slow systematic cognitive process, which is suited to the aviation industry where technology provides conclusive information, it does not consider the variable impact living beings have on environments such as the perioperative or horse-trainers environment, where sensory attention is required, meaning situational awareness moves beyond cognition to include all the senses.

Conversely, situational awareness considers the living, and dynamic environment, where immediate direct action is required (Hone et al., 2005). From this perspective situational awareness can be considered as the interaction between self and the environment to initiate action from environmental stimuli. This description equally aligns to Dickinson's (1976) simulation-response theory, where all stimuli initiate a response.

Diagram 1: *Endsley's 3 level Situational Awareness Model (1995: 29)*
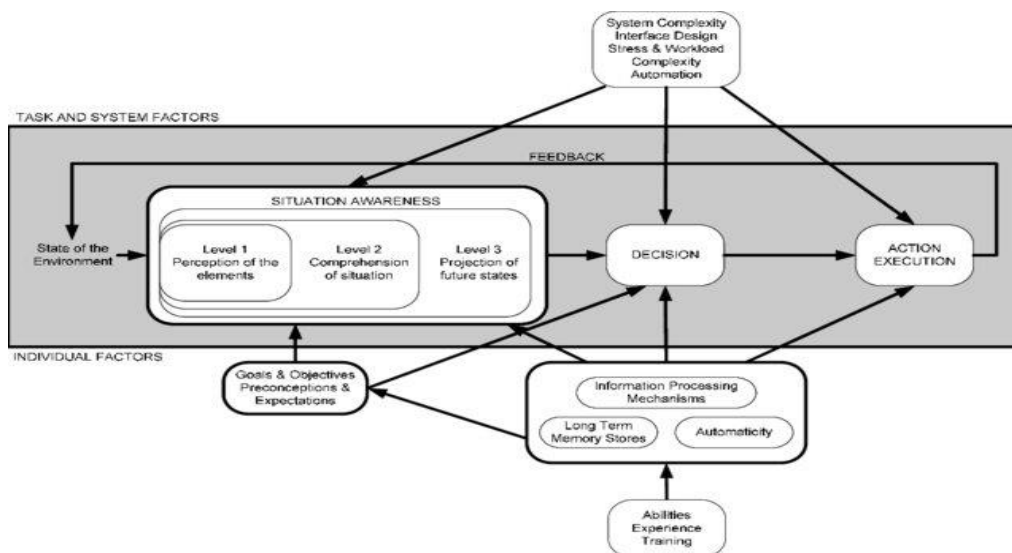
However, situation and situational awareness are considered within immediate temporalities, emphasising both are concerned with either singular, or a series of isolated events, which require the perpetual reading of the environmental clues and cues and

attentional ability (Abernethy and Russell, 1984; Niedeffer, 1976). Nonetheless, neither term appears to consider the wider dynamic internal and external environmental 'rhythms of the everyday' (Lefebvre, 1992) and how they respond to each other. This is important because within the perioperative environment, wider internal and external environmental considerations are required in order to have full situation(al) awareness to notice and understand the complex 'rhythms of the everyday'.

Therefore, it seems problematic to employ Endsley's (1995) process model, even if modified, within the perioperative environment, as it leaves little regard for the fast pace, and often ambiguous clues and cues within its complex dynamic environment. This is evidenced in Mitchell et al.'s (2013) taxonomy of surgical non-technical skills, which expresses situational awareness as the gathering, recognising, and understanding of information to be able to anticipate events. Mitchell et al.'s (2013) taxonomy mirrors Endsley's (1995) model but ignores how the perioperative environment is a perpetually changing environment made up of living data streams as well as technical ones. Even though the cognitive process is well evidenced and appropriate for aviation situation awareness, where it has been researched to assess an individual's ability to be situationally aware (Cooper et al., 2013; Endsley, 2000), it may not be the best fit for the perioperative environment, where a balance of cognition and sensory attention is required across a wider internal and external environment.

Casaway (2013), expands on Endsley's (1995) and Flin et al.'s (2008b) definition by suggesting situational awareness is an individual's ability to perceive information (clues and cues) about what is happening in their environment, and to understand the meaning of those clues and cues and then be able to make accurate predictions about future events. Casaway's (2013) definition, equally brings in a new element that suggests situational awareness depends upon observation, alertness and vigilance that assumes being aware needs consciousness of the environment to notice the clues and cues provided within it, but this still does not take account of the whole environment as a living organism that can change dynamically. Previously Klein (1989) had suggested situational awareness should include attention to clues and cues to support the decision-making process, however, the noticing of the most subtle of changes within the environment requires a level of personal

and interpersonal interaction and skills which moves towards a healthcare perspective (Mitchell and Flin, 2008).

Consequently, further consideration of how situational awareness is defined within the perioperative environment would emphasise its importance and value, however, this is problematic as there is not one single consensus or definition of situational awareness that meets either requirement.

2.1.2 Positioning Situational Awareness

In the last decade, situational awareness has been in danger of becoming oversimplified in the perioperative environment according to Hamming (2015), because of the generalisation of its meaning as a term to mean attentive. Green et al. (2017) equally warn of the danger of oversimplifying situational awareness by forgetting it has many integrated, interwoven parts, and sub parts that draw attention to actions and changes within the environment.

Stanton et al. (2001) outline three theoretical approaches to situational awareness, information processing, interactive, and ecological. The information processing theory is demonstrated through Endsley's (1995) three level cognitive model which focuses on building and aligning information from previous experiences to current situations by perceiving, comprehending, and predicting outcomes. On the surface this provides a reasonable process of considering situational awareness but, as argued earlier and later, it does not allow for the consideration of the interactional and dynamic context that the perioperative environment represents. Meanwhile Bedney and Meister's (1999) activity sub-system model, comprising of eight functional blocks based on individual goals and motivations, does little to solidify the idea and need, to adapt perceptions to changing data streams (Appendix 3: 218). Therefore, the main limitation with the above models is their lack of focus on the wider elements of the peripheral environment, impacting on accurate perceptions of the perioperative environment. However, Smith and Hancock (1995: 137) partly address this from their ecological approach, suggesting it is the perpetual interactions which occur between the elements in the environment which require attention to be situationally aware, which they define as "adaptive and externally directed consciousness", although similarly their work is based on aviation. Therefore, Smith and Hancock's (1995) ecological theory expanded the stimulus-response theory proposed by Dickinson (1976) by

expanding how perpetual clues and cues and their influences in the environment need to be understood. Equally, Smith and Hancock's (1995) theory suggests an attunement with the 'rhythms' of the whole environment and any influencing factors, as illustrated in their Perpetual Cycle Model (Diagram 2: 37).

Consequently, the ecological theory supports my research exploration of how situational awareness in the perioperative environment, is a mix of individual and collective knowledge, understanding and sensory perception of the wider living environment, in order to recognise the instability and changing 'rhythms' that occur in each moment of 'the everyday' within the perioperative environment.

Diagram 2: *The Perceptual Cycle Model of Situational Awareness* (Hunter et al., 2020: 5: Adapted from Smith and Hancock, 1995)
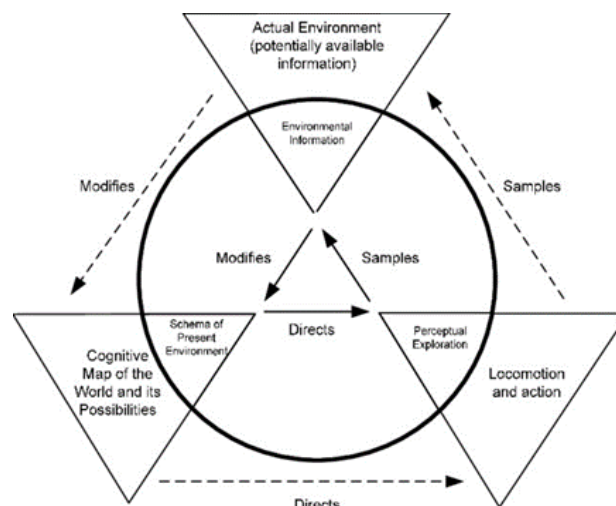
2.1.3 Perceptions of Situational Awareness: Healthcare

Previously Flin et al. (2008a) implied situational awareness within the perioperative environment as simply the relationship between an individual and their environment. However, Flin et al. (2008b) refines their thinking further to reducing their suggestion that situational awareness is simply knowing what is going on around you. However, both of Flin et al.'s (2008a; 2008b) positions, suggest there is a relationship between self and the environment, however neither definition express what is meant by relationship, therefore essentially it is oversimplifying the importance and value of situational awareness within the perioperative environment. Previously Moray (2004) similarly stated that situational

awareness is simply knowing what is going on around you, or having an idea about the bigger picture. Green et al. (2017) warn how simple definitions of situational awareness will devalue its importance. Consequently, this oversimplification of situational awareness within the perioperative environment affects how it is perceived and developed by theatre-practitioners. Therefore, it appears, while trying to define situational awareness as a skill within the perioperative environment, that there has been a return to a simpler meaning over a more integrated approach, used within this thesis. This has led to the over reliance on a process methodology, rather than considering a more interactive environmental approach to reduce adverse incidents that meet the needs of a dynamic and complex environment.

Earlier Harwood et al. (1988), considered how environments are always influenced and affected by what may be considered as repetitive 'routines', but those repetitive 'routines' always created 'difference', which resonates with rhythmanalysis (Lefebvre, 1992). However, it is worth noting Harwood et al.'s (1988) research was based on aviation rather than healthcare, therefore requires interpretating to provide meaning to situational awareness in the perioperative environment where the wider environment requires consideration beyond the immediate, which aviation focuses on. It is the recognition of, and attention to, 'repetition' in 'the everyday' that underpins the concept and complexities of situational awareness. In other words, continually checking separated processes in a holistic environment is not enough to be situationally aware in a dynamic environment that is continually being updated in accordance with ongoing events and influences that may incorporate very subtle clues and cues. This means in a Lefebvrian sense 'presence' is required to be ecologically and more holistically situationally aware (Harwood et al., 1988, cited Sater and Woods, 1991:47; Smith and Hancock, 1995). Therefore, from Lefebvre's (1992), explanation of 'presence' and 'present' the difference is knowing and being aware of the environment you are a part of rather than a more superficial level of just being situated within an environment. 'Presence' therefore provides situational awareness, by recognising there are many different 'rhythms' and how each respond to the other, providing the ability to be prepared for 'difference' by perpetually reading the environment. Thereby having sustained situational awareness by being situated in the 'liminal spaces' between 'repetition and difference'.

2.1.4 Situational Awareness within the Perioperative Curriculum

As stated in chapter 1, theatre-practitioners consist of two sets of professional groups, operating department practitioners (ODP) and nurses, however, both professional groups undertake separate undergraduate programmes to qualify. This becomes problematic when considering educational experiences within higher education and clinical placement setting. Further obstructions to understanding higher educational experiences in theatre practice programmes relate to the limited supporting literature which defines how theatre-practitioners develop situational awareness. However, by critiquing the current training programmes in the United Kingdom and assessing the importance situational awareness is given within the curriculum provides a reliable gauged. Current workplace training focuses on competency-based assessment, which assesses performance by meeting professional proficiencies as performance indicators within a spatial-temporal time frame (Chartered Institute of Professional Development (CIPD) 2023; HCPC, 2022; Leander and Hollett, 2017; Marriott, et al., 2011; HCPC, 2022; NMC, 2018; NMC, 2023). The Chartered Institute of Professional Development (CIPD, 2022) explain, due to the advances in technology, performance indicators have shifted from behavioural to higher level technical skills, therefore demonstrating an over reliance on the required technical skills over non-technical ones, which conversely reduces their value. It may have been expected, with the move to an all-graduate healthcare education system in 2012, the approach to attaining skills and the emphasis on tasks may have incorporated the non-technical skills within the performance indicators to provide a balanced approach, however the current curriculum demonstrates it has been given little attention (HCPC, 2022; NMC,18; NMC, 2023,). Therefore, the education process as Garavan (1997) described, which involves training, education and learning to provide learners with the appropriate skills, knowledge, and attitude, is falling short, as more emphasis has been put on advanced technical skills, in place of developing theoretical knowledge and non-technical skills. However, Sullivan and McIntosh, (1996) do explain how competency-based teaching and assessment rely on measuring clinical proficiency and skills as the primary evidence of attainment, which historically forms the basis of competency-based training in healthcare (Benner, 1982; HCPC, 2022; NMC, 2018). Therefore, the evidence suggests providing a more balanced educational programme for nurses and

operating department practitioners remains in the familiarity of practice rather than developing a new approach.

However, even though the current teaching curricula aims to produce competent professionals, there remains the misconception that high level technical and task focused skills predict ability and builds skills such as situational awareness (Graafland et al., 2014; Marriot et al., 2011). This illustrates, how clinical skills have been the focus of healthcare education in the belief that competence in these areas' equals expertise (Fryer, 2017). Furthermore, competency-based education identifies specific skills to enable learners to develop them individually but does not necessarily provide an informative process of understanding or the aggregation of these skills, and how they can be transferred across situations (Bates, 2019). For example, understanding blood clotting factors, but not their importance within a specialised hepatic theatre and how this can reduce adverse incidents, therefore reducing situational awareness. Further, Clarke (2021) clearly explains the importance reflective practice has on developing learners' ability to scaffold learning through self-awareness and interpersonal skills which are required within the standards of education for both NMC (2020: 2023) and HCPC (2022), and yet its value is superseded by measuring skills and proficiencies rather than how we support their development. Hence, more significance has been placed on the visible and measurable skills rather than the more invisible ones such as situational awareness and the way it is achieved (Mackin et al., 2019).

Consequently, this over dependency on competency-based training has led to an over reliance on situational awareness being developed during perioperative placement learning (Mackin et al., 2019) which Jones et al. (2010) advocated as beneficial, while Dedy et al. (2013) stressed requires amending. These differences of opinion are based on outcomes of a competence-based curriculum, which potentially offers theory without application, or application without theory, resulting in inconsistent acquisition of developing skills such as situational awareness. The importance of moving away from a competency-base curriculum is the recognition that competency-based assessment is only able to assess the measurable visible skills, therefore, directly affecting the development of the invisible skills, such as situational awareness, required for competent practice, leaving a gap in learning. However, the Quality Assurance Agency (QAA, 2022), has recognised the importance of teaching the invisible skills, but stresses students need explicit guidance to understand the aims of the

hidden curriculum, which refers to some of the unseen skills needed to meet the visible aims and objectives of the programme, such as situational awareness. Equally, simulated practice learning is advancing which offers opportunities to incorporate the invisible skills more effectively and improve patient care (Brazil et al., 2019).

However, I argue the importance of situational awareness is compounded by the fact there is not a clear definition and understanding of situational awareness within the perioperative environment, due to the reliance on aviation research and acceptance of a simpler definition (Green et al., 2017; HCPC 2022). Nonetheless, theatre-practitioners, within their training, are expected to meet their professional standards of proficiency (HCPC, 2022; NMC, 2023), however, even the standards do not emphasise the importance of human factors inclusive of situational awareness, although there is implicit reference to non-technical skills as an overarching term, which does little to emphasise the importance of situational awareness. Therefore, for theatre-practitioners to meet the requirements of developing non-technical skills, including situational awareness, the Health and Care Professions Council and Nursing and Midwifery Council will need to introduce a more substantive and pedagogical approach to their standard of proficiency. The development of the proficiencies to address the gap between technical and non-technical skills will reduce the risk of situational awareness only developing by chance, which I argue is essential to ensure safe practice. Moreover, there is a requirement within the healthcare service that health professionals develop, train, and maintain non-technical skills which the World Health Organisation (WHO, 2009) and Patient Safety Curriculum Guide (multi-professional edition, 2011) stress are essential. Furthermore, Larsson and Holmstôm (2013) acknowledge clinical, and non-clinical skills are also required to make informed decisions and judgements within complex and dynamic environments such as the perioperative environment. Consequently, one of my recommendations that is arising out of my study is the call for a more robust description, definition and pedagogical approach to strengthen the requirements of situational awareness in the perioperative environment, as this would be a positive move forward to meeting achievable outcomes and adding value to the curriculum, as well as enhancing patient safety.

Equally, the lack of value given to situational awareness is noticeable in the Non-Technical Skills for Surgeons (NOTSS) and assessment criteria and Non-Technical Skills for Anaesthetist

(Fletcher et al., 2002; Glavin and Maran, 2002; Yule et al., 2006, 2008). Although situational awareness forms part of this criteria, it is not ranked as the foremost and important skill. However, arguably the importance of understanding and being situationally aware is the framework in which communication, teamwork and leadership can function effectively in the complexities of the perioperative environment (Flin et al., 2015; Gluyas et al., 2019; Stubbing et al., 2012). Equally, there has been increasing evidence that perioperative adverse incidents are due to a failure in situational awareness rather than competence (Harmer, 2005; Yule et al., 2006). There are a number of studies conducted within the perioperative environment highlighting how adverse incidents occur when there is a breakdown of skills, such as team working, leadership, communication, situation awareness, and decision making, (De Leval et al., 2000; Edmondson, 2003; Halverson et al., 2011; Helmreich et al., 2004; Schaefer et al., 1995; Stevenson et al., 2007; Stewart et al., 2007), which appear not to be uncommon, leading to errors and poor outcomes including avoidable deaths (Christian et al., 2006; Templeton and Feinmann, 2006). However, to effectively work and manage patient safety, I believe situational awareness is the foremost requirement and foundational skill, nonetheless all the skills are entangled, therefore it is not possible to simply compartmentalise one skill that informs situational awareness but we must consider it as an amalgamation of many skills.

Even though the literature indicates situational awareness as an influencing factor in reducing adverse incidents, there is limited research regarding its development and how it is perceived. Although there are tools to subjectively measure situational awareness, in the perioperative environment they do not address how to improve this skill. Therefore, without a clear definition and theory specifically for the perioperative environment, it is difficult to assimilate into the theatre practice curriculum meaningfully. However, there is research which offers some insight to understanding how situational awareness is perceived and developed by medical staff within the perioperative environment, which can be transferred to clinical staff were there is little research (Fioratou et al., 2010). These studies will be explored more in the following sections to investigate their importance and transferability across professions, including how situational awareness is a collection of skills and characteristics rather than a single skill.

2.1.5 Situational Awareness in the Anaesthetic Phase

Although much of the research in the anaesthetic phase (Fioratou et al., 2010; Haber et al., 2017) focuses on the anaesthetist, it is worth exploring to understand how it applies across the multidisciplinary team. The anaesthetist, like the surgeon, has a single but essential role within the perioperative environment requiring them to interpret and focus on individual requirements to ensure patient safety. However, it is this requirement that can lead to a more task focused approach, considered as a barrier to situational awareness, as it deflects from engaging in the wider peripheral environment. However, according to Fioratou et al. (2010), effective patient safety within the perioperative environment is highly dependent on the anaesthetists' sense of situational awareness, before, during and post-surgery, which can be argued, is applicable to the whole team. Therefore, Fioratou et al.'s (2010) findings can be interpreted as transferable across the clinical team, which includes meta-awareness, observation to detail and updating understanding from consistent attention to changing factors within the environment.

In support of developing situational awareness Fioratou et al. (2010: 83) interprets Endsley's (1995) definition as cognitive processes that are "in the head". Fioratou et al. (2010) clarifies this as how the anaethetist should be thinking of and identifying three key aspects of changing environmental factors; detection and interpretation of environmental cues from multiple sources; adapting to evolving situations and keeping track of changing data streams- to utilise specialist knowledge. These three key aspects are equally applicable across all phases of the perioperative environment, requiring cognition and sensory perception, therefore are applicable to the whole perioperative team and are skills that diverge from Endsley's (1995) process model. Moreover, Fioratou et al.'s (2010) interpretation moves towards a clearer understanding of what situational awareness involves in the perioperative environment which supports Fletcher et al.'s (2004: 168) previous work, that is developing and maintaining overall dynamic awareness of the situation based on perceiving elements of the theatre environment, inclusive of the "patient, team, time, displays, and equipment". Fletcher et al. (2004) asserted the notion that the interaction and relationship between the anaesthetist (and/or other practitioner in the perioperative environment) supports the development of their own and potentially others situational awareness, which Fioratou et al (2010) did not continue to consider in

their study. This means Fioratou et al (2010) considered what situational awareness is, but inadvertently created a gap in the progressive understanding of how situational awareness is developed, in the perioperative environment. However, Fioratou et al. (2010: 83) provided the term "anaesthetist-environment relationship" to explain how the anaesthetist should interact with the environment, offering an insight into the concept of environmental attunement, or level of 'presence' due to wider understanding of the internal and external environment.

Larsson and Holmström's (2013) research found that intuition in experienced anaesthetists develops more refined situational awareness skills. Larsson and Holmstöm (2013) use Polanyi's (1962) consideration of intuition, or tacit knowledge, to define their meaning, that is, tacit knowledge, which is often associated with intuition, comes from performing actions which creates knowledge. In essence, intuition is based on created knowledge through experience, understood through reflective practice. Reflective practice utilised effectively, by positioning experiences within both a theoretical and outcome context (Bolton, 2010; Clarke, 2017; Schön, 1983), creates wider understanding, emphasising the importance of reflective practice in developing situational awareness and intuition.

Larsson and Holmstöm (2013) study evaluated the observations from anaesthetic nurses in Sweden on anaesthetists' performance of situational awareness. In Sweden, anaesthetic nurses work closely with anaesthetists, which Larsson and Holmstöm (2013) felt provided valuable information of the characteristics which support excellent anaesthetic non-technical skills. Part of these findings found that good levels of situational awareness were evidenced by how prepared the anaesthetist is due to their level of situational presence, however presence, here, maybe referring to attention to the task and decisions being made, rather than Lefebvre's (1992) concept of 'presence'. Larsson and Holmstöm (2013) also surmised that excellent situational awareness skills allowed for core problems to be better evaluated and other nonrelevant aspects filtered out, which again is a skill required by the whole team. Therefore, refined situational awareness as considered by Larsson and Holmstöm (2013) is more about situational filtering, which as Polanyi (1962) suggests, can support intuitive action. Simply, filtering is a process by which information that does not affect or influence the situation can be disregarded in support of relevant information, a

process that develops with experience and knowledge creation, and one horses exhibit naturally as filtering through desensitisation or habitualisation (Cooper, 1998).

Haber et al. (2017) found the majority of anaesthetists they studied felt they learnt situational awareness through clinical practice experiences, self-reflection, in and on practice (Schön, 1983) as well as through role modelling, while some did indicate clinical practice simulation played a part in their situational awareness development. However, they felt they lost some of the real-life clues and cues because clinical practice simulation was artificial, so was less effective overall. While Ablidgren et al. (2022) found in their systematic review there were benefits to simulation-based training for the development of non-technical skills, as they provide an opportunity to form experiences and create knowledge, there was no strong evidence it reduced adverse incidents. However, Haber et al. (2017) further explored how anaesthetists perceived situational awareness, finding that although it was considered important, they did not teach it themselves to trainee anaesthetists explicitly, and neither were they formally taught it in their own training. This resonates with earlier discussions, notably, Fore and Sculli (2013) and Sculli et al. (2011) who found that situational awareness was a skill that was not fully taught or understood in healthcare despite learning and reflecting in practice. This equally resonates with how the theatre practice curriculum places less weight on the less measurable competency-based skills as discussed earlier, which Larsson and Holmstöm (2013) found was also the case in medical education, which impacted the development of situational awareness in medical practitioners because it was not taught. These findings demonstrate the importance of placing more weight on non-technical skills within a curriculum to support the development of situational awareness and reduce error, as I advocate for within my research recommendations.

In Fore and Sculli's (2013) research, participants provided a list of potential situational awareness characteristics including vigilance, presence, filtering of non-relevant information and the need to prepare and anticipate. There were further references made to the ability to have intra- and inter-personal awareness and emotional intelligence, driven by self-determination and motivation to succeed (Maslow, 1993; Ryan and Deci, 2008). These skills suggest development beyond cognition is needed to inform intuitive and tacit ability to connect to the environment without being able to fully articulate how (Wessels, 2018). The

value of the skills outlined above becomes evident when considering situational awareness as a skill that requires cognition and sensory perceptions. Sensory perception is required to be able to read and interpret the environment, which is explored in more detail in the subsequent section. While self-determination enables the transcendence of 'dressage', as outlined previously in chapter 1, as a requirement to meet the cognitive element of situational awareness.

2.1.6 Situational Awareness in the Surgical Phase

The role of surgical practitioners is essential to patient safety as they assist the surgeon by gathering, preparing, checking, and controlling the flow of instruments to maintain sterility and being mentally aware of what comes into and out of the surgical area (Flin et al., 2015; Kang et al., 2015; Mitchell et al., 2013; Nomikos, 2018). Nonetheless much of the research in this phase focuses on surgeons, however, there is some research that considers the characteristic surgical practitioners' display to be situationally aware (Park and Chang, 2022). Mitchell and Flin (2008) and Park and Chang (2022) emphasise surgical practitioners need to be situationally aware to fulfil their role efficiently by maintaining a consistent level of focus in order to predict the surgeon's needs. Consequently, it is situational awareness which allows the surgical practitioner to pre-empt and anticipate procedural requirements, which is essential for the role (Mitchell and Flin, 2008). While Riley et al. (2006) found that surgical practitioners in Australia referred to situational awareness as "judicial wisdom", and characterised it as the ability to pick up on clues and cues of the environment and surgeons by interpreting their demeanour. Equally, Riley et al. (2006) found skills for situational awareness included listening and observation, the ability to pick up on the clues and cues the environment offers to alert the surgical practitioner to changes, which included changes in voice tone and body language. Therefore, Flin et al.'s (2008b: 17) simple consideration of situational awareness, "knowing what is going on around you", has more depth to it than it appears on the surface. By knowing what is going on around you suggests a level of focus beyond cognition to include all the senses, and the ability to pick up multifaceted environmental information. Additionally, Flin et al. (2008b) hint that picking up on environmental information allows for interpreting its effect through filtering and deciphering its meaning, for example, visual changes in the surgeon's focus can be filtered by accompanying noise to understand the meaning. This relates to Endsley's (1995) second

element of situational awareness, comprehension which suggests you can only notice something if you comprehend it, but if situational awareness incorporates a sensory capacity, it allows for noticing 'difference' without full comprehension, simply, 'difference' is noticed because it is a change from 'repetition'. However, Flin et al. (2008) do not take this further by exploring intuition and non-verbal communication, which Larsson and Holmstöm (2013) and Harber et al. (2017) considered as integral elements of situational awareness in their studies.

Within western thinking verbal communication is privileged over non-verbal communication as it is considered a "necessary precursor to both reflection and intelligence" (Lingis, 2007, cited Argent 2012: 45). However, Kang et al. (2015) found that scrub practitioners were able to read the situation by knowing their surgeon and reading non-verbal clues and cues. Korkiakangas (2014) equally suggests surgical practitioners are vigilant within each stage of a surgical operation which gives them the ability to anticipate the next step without verbal instruction. Kang et al. (2015) equally found surgically trained practitioners were able to effectively read non-verbal clues and cues, unconsciously given, to prepare more effectively. Park and Chang (2022) found that scrub practitioners embodied perioperative surgical skills through the comparison of normal and abnormal situations, highlighting 'difference'. Therefore, the ability to non-verbally communicate enables the theatre-practitioner to support the surgical team, especially in stressful situations, which may provide a calming effect and reduce tension which may circumvent error. Although this suggests a very intense and focused attention to detail, it supports the need for a wider more peripheral understanding of the perioperative environment so that the surgical practitioner can direct attention to different areas within a time and space, quickly and efficiently. It also demonstrates the theatre-practitioner's ability to treat each case differently, therefore, not becoming caught in the trap of 'repetition' by having the ability to filter the non-verbal clues and cues within the perioperative environment, as suggested earlier by Fore and Sculli (2011) as a necessary requirement for situational awareness.

Fracker's (1988: 102) definition concerns the concept of 'zones of interest', the areas of focus with the perioperative environment, such as surgical operations. However, this concept potentially limits peripheral vision as it suggests the need to focus on one specific area rather than a wider visual view, which moves away from my argument, to be

situationally aware, a wider interactive environmental visual capacity is required. For the surgical practitioner to effectively assist and control their surgical areas, they need to be able to maintain focus while having a peripheral awareness and the ability to make decisions quickly. White et al. (2015: 177) suggest the concept of "mental model" thinking, which is the visualisation of a situation in the mind of the theatre-practitioner, provides context to the situation and aids memory and reflection to inform situational awareness and maintain peripheral capacity. Kahneman (2011) further considered two processes of thinking, system one and system two. In essence Kahneman (2011) suggests system one considers the tacit knowledge, or intuitive and innate perceptions of the environment around us, understanding that has developed from past experiences, it is the fast-thinking element. While system two is the slower more cognitive element that considers the present information and deliberates judgements because it is unfamiliar. Taken together these systems can be both advantageous and limiting, as system one can override system two based on previous mental models which can be inaccurate. Therefore, situational awareness has an additional element concerned with controlled thinking (to monitor information and being aware of types of thinking) to assess situations and make accurate judgements.

2.1.7 Situational Awareness in the Recovery Phrase

The recovery area within the perioperative environment is different to other phases as practitioners work independently with indirect support from the anaesthetic team. Within this phase practitioners monitor the patient's physiology, airway, postoperative pain and vomiting, alongside airway recovery, moment by moment, through continuous observation. The literature discussing the importance of situational awareness within the recovery phase is limited, however, Rodriguez et al. (2017) consider situational awareness from a critical care perspective, which in the surgical recovery phase can be paralleled. Both are "fast paced and turbulent environments that require task-saturated patient care" (Rodriguez et al., 2017: 650). Rodriguez et al. (2017) listed the following characteristics that reduce adverse incidents and support situational awareness: coordination of effort, culture of safety, situational awareness of the surrounding environment and effective communication. Equally, Rodriguez et al. (2017: 650) emphasise, that as in aviation settings, situational awareness is a "mindset of vigilance" and considered to be a standard professional requirement. Parush et al. (2011) suggest three things critical care practitioners must be

able to do: gather information, understand the information, and think a head, which is representative of Endsley's (1995) situation awareness model. However, Rodriguez et al. (2017) also suggest that practitioners should have appreciation of the environment for example patients, staff, and time. Therefore, Rodriguez et al. (2017) is suggesting a shift beyond Endsley's (1995) model by considering vigilance, presence, and collective coordination as additional essential skills in order for the theatre-practitioner to be situationally aware, not just in recovery when assessing patients' vital signs but also across the wider perioperative phases, therefore moving beyond processing information to responding with it. However, what constitutes either a "vigilant mindset" or "level of vigilance" is not defined in the literature, or set a part as different, therefore reducing meaning. Although it can be assumed Rodriguez et al. (2017) were referring to understanding and reading the wider environment as having a "vigilant mind set," therefore developing 'presence', while a "level of vigilance" suggests a competency-based level of understanding through 'dressage', therefore, indicates a level of being 'present' without 'presence'. From the above evidence, I argue situational awareness, develops across a continuum through experience and education transcending 'dressage' to inform a "vigilant mindset".

2.1.8 Team Situational Awareness

The previous sections have illustrated many important behaviours, characteristics and attitudes required for all theatre team members in all three phases of the perioperative environment and how individual situational awareness is essential for patient safety. However, as the perioperative environment functions collectively through coordinated activity, team awareness is as important as individual situational awareness to prevent adverse incidents and circumvent emergency situations (Khademian et al., 2018). Rutherford et al. (2012) suggested effective teamwork is crucial for the safe running of the perioperative environment, however, this does not necessarily create team situational awareness. Although Belbin's (1996) theoretical model considers team behaviours in terms of team interaction and communication, a successful team shares a common goal, which they work towards collectively and individually. Equally Belbin (1996) considered roles within the team communication and critical thinking were important factors. In support of the importance of good teamwork, Van Beuzekom et al. (2012) found that effective

teamwork training builds team situational awareness which enables quick recognition and communication of environmental changes, therefore, reducing adverse incidents. Equally, Khademian et al. (2018) and Freytag et al.'s (2017) studies support this by stating teamwork training reduced adverse incidents because it optimised teamworking, which increases the quick recognition of errors developing team situational awareness. However, Van Beuzekom et al. (2012) found it was effective communication, and the understanding of individual roles, which contributed to team situational awareness.

Within the perioperative environment, individuals have an individual and collective responsibility to work to the same goal. Endsley (1995) suggests that each team member must be situationally aware as each member relies on the other to perform the overall goal. Within the perioperative environment, there are several roles across the multiprofessional team, such as anaesthetists, surgeons, operating department practitioners, nurses, porters and healthcare assistants. Therefore, it is essential that each member takes responsibility to be situationally aware within their own role capacity. Equally, it is essential that each team member understands their colleagues' roles and capabilities and limitations (Endsley and Jones, 2001). Stanton et al.'s (2006) view was similar, but asserts team situational awareness as dynamic and collaborative, suggesting each team member must be aware of their team members as individuals, as well as other agents within a dynamic environment. Stanton et al.'s (2006) therefore, implied situational awareness needs to consider the interaction between human and non-human agents within an environment, in other words, situational awareness resides in the interactions between system components (Salmon and Plant, 2022), referring here to theatre-practitioners and perioperative processes. Within my research I am expanding this idea of system components to mean environmental settings, which allows the merging of Smith and Hancock's (1995) theory of ecological situational awareness with Gluyas and Harris's (2016) expression of perception, as relying on all the senses. This marries together the internal and external relationship that occurs between human and non-human interactions influenced through the environment, which develops a mutual ability to be situationally aware. Therefore, I am contextualising situational awareness, in terms of this thesis, beyond technical skills and cognitive ability to include sensory perception and the environmental interactions required for the embodiment of self,

to have 'presence' with all the agents in the environmental setting of the perioperative environment, or horse-human-relationship.

Therefore, by considering team situational awareness, as Endsley (1995) and Stanton (2006) suggest, the degree to which each team member possesses situational awareness and can distribute that awareness within the team, requires an additional ability that Nomikos (2018: 284) termed, "synchronised working", while Gillespie et al. (2013: 117) used the terms "thinking heads" and "self-talking", which were found to be an important element across the surgical team for building shared understanding and meeting goals and patient safety. Gillespie et al. (2013: 117) use the terms of "self-talking" and "thinking heads" as the theatre-practitioner's internal conversation, which helps individuals to clarify and perceive a situation and slow thinking down. For this concept to support team awareness there must be, not only a verbalised shared perception of ideas of the situation, but a non-verbal ability to communicate changing situations. Nomikos (2018), however, does not define the concept or explore in any depth how to achieve 'synchronised working', except that it is required to control the pace of the surgery to reduce risk. However, the notion of 'thinking heads' does provide a representation of taking stock and trying to slow down the theatre-practitioners' thinking, so they do not rush into action that maybe inappropriate or poorly judged.

An alternative explanation of how 'self-talking' and 'thinking heads' work comes from Kohanov (2001). Kohanov (2001) considers how horse-trainers acquire the ability to heighten their awareness while remaining relaxed and confident. This suggests a mindset which allows the senses to become more acute which gives the illusion that time slows down providing extra thinking space, a skill that I argue, in this thesis would benefit theatre-practitioners. Slowing thinking down would control thinking, which would be beneficial, for example, when considering Kahneman's (2011) theory of system one and system two, slowing thinking down would support the recognition that system one may need to be overridden to move to system two. Therefore, Kahneman's (2011) investigations of fast and slow thinking, could contribute to the idea of controlling one's own thoughts and actions to maintain self and team awareness. By using controlled thinking, the systematic or immediate need for preparation and reaction times would appear to be slower, which would enhance situational awareness, as it allows the senses to be heightened as indicated by Kohanov (2001). Nomikos (2018) also suggests being able to think ahead and 'self-talk' is

a way to ensure all team members have 'presence' within the moments of the tasks and are involved through sharing experiences to make appropriate decisions.

Therefore, while individual situational awareness is important within the perioperative environment, team situational awareness is also essential to reduce risk. By considering team situational awareness and expanding on Smith and Hancock's (1995) ecological theory, a more refined situational awareness definition can start to be formulated that embraces the needs of the perioperative environment. One that encompasses the concept of embodiment ('presence') and uses techniques such as 'self-talk' and 'thinking heads' to control and distribute situational awareness across the theatre team and perioperative environment.

2.1.9 The Importance of Meta-Awareness

Meta-awareness is a term derived from Casaway (2008) taken from Flavell's (1979) use of metacognition, to explain how on a conscious level one can maintain their own situational awareness. Situational awareness as discussed by Yoong et al. (2021) can be lost due to several factors including workload, distraction, and fatigue. Equally, work within the perioperative environment can be considered as repetitive within specialities, therefore maintaining 'presence', tracking, and processing information can be challenging (Casaway, 2008). However, checklists, such as the '5 steps to patient safety' (WHO, 2009) provide some support to process information and maintain situational awareness. These checklists are representative of standards of procedure, and as Toff (2010), Rogers (2011) and Gaba (2011) suggest, have some value within the perioperative environment. However, this view is based on how well they work within the aviation setting. While these models may offer a systematic approach to assessing flight situations, they cannot offer certainty when operating in uncertain, complex, and dynamic environments like the perioperative environment. Nonetheless, they do offer a process to think about the potential effects of external factors within the perioperative environment and develop a process of 'thinking about thinking' as outlined by Casaway (2008), to interact with a dynamic environment that Klein (2015) suggests is necessary to be situationally aware in the perioperative environment.

Situational awareness in its very nature is dynamic, flexible, and adaptable, therefore, any process that aims to sustain situational awareness requires the same attributes. Flavell (1979) phrase of 'metacognition' describes the phenomenon where a person has cognition about cognition or stated another way, 'thinking about thinking' a form of meta-awareness (Casaway, 2008). Bateson (2000), in his consideration of metacognition suggested a need to transcend mere thinking in subjective realities to expand through the embodiment of information. I argue that what Bateson (2000) is suggesting here is how theatre-practitioners should develop their thinking to move beyond checklist, to think of the possible influences within the wider perioperative environment that could impact the situation. What Bateson (2000) is attempting to do is provoke our thought process to escape the limitations of 'dressage' to explore what sits outside the 'rituals' and 'routines' of 'praxis'. The purpose of metacognition, within the perioperative environment, is to support theatre-practitioners to expand their wider thinking by connecting the internal and external factors to create a panoramic overview of the perioperative environment. Bateson (2000) further suggests it is how we collect and connect pieces of information that create the mental models we develop to be used in a professional context and support the development of intuition.

Klein (2015) considered the importance of naturalistic decision making (NDM), the process of making fast decisions based on available information, and suggests heuristics and intuition are as efficient as extended information analysis. For example, Klein (2015) found, in emergency situations, using intuition to assess the situation was as effective as analysing tangible data. However, there are considerations to drawing on previous experiences, which can be disadvantageous to novices using intuition (Klein, 2015), because they do not have enough experiences to draw on. However, Kahneman and Klein (2009) suggested intuition is an important element of situational awareness when considering decisions because it allows for flexibility and peripheral awareness in our thinking.

The literature both implies, and states, critical thinking is an essential requirement in the perioperative environment (Jones, 2010) which has the potential to develop an array of skills through experiences which creates metacognition and potentially intuition. Paul (1992: 643) defined critical thinking "as the art of thinking about your thinking while you are thinking in order to make your thinking better". Thereby connecting critical thinking and

meta-awareness developing the ability to think consciously and subconsciously, which supports intuitive thinking which promotes situational awareness. While Brennan et al. (2020) bring attention to how a loss of situational awareness at any point can create a dangerous situation or be the catalyst of escalating a less serious problem, therefore, it is important to be always aware of self within the environment.

In this thesis, I am arguing, situational awareness should be considered as part of 'the everyday' practices for theatre-practitioners. Theatre-practitioners need to consciously engage with their working environment and become alert to the continual changes happening, thereby developing unconscious competent situational awareness, for example having both conscious and subconscious awareness which develops meta-awareness. Meta-awareness allows practitioners to understand when their situational awareness has diminished and how to bring it back. Flavell (1979) provides the elements to developing and understanding metacognition, declarative (person knowledge), procedural (task knowledge) and strategic (conditional knowledge). In essence, building knowledge, understanding self through self-development, critical thinking and reflecting on experiences to support developing personal meta-awareness. John Locke used the term 'reflection' to refer to the "perception of the state of our own minds" or "the notice which the mind takes of its own operations" (Locke, 1924 cited Noushad, 2018: 2). Therefore, meta-awareness is required to support ongoing situational awareness. However, to develop the ability to be meta-aware requires critical thinking, reflecting on experiences, developing knowledge, and focusing on personal self-development, including interpersonal and self-awareness skills that Fore and Sculli (2013) found were important qualities in developing situational awareness.

2.1.10 Barriers to Situational Awareness

Meta-awareness, therefore, allows an individual to maintain awareness of their own sense of situational awareness. McAnally et al.'s (2017) study illustrates the importance of meta-awareness by concluding that poor situational awareness could contribute to both a lack of understanding in our own knowledge gap and not observing, or missing, cues and changes within the environment (change blindness), regardless of our individual sense of situational awareness (Rensink, 2000). This could be due to difficulty in retaining and recalling, or comparing, multiple items in the visual short-term memory (Luck and Vogel, 1997; Mitroff et

al., 2004). Equally, other studies attribute "change blindness" (Levin, 2012; Rensink, 2000) occurs when there is over confidence in noticing change (Levin, 2012; Rensink, 2000) or beliefs about one's ability to understand meaning and structures in the environment, due to what Rensink (2000) and Levin (2012) consider as an overpowering ego developed through over confidence. This means that without situational awareness to notice the clues and cues of environmental changes, human error is still likely to occur. This suggests the main barrier to developing, or maintaining, situational awareness is a gap in knowledge and over confidence in noticing change. For both horse-trainers and theatre-practitioners to maintain situational awareness, there needs to be a developed sense of environmental awareness, recognition of 'difference', core professional knowledge base, and individual and team cohesion to recognise and share understanding. I advocate, throughout the thesis, that a way to improve situational awareness for theatre-practitioners is to improve how it is taught, perceived and understood, to reduce barriers to maintaining situational awareness. I am recommending that situational awareness needs addressing within the theatre practice curriculum with the aim to develop a better understanding of professional situational awareness and how it can be developed in training and practice.

I have discussed how situational awareness research has explored the impact initial perception, or situational recognition, has on circumventing adverse incidents and reducing human errors. This is important because it adds an element beyond individual perception or recognition to incorporate an understanding of what it means to be professionally situationally aware as a theatre-practitioner. This is seen in Reynard et al.'s (2009) concept of confirmation bias where they found the perioperative team's previous experience influenced the theatre team's decisions; they suggested the mind would unconsciously support, or disregard, evidence that fitted with a particular belief or mental mode rather than explore different ideas (Moray, 2004), equally reducing meta-awareness. Kahneman (2011) found other factors associated with his theory of fast thinking (system one), and slow thinking (system two), compromised effective situational awareness, due to previous experiences creating short cuts which reduced reasoning or latent factors, such as, cognitive inattention, and distraction, reducing attention to detail (Braithwaite et al; 2005; Woodward., 2010; Yule et al., 2008). These are listed in the "Dirty Dozen", a term, coined by Gordon Dupont in 1983 (Dupont-Adam, 2021), as the precursor to human error alongside

complacency and norms of practice, or, in Lefebvrian terms, 'repetition', 'routines', and 'rituals' of professional practice.

Miller and Sanderson (2005) found that healthcare disciplines are, not surprisingly, the product of their own professional education and remit of practice, which can lead to developing over confidence in norms of practice and the promotion of complacency through the procedural systems that reduce critical thinking. Meaning, professional education can be a limiting factor in developing situational awareness because it often promotes overreliance on 'repetition', 'routine' and 'rituals,' thereby enhancing confirmation bias, reactive thinking, and complacency. Drawing on this evidence has guided the thesis to explore how changes in pedagogical practices can address the concerns of theatre practice education to develop a curriculum that can create meta-awareness to reduce complacency in norms of practice and improve theatre-practitioners' professional situational awareness.

The literature so far regarding situational awareness within the perioperative environment has demonstrated how complex and diverse it can be. While the literature makes reference to the importance of gathering knowledge, preparation and anticipation of events, as well as using sensory perception to read the perioperative environmental clues and cues, there has been little explicit research on how to develop the skills needed to be attuned to the wider perioperative environmental 'rhythms' to develop situational awareness. Equally, there has been little consideration of how to develop and sustain situational awareness to reduce adverse incidents therein. I am arguing that the 'gap' within the literature is evident because situation awareness has been modified to fit the perioperative environment as situational awareness. Consequently, my aim is to gather data from my two participant groups, horse-trainers and theatre-practitioners, to ascertain their perceptions and development of situational awareness through the lens of the more-than-human Lefebvrian axis, to analyse how it can inform the development of a new theatre practice curriculum that addresses the concerns outlined in this thesis to effectively teach and develop theatre-practitioners professional situational awareness. I am arguing that by incorporating the horse-human-relationship and horse ethology, and improved an alternative educational framework can be created to demonstrate the multifaceted interactions and relationships theatre-practitioners have with their environment. This unique approach has been designed to purposefully move away from the aviation setting and evidence why a new approach

should be taken, and one that embraces and represents the needs of the perioperative environment.

I have drawn on Smith and Hancock's (1995) ecological theory and Dickinson's (1976) stimulus-response theory to support an alternative conceptualisation of professional situational awareness, where situational awareness is created through interactive relationships that are initiated by the wider internal and external environmental stimuli in the perioperative environment. This alternative conceptualisation offers the horse-human-relationship as a unique and unexplored lens in which to evaluate and reframe professional theatre-practitioner situational awareness and understand its importance, individually and across the perioperative team.

The proceeding section will explore the horse-human-relationship to evidence the similarities required by horse-trainers and theatre-practitioners to manage and mitigate risk, through situational awareness. Both groups are required to use enhanced communication skills to maintain collective environmental situational awareness, this is achieved by the perpetual interactions with the wider internal and external environment to respond and communicate to the living and dynamic 'rhythms' of their everyday.

2.2 Horse-Human-Relationship and Human Development

The relationship between horses' and humans' dates back to 430-354 BC where the writings of Xenophon focused on good horsemanship, which still provides the foundation for contemporary horse care and training in the 21st century (Argent, 2012; Xenophon, 2006). Equally, the horse has been a part of human life in work, and leisure, for thousands of years, where human and horse have learnt to work safely together (Hausberger et al., 2008). Nonetheless, little research has been afforded to explore the potential benefits the horse-human-relationship and their interactions may have on human activities.

Barad (2007) uses the term 'intra-acting' rather than interacting, to consider how two parties meet and change. While interacting denotes no conceived changes occur between social parties, Haraway (2003) and Barad (2007) suggest 'intra-acting' constitutes parties learning from each other. It is this concept of 'intra-acting' that occurs within the horse-human-relationship, and one horse-trainers can use in their horse training methods, to

reduce risk, build a connection and improve training outcomes, which Hausberger et al. (2008) found to positively influence a reduction in horse-human accidents. Within my thesis, the importance of understanding the concept of 'intra-acting' is how it implies the horse-human-relationship engages in mutual learning. Nonetheless, Barad (2007) and Haraway's (2003) consideration's question if the horse changes due to the 'intra-actions' of the horse-human-relationship, or if it is only the horse-trainer? However, Irwin (2005) suggests it is a two-way dialectical learning process where mutual changes occur. I agree with Irwin (2005), as the horse-human-relationship is built on mutual trust and respect by replicating the natural herd dynamics, which is supported by Hartman et al.'s (2017) paper. I argue within my thesis, it is this concept of 'intra-actions' within the horse-human-relationship that facilitate the development of the horse-trainer's situational awareness unconsciously as the activities affect both horse and horse-trainer. This 'intra-action' is important as the foundation of horse-training, moreover, it is during this process, the horse's innate situational awareness is arguably required by the horse-trainer. Haraway (2003) considers 'intra-actions' as a form of 'becoming', thereby I propose through the horse-human relationship, horse-trainers are developing skills to 'become' (in Haraway's sense of the term) more 'horse-like', and as a by-product, become situationally aware.

The aim of the horse-trainer is to develop a mutually trusting relationship to create a harmonious connection within the horse-human-relationship to work together calmly, enhancing the horse's performance (Podhajsky, 1967; Xenophon, 2006). This can be applied to the perioperative environment, where theatre practitioners who work cohesively and are connected as a team, reduce errors, and promote safety, by working harmoniously together (Edmondson, 2003; Helmreich et al., 2004; Halverson, 2011; Schaefer et al.,1995). Nonetheless, for the horse-trainer to attain such a connection, like the perioperative team, they need to develop their knowledge, observational skills, levels of attention, perception, and attitude to communicate and connect with the horse and environment by developing a Lefebvrian sense of 'presence', as suggested by Hausberger et al. (2008). In this way the horse-human-relationship helps develop a wider situational awareness. Similarly, if the theatre-practitioners' goal is to develop their teams' and own performance to improve patient safety, situational awareness, will potentially develop subconsciously as it does in horse-trainers.

As horse-trainers develop their connection with the horse, a harmonise relationship develops, which, according to Ferrier (2018), leads to what Game (2001) and Maurstad et al. (2013) considered as 'co-being' between horse and trainer. This means by working cohesively, within the horse-human-relationship, horse-trainers' develop more 'horse-like' characteristics, such as peripheral vision and nonverbal communication, which improves interaction but also situational awareness. There is a growing body of research exploring the horse-human-relationship and how, by becoming more 'horse-like' in our understanding and views of the world, humans can become improved versions of themselves by developing a sense of self (Arnon et al., 2020; Birke and Brandt, 2009; Brandt, 2004; Haraway 2008; Irwin, 1998). Argent (2012) found that horse-trainers felt that, to form a real partnership with their horse they must become 'horse-like' as described by Birke and Parisi (1999) and Haraway (2008). Argent (2012) summarises how horse-trainers' feel to truly intra-act with their horse and become one, there is a sense of extrasensory awareness and transcendence of self to what horse-trainers called 'horse-human'. Evans and Franklin (2010) found that horse-trainers discussed feeling a heightened sense of awareness within the moments between horse and human – a synchronicity, meaning when they felt as one, working together effortlessly. This is what Haraway (2008: 208) interprets as the "contact zone" when there is a sense of understanding between species.

Hockenhull et al. (2015) and Birke and Hockenhull (2012: 82), in their work considered how as humans we have a desire to "build good relationships across-species, ones that understands our every move and mood", as a process of feeling connected. Dashper (2017) suggests horse-trainers desire connection and this develops over time. What potentially connects horse-trainers and theatre-practitioners, is an adaptation of self (sense of self) and becoming more attuned to one's working environment, which allows one to develop a heightened sense and more holistic situational awareness.

Supporting the importance of the horse-human-relationship is a body of research capturing how horses can be a vehicle for human development and understanding through equine assisted learning (EAL). EAL is an emerging concept that employs the use of equine assisted activities to support people in academic learning and promoting life skills for education (Stock and Kolb, 2016). EAL promotes how working with horses provides opportunities to teach critical life skills and their benefits such as trust, respect, honesty, empathy, and

communication. Equally, Evans et al.'s (2009) research looked at how working with horses prepared students for work in different areas and concluded that students felt that working with horses enhanced life skills such as communication, self-awareness, patience, and assertiveness, all skills required by theatre-practitioners. Furthermore, Stock (2012) studied, how working with horses through experiential learning directly related to behaviours of individuals at work within the business sector. Although Stock's (2012) research was a study of how EAL influenced leadership skills in the business sector, the study demonstrated a wider arena where horses have an influence on individual learning through experiential and explorative learning pedagogies. For example, research by Walsh and Blakeney (2013), in a qualitative study, explored how EAL supported nurses to have 'presence' in the moments of 'the everyday', a necessary skill in healthcare to provide quality care. Walsh and Blakeney (2013) argued that the ethological behaviours of horses allowed for calming and centred skills to develop in nurses. The study concluded that there was a benefit to personal and professional development with EAL.

Carroll (2013) considers how the evidence is suggesting many skills can be developed through the horse-human-relationship including a sense of timing and rhythm, which is developed through the awareness of the horse's movements. This is important as 'differences' in 'the everyday' such as the seasons, can alter horses' or humans' behaviour. In addition, 'rhythms', in the Lefebvrian sense, are capable of creating harmony and disharmony (Evans and Franklin, 2009), for example, for horse-trainers spring can create disharmony due to changes in the horse's hormone levels. Disharmony between horse and trainer, or theatre-practitioner and the perioperative environment, can cause errors and increase risk, for example for theatre-practitioners changes in shift patterns can create disharmony in confidence. However, the requirement to learn horses' ethological 'rhythms' aligns to elements of Lefebvre's (1992) theory of rhythmanalysis, in that by understanding the horses' ethological 'rhythms' the trainer can prepare and plan for their impact on training activities within 'the everyday', such as the changes in the horses' 'rhythms' during the mating season. Recognising and being alert to different 'rhythms' requires both meta-cognition and a heightened sensory perception and intuition, which supports situational awareness. This is analogous for theatre-practitioners as the literature indicates the same requirements of bringing awareness to the internal and external 'rhythms' are essential

within the perioperative environment (Fioratou et al., 2010; Park and Chan, 2022; Rodriguez et al., 2017).

2.2.1 The Horse and Situational Awareness

Fore and Sculli (2013) suggested essential skills for situational awareness in the perioperative environment include vigilance, presence, reading, and filtering the environmental clues and cues, preparedness, and anticipation, these are all characteristics found within the horses' natural ethology. It is the horse's evolutionary process which is key to understanding the horse's natural situational awareness and how it can be transferred to humans through the horse-human-relationship (Budd, 1996; Irwin, 1998; McFadden, 1992), making the horse-human-relationship an ideal subject to exploring situational awareness.

As a prey animal the horse has evolved over millions of years (McFadden, 1992) to become naturally attuned with their environment through physiological and anatomical adaptation (Leiner and Fendt, 2011).

Irwin (1998) understands horses to have 'presence' in the 'moments of the everyday' (Lefebvre, 1992) due to their natural ethology. Irwin (1998) suggests that horses are attuned with their environment, aware of, sensing and being affected by the constant data streams of 'the everyday' clues and cues. It is attunement that connects with Lefebvre's (1992) concept of 'presence', to be a part of the environment rather than being in the environment, and therefore, attune with it. It is the horses' peripheral capacity which allows them to, see, read, and interpret the wider environment, to inform action (Budiansky, 1999; Bukowski and Aiello, 2019; Evans, 2010; Hartmann, 2017; Irwin, 1998), whilst their silent communication systems allow information to be disseminated quickly and covertly, which corresponds to Casaway's (2013) definition of situational awareness. Consequently, this provides the horses with the ability to maintain vigilance both individually, and collectively, to alert the herd to potential danger through their silent communication systems (Christensen et al., 2006; Gunter, 2007; Saslow, 2002).

The horse's silent communication system of subtle body signals, which provide both emotional and physical clues, paired with their visual capacity provides the horse with the ability to have 'presence' and attunement to its environment. This demonstrates how

Casaway's (2013) meta-awareness links Endsley's (1995) process theory and Smith and Hancock's, (1995) ecological theory, by incorporating how reading the clues and cues of the environment informs immediate and future action through perpetual interaction. Therefore, the horse's unique visual capacity, and their method of silent communication, all collectively support its ability to be meta-situationally aware, (Bukowski and Aiello, 2019; Budiansky, 1999). This can be analogous to the theatre-practitioners' role in terms of having 'presence' to read, interpret and communicate clues and cues within their working environment as Riley et al. (2006) observed. It is these elements that I will further explore through the literature to illustrate how the horse's ethology impacts on the horse-human-relationship and the horse-trainer's development of situational awareness.

2.2.2 Horse Ethology and Situational Awareness

The horse's natural ethology has enabled me to interpret vigilance as a perpetual awareness of the immediate and wider environment, therefore supporting 'presence' (Lefebvre, 1992). Felton (2017) and Hartmann et al. (2017) explore how, horses are social animals and live-in flexible herd hierarchies which work cohesively, respectfully, and empathetically when dealing with threatening external stimuli. This essentially equates to vigilant teamwork and reduces threats in the same way it could, as I have argued in this thesis, reduce adverse incidence in the perioperative environment if theatre-practitioners worked within the same sphere of situational awareness through team cohesiveness and altruistic goals.

As stated, the horse's visual capacity (Evans, 2010) provides a further important element to the horse's natural 'presence' and situational awareness. Hanggi and Ingersoll's (2012) research considered the visual capacity of horses specifically in recognising objects and movement. Their research demonstrated that horses could detect and discriminate between objects and movement throughout their circular field of vision (Diagram 3: 63).

Diagram 3: *Adaptation of the Visual Capabilities of the Horse*.
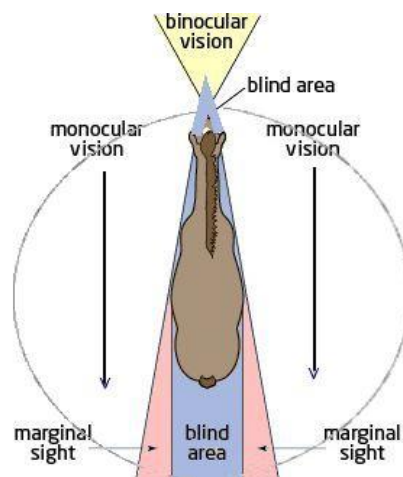
https://www.symbiosis.cat/the-horses-visual-field/ (2014)

This means the horse has a natural meta-situational awareness, which humans tend not to have without training, as it is not required in evolutionary terms by them as a species on a daily moment-by-moment basis (Hanggi, 2005). In understanding this premise, horse-trainers must develop their own visual and sensory capacity to develop a meta-awareness of the wider environment to anticipate the horse's behaviour within different spaces in time, due to their unpredictability in responding to the external stimuli (Evans 2010; Hartmann 2017). As discussed above, meta-awareness (Casaway, 2018) supports the ability to maintain professional situational awareness, something that is found to be important in reducing errors within the perioperative environment. Further the ability to silently communicate offers what White et al. (2015) called mental models, affording theatre-practitioners the opportunity, without direct verbal cues, to share situational awareness quickly around the team to reduce adverse incidents and errors.

For horse-trainers it is this method of silent communication that presents an effective way to predict and prepare for the horse's behaviour as the horse is constantly communicating with their environment and providing cues and clues of its intentions. This can be seen in ear movement, tail swishing, or head positioning for example (Argent, 2012). As Pfungst (1911) illustrates with Clever Hans (the horse that could allegedly count), horses can read the subtlest of cues within their environment, or of any other living thing within it, including humans (Budiansky, 1999; Hausberger et al., 2008). It is this ability within the horse-human-relationship to read each other's cues silently, which supports the understanding of how

mutual situational awareness develops within the horse-human-relationship. A study by Knapp and Hall (2002) on kinesics, the study of body movement and position, including facial expressions, illustrates how humans communicate and understand non-verbal communication cues in horses, but also how horses' read and understand humans through kinesics. It is this research that demonstrates how humans can adapt to reading the wider environment through situational awareness, it also demonstrates how it is possible for humans to effectively communicate with the horse because ethologically their communication system is based on kinesics (Argent, 2012).

Kiley-Worthington (2005) also studied the facial expressions of horses and found that the ears alone have 13 muscles and can convey several messages through individual movements. Further studies (Godfrey, 1979; Morris, 1988) observed that the horse communicates through its face, body, legs, and tail to transmit a variety of emotions, feelings, and intentions, therefore, allowing horse-human understanding and communication to co-exist once these cues are learnt. Therefore, the two species can come together in the ability to communicate through co-creating a language they both can understand. Argent (2012) suggests this is possible because horses are able to synchronise 'rhythms' and behaviours in their herds and humans are (with training) capable of reading and understanding these patterns, which enables the horse-human-relationship to work through the mutual understanding of intentions. Therefore, it is this vigilance to pick up on the horse's signals that develops the horse-trainer's peripheral capacity and silent communication which supports the development of professional situational awareness in the perioperative environment, as both skills are equally required across the perioperative environment (Rodriguez et al., 2017).

Therefore, it is the combination of the horse's level of presence, visual capacity, and silent communication systems that provide it with its natural situational awareness and influences the horse's behavioural characteristics. Moreover, it is the horse's quick and agile responses to stimuli that create risk and unpredictability within the horse-human-relationship. It is these behavioural characteristics that the horse-trainers must learn to work with. Equally, the literature illustrates how humans can learn to read the clues and cues of the environment if we can be vigilant and have a Lefebvrian 'presence' within it.

The horse's natural ethology offers a rationale for the horse's own, and herd, situational awareness. Equally, it sets up the requirements for horse-trainers to learn to be more 'horse-like', by developing skills such as visual observation, vigilance, presence, and silent communication, all characteristics that would support theatre-practitioners' and theatre teams' situational awareness development.

2.2.3 The Horse-Human-Relationship and Situational Awareness

Garcia (2013) states the horse-human-relationship is so unique and complex it offers a range of developmental skills for both humans and horses. McGreevy et al. (2009) demonstrated the complexities of the horse-human-relationship by considering the different ethological positions between the horse and human. However, the ethological differences were found by Irwin (2005) and McGreevy et al. (2009) to be the basis for mutual learning across-species in a bid to understand each other's actions and intentions. The benefits of the horse-human-relationship have been researched for their therapeutic potential (Yorke et al., 2008) but has been under-researched, according to Wipper (2000) and Brandt (2004), in terms of what the horse-human-relationship can offer to human learning processes.

However, there is some developing research exploring the complexities of the horse-human-relationship by Hausberger et al. (2008), Danby and Grajfoner (2013), Danby (2013), Garcia (2013) and McKinnon (2020). Garcia (2013) suggests learning from horses happens in the ordinary everyday process of being with horses, which supports how horse-trainers develop situational awareness subconsciously. While McGreevy and McLean (2007) suggested the horse-human-relationship develops through a mix of human cognition coupled with the horse's natural ability to adapt to their environment (as discussed in detail above). Nonetheless, both agents need to work together for a safe and a harmonious relationship to develop and succeed. Arguably it is the time spent through the physical contact between horse and human that heightens the horse-trainer's observational awareness which, equally, allows for the development of their sensory awareness through feel and touch which provides the building blocks for situational awareness. This, as Garcia (2013) suggests, develops over time as the horse-trainers notice and interpret the subtle cues and clues the horse offers through their silent communication. This could also be

applied to theatre-practitioners in their exposure to the perioperative environment as they could, over time, develop situational awareness in the same way as horse-trainers do. Garcia (2013) equally postulates that situational awareness eventually overtakes the human reliance of the spoken word. Therefore, suggesting as humans build the relationship with their horse, they are becoming more 'horse-like', making the horse the teacher, guiding the unintentional latent learning of situational awareness, and the horse-trainer the student. Consequently, it is the horse-trainer's visual and communication skills that should be harnessed and interpreted to support teaching professional situational awareness to theatre-practitioners in higher education.

2.2.4 The Horse Ethology and the Horse-Human-Relationship

Exploring the differences between humans and horses is helpful when considering how 'the everyday' interactions in the horse-human-relationship develop situational awareness.

Irwin (2005), explores the idea that horses do not separate their minds and bodies from each other as humans do, meaning humans are more easily task focused or distracted because they can both think outside, and inside, of what they are doing in the moment. For humans this creates barriers to maintaining situational awareness, as demonstrated by Braithwaite et al. (2005), Yule et al. (2007) and Woodward (2010), in their studies observing and questioning anaesthetists and surgeons to collate barriers to situational awareness. Irwin (2005) is, therefore, suggesting the horse has continual Lefebvrian 'presence' in mind and body in each moment of 'the everyday', humans can move in and out of 'presence' either consciously or unconsciously. In a Lefebvrian sense this is understood more easily as being falsely present, and not engaged in the internal and external influences of the environment. In terms of situational awareness this means that humans can miss important information and clues and cues from the environment, giving substance to the phrase "to err is human" (Kohn et al., 2000). Irwin (1998) is highlighting how humans easily become distracted, or task focused. However, horse-trainers learn to sustain awareness and develop 'presence' for safety and better horse connection with the horse itself (Hausherger, 2007; Irwin, 1998; Kohanov, 2001), although Irwin (1998) acknowledges this is not easy. Therefore, an examination of how horses and humans differ ethologically, demonstrates how horse-trainers develop themselves to become more 'horse-like', to be better trainers

and have better communication with their horse. However, to transfer these skills to theatre practice, a very different educational methodology, from the one used at present, would be required to establish the same outcomes.

Barriers to situational awareness within the perioperative environment, observed by Braithwaite et al (2005), Yule et al. (2008), and Woodward (2010), derive from human attention and distraction. Irwin (1998) suggests human distraction can cause tunnel vision, therefore limiting peripheral awareness of the environment. As argued by Green et al. (2017), environmental tunnel vision has a detrimental effect in theatre practice because it can be the cause of adverse incidents, because the wider elements in the perioperative environment have been ignored. Irwin (1998) argues humans as predators are inherently focused on goals and can easily become distracted. Irwin (1998) equally, observed human distraction is a barrier to a successful horse-human-relationship. Therefore, Irwin (1998) is suggesting humans need to learn to develop their 'presence' in the Lefebvrian sense, which requires internal self-development.

Kohanov (2001) simplifies Irwin's (1998) thinking by comparing both the horses and human's characteristics. They maintain that the horse's situational awareness is based on their 'presence' in mind and body, arguing that this awareness expands to the wider environment via the horses' highly developed sensory and intuitive skills, which humans do not match. Smith et al. (2017) suggest these skills developed through reading the clues and cues within the environment and between the herd. Similarly, these innate abilities stem from the horse's social construct of hierarchy and behaviour, based on cooperation and approval (Argent, 2012; Sharpe, 2005). This is important because it supports how the horse-human-relationship evolves as the horse is "intrinsically cooperative" (Argent, 2012: 113). Equally, Brubaker and Udell (2016), Racca et al. (2012), Smith et al. (2016) and Smith et al. (2017) explain horses can read emotional clues such as detecting tensions and emotions through changes in energy levels, therefore, horse-trainers need to be mindful of the messages they are transmitting. Consequently, horse-trainers need to develop control of their mind and body by bringing thinking and tasks together. By developing these skills, their awareness to the signals they are sending and receiving, to and from the horse, environment, and self, are enhanced, thereby increasing safety and strengthening the horse-human-relationship. In comparison, these skills would benefit theatre-practitioners

enabling them to read their working environment better by picking up on non-verbal clues and cues with a meta-heightened ability to read them accurately and transfer them across the team, thus increasing patient safety.

Within horse-training the need to develop control of self is becoming more popular, because the oldest form of horse-training, known as classical or traditional, is based on an alpha leadership model, through the human exerting control over the horse, as represented in the hierarchical leadership of the herd, however, there is no significant evidence in the literature, which indicates it is effective (Hartmann, 2017). However, in comparison, the emerging method of natural horsemanship which lays its importance at the natural behaviours of the horse through a more sympathetic model of communication, is demonstrating more significant outcomes as it is based on a mutual respectful partnership (Visser et al., 2009). The natural model considers Gunter's (2007) concept of what horses consider as authentic leadership: clear instruction, balanced energy, attention, and congruence. Blignault (1998) believed, to work with a horse fluidly and with respect, requires the trainer to develop a heightened sense of awareness to match the horses, this can be through developing their sense of observation skills, attention, and their peripheral vision, as well as their own self-awareness and empathy, leading to authentic leadership that is respectful and empathetic.

Irwin (1998) stressed, to train and work with calm, focused and confident horses the horse-trainer must acquire these qualities themselves; they must become more aware of their environments while maintaining their focus on the horse. It is this emphasis on the work and attitude required to develop a respectful and empathetic horse-human-relationship that illustrates how situational awareness can develop, and mirrors the requirement of theatre-practitioners to develop the same skills. Swift (1990) had, earlier, described this as "soft eyes" by which she meant being able to take in all the elements while maintaining focus on one thing. The development of 'soft eyes' refers to the ability of developing peripheral vision while still thinking about each moment as one rides or works with one's horse. Wanless (1987) promotes the idea of "riding with your mind" which focuses on body and mind awareness, feel, and affect. It could be argued that Wanless's (1987) philosophy was, equally, considering how to bring the horse-trainer's situational awareness to the fore to develop better horse skills. Although neither Swift (1990) nor Wanless (1987) used the

term situational awareness they did associate to awareness in a more general sense. Therefore, this concept of 'soft eyes' allows a peripheral visual capacity to develop and appreciate the wider environment, an ability that would support the improvement of situational awareness within the theatre-practitioner.

While the horse-human-relationship involves many aspects of intra-action (Barad, 2007), as discussed earlier, the intra-actions provide 'space', in the Lefebvrian sense, to develop unconscious, or conscious, situational awareness. However, within those horse-human 'intra-actions' (Barad, 2007) there are elements of risk, due to the unpredictable nature of the horse to react to immediate or peripheral environmental 'difference'. It is this unpredictability that demonstrates why situational awareness is required by horse-trainers. Hausberger et al. (2007) explored the horse-human-relationship and the prevention of horse–human incidents. Moreover, it is Hausberger et al. (2007) who refer to how horse-trainers need to develop their knowledge of the horse and develop observational skills to become aware of the potential dangers. Hausberger et al.'s (2007) findings can be transferred to the perioperative environment, by considering how the perioperative environment is unpredictable and requires observational skills to notice the immediate and peripheral changes. Therefore, demonstrating why theatre-practitioners require an in-depth knowledge of the perioperative environment, good observational skills, and a developed peripheral visual capacity, to develop professional meta-situational awareness to ensure safe practice and reduce risk.

2.5 Chapter Summary

The literature review has brought together several important elements regarding the understanding of situational awareness. The confusion between situation and situational awareness has made the process of teaching and developing professional situational awareness in the perioperative environment problematic because it has relied on the research from aviation which is not a parallel fit. Therefore, the literature review has demonstrated a more encompassing definition of professional situational awareness would be beneficial to provide meaning and value within the perioperative environment. Moreover, there is a lack of literature which considers the importance of situational awareness for theatre-practitioners, even though professional situational awareness is

threaded through the theatre-practitioners' 'everyday' to reduce risk and enhance patient safety.

Equally, the reliance on the evidence-based research from the aviation industry ignores the more-than-human element of the internal and external environmental influences, between social constructs and human characteristics, and their impact on the environmental 'rhythms of the everyday'. While the literature evidenced how cognition enhances the reduction of adverse incidents, it equally illustrates how sensory perception is a key element to becoming professionally situationally aware, which aligns more to an ecological theory (Smith and Hancock, 1995) than a process driven one (Endsley, 1995). Furthermore, the literature highlighted some of the similarities between theatre-practitioners and horse-trainers and the importance of developing professional situational awareness to recognise the clues and cues within the environment, however, the literature did not demonstrate how this was achieved or could be achieved.

What the horse-human-relationship demonstrates is how the horse-trainer develops situational awareness skills that would benefit theatre-practitioners, such as sensory perception, silent communication, peripheral vision and recognising environmental internal and external influences and their situational effect on the environment. The literature clearly shows how the horses ethology provides a methodology to understand how and why situational awareness is transferred through the horse-human-relationship. While this information is given substance through the more-than-human-Lefebvrian axis, it is worth bearing in mind it considers the concept that to be situationally aware the theatre-practitioner and horse-trainer must recognise the clues and cues within the environment, through competence, experience and reflection, formed from the application of environmental interaction.

From the literature it is evident that there is a 'gap' in the research which considers situational awareness from a theatre-practitioner perspective and how it links to the horse-human-relationship. I, therefore, argue that this 'gap' requires addressing to support theatre-practitioners to develop professional situational awareness as a required element of their training to reduce 'adverse incidence' and 'never events'. I argue within my thesis how

situational awareness within the perioperative environment should be considered as the perpetual interactions between the internal and external environment to reduce risk and improve patient care. By considering Smith and Hancock (1995) environmental perpetual interactive model will provide theatre-practitioners with Lefebvrian 'presence' to be situated within the 'liminal spaces' of 'repetition and difference' in their 'everyday' in order to notice change and reduce 'adverse incidents'.

Chapter 3 will detail my research methodology and design to demonstrate how I conducted the research to gather and analyse the data to answer my research questions and support my understanding of situational awareness.

Chapter 3: Methodology and Methods

3 Introduction

Within this chapter, I will address my methodology and the subsequent development of my research design and how it informed my approach to answering the research aim and questions using the lens of the more-than-human-Lefebvrian axis. Therefore, the first section of this chapter will explore the methodological approach taken to frame the research and how it empowered the use of the more-than-human-Lefebvrian axis, before moving on to explore and rationalise the research design, mode of data collection and my decision to be a researcher-participant. I will also discuss my decision to use Braun and Clarke's (2022) reflexive thematic analysis to analyse the emergent data. While the last section will outline and explore ethical issues and demonstrate the credibility of my research.

3.1 Exploratory Research Methodology

While research into situational awareness in itself is not new, it has never been considered from the perspective of the horse-human-relationship, equally there is limited research from a theatre-practitioner perspective. Consequently, my research aims to explore and generate new ideas to create new understanding in how situational awareness is considered in the perioperative environment. Accordingly, my research is new and positioned from a unique perspective, therefore it meets the main principles of exploratory research: the research question has not previously been investigated, and the investigation is seeking to find new understanding rather than a definitive answer, to the research question to inform future research (Nargundkar, 2008).

As George (2021) explains, an exploratory methodology enables the researcher to investigate new topics, from new perspectives to provide new questions to areas that have not previously been studied, often following a qualitative paradigm. However, while exploratory research is generative it also supports a more challenging approach to gathering primary data, for example gathering data across distinctly different participant groups, and allows a researcher-participant method. By using an exploratory methodology, I was able to become a reflexive researcher-participant, which provided the opportunity to clearly

question my research decisions, more transparently, from an insider-outsider perspective, as being subjective and free from prejudice. The insider-outsider perspective affords both researcher authenticity and trustworthiness, something May and Perry (2017) explain is essential for qualitative researchers to engage with to acknowledge the researcher influences in the whole research process.

Furthermore, an exploratory methodology, allows the research questions to build on each other, providing a clearer picture of the topic under investigation. Equally, by allowing the research questions to build on each other, the findings evolve naturally from the data analysis, which supports the prevention of, any potential researcher preconceived ideas, or assumptions, infiltrating the findings (George, 2021). I am using this methodology intentionally to generate a wider discussion in an area that has not yet been investigated and enable each research question to be built upon to answer the research aim and inform my recommendations.

Moreover, my research orientation is unique, because it is exploring situational awareness from two distinctly different professional groups and from a more-than-human-Lefebvrian axis. Using an exploratory methodology allowed me as a horse-trainer and theatre-practitioner, to inform the creation of the more-than-human-Lefebvrian axis. I developed the more-than-human Lefebvrian axis to give both the horse and the environment agency in the research, as well as providing a lens to explore the 'rhythms of the everyday' of both participant groups. I was able to do this by engaging in the discussions led by the participants, as a researcher-participant, to support their narratives and add my thoughts to inform the analysis from my interpretations of the data.

Consequently, explorative methodologies provide a rationale for investigating new topics, but have the potential to create complicated multiple strands of data. However, I was able to interpret the multiple strands of data through my research questions to build understanding, rather than seeking a definitive research answer.

However, I did consider an alternative methodological approach for my research, phenomenology. Phenomenology studies the human experience from the stance of human consciousness and self-awareness as lived by the individual (Gallagher, 2012; Gill, 2020), which correlates with the approach I am taking. However, although potentially relevant due

to its concern with how humans perceived the real world and their place within it (Given, 2012), phenomenology is centred on human experience and therefore, is inappropriate for the more-than-human lens being adopted in this investigation, because the focus is how the environment and horse-human-relationship influences situational awareness.

Subsequently, by exploring, situational awareness from a more-than-human-Lefebvrian axis and researcher-participant lens, there is the potential to open new avenues of research for situational awareness in theatre practice education.

3.2 Researcher-Participant Role

As the result of my own positionality within the research and my use of an exploratory methodology, and as stated above, I decided it would be beneficial to be involved as a researcher-participant to support the exploration of situational awareness across both groups. According to Bonner and Tolhurst (2002), there are a few advantages and potential issues to being an insider in the research process which I have considered throughout my research design and outline here. My decision to be a participant-researcher was based on my in-depth understanding of the concept of situational awareness, and how it is considered differently by horse-trainers and theatre-practitioners. Horse-trainers commonly regard situational awareness as 'mindfulness', which, Swift (1990) suggests is a skill horse-trainers require to develop individual thought and sensory awareness as a method of horse training. Equally, in the perioperative environment the term for situational awareness has been colloquially called being 'switched on'. Therefore, as researcher-participant I could create common ground between the participant groups, promote deeper expression of ideas and natural flow to discussions while interpreting the nuances of the participants' narrative. Therefore, due to the differences in understanding between the two research groups, I felt being a researcher-participant would allow me to support the participants more in exploring their own understanding of situational awareness from their everyday experiences, while allowing me, as an insider, to explore and provide meaning to my own experiences (Bonner and Tolhurst, 2002). However, throughout the process I needed to be reflective to prevent assumptions and provide rationale when adding my own thoughts and ideas. This required me to continually ensure it was the participants who were leading the discussions, while using my own insider knowledge, of horse training and theatre practice,

to interpret the data meaningfully to situational awareness and then add my own contributing thoughts to support the participants' voice. According to Råheim et al. (2016), Faulkner (2009), and Allen-Collinson (2012), the researchers' active contribution has the potential to be misrepresented in the research. Therefore, I was conscious, from a researcher's perspective, to maintain the participants' narrative that represented their own experiences and perceptions of situational awareness, and not my own. Therefore, it was important I ensured my focus was supporting the discussion, and not guiding the narrative, as this would have caused both misrepresentation and be detrimental to gaining the participants' real experiences to understand how situational awareness is perceived and developed in both groups.

Therefore, the research design is about trusting the participants and my ability as an interviewer to provide clear questions, as well as developing a supportive relationship between the researcher and participants to have appropriate discussions (Carspecken, 1991). Equally, Adams (2015) suggests it is important the interviewer has a plan to recognise and act on eliciting and probing for further information with the participants if questions are not understood, or need further explanation, to gain deeper narratives and understanding.

As the researcher, it was important I was aware of the challenges, but also to embrace the possibility of enhancing the data collection as a researcher-participant. Originally, I thought the discussions may be guarded due to my knowing some of the participants in both groups, and their desire not to say anything that did not fit their area of expertise. However, I believed I could ease any reservations and build participants' confidence quickly, by being authentic and respectful. Equally, the research questions, in line with the principles of explorative methodology, were purposefully investigatory and exploratory in nature (refer to Figure 2: 79), to enable generative discussion to meet the research aim. However, as the researcher I recognised that I was an integral part within the method as I had a personal affinity to the research and the phenomenon I was investigating. Therefore, I felt adding my voice alongside the participants, where I felt I had something to offer, was the most appropriate way to add meaning to how each participant perceived and developed situational awareness as a horse-trainer or theatre-practitioner. As I transcribed each interview, I added my own thoughts, my thoughts were then used to support the data analysis and interpret the findings for each participant's experience, individually and then

collectively. However, it was important that I kept the participants narrative authentic, as it is my role, even as a participating-researcher, to maintain credibility and trustworthiness throughout the whole research process, as described by Denzin (2014), Denscombe (2014) and Guba and Lincoln (1994).

3.3 Method: Semi-Structured Interviews.

To find out how situational awareness was perceived and developed through the horse-human-relationship and within the perioperative environment I decided to collect data from both horse-trainers and theatre-practice lecturers to compare experiences. I felt using semi-structured interviews supported the research explorative methodology I had chosen, outlined above, by allowing the participants to explore their own everyday experiences through the lens of 'rhythms', 'routines', 'rituals', and feelings, which would give insight into how they perceived and developed situational awareness. Therefore, this naturally prevented the use of structured interviews or focus groups, as the aim was to purposefully gather data from the individual participant's lived experiences. Limiting the participant's narrative, or having a collective discussion, would either limit the responses or, potentially influence, the participant's own reflexive experiences, to conform to the group's understanding (Gray, 2018). Furthermore, the aim of the research was to explore perceptions and development of situational awareness rather than, for example, measure outcomes or reduce barriers to situational awareness, which a focus group may have led to, as there is less control by the researcher in the direction of the conversation (Brennan et al., 2020; Dishman et al., 2020; Endsley and Robertson, 2000; Gray, 2018).

Using semi-structured interviews allowed two requirements to be met. Not only do semi-structured interviews allow the participants some freedom to wonder about in their own thoughts and explore their own ideas freely and organically, but it also enabled me to support their narratives as a participant-researcher, by seeking depth and quality of the narrative by engaging in 'active dialogue', what both Wengraf (2001) and Brinkmann (2014b) term as 'assertive interviewing'. Furthermore, Kakilla (2021) explains, semi-structured interviews are beneficial to exploring and synthesising different ideas which allows for flexibility during the semi-structured interview process.

However, due to the onset of the 2019 COVID pandemic, when my data collection was due to start, I was required to re-think my original mobile interviewing method Kuntz and Presnall (2012). This technique allows participants to recall and actively discuss their understanding of the research questions in real time, within their own environment. I chose this method originally as it aligned to Lefebvre's (1992) concept of 'presence', which I felt would be an exciting and interesting angle to conduct the interviews from. At first, I was feeling frustrated as I felt online data collection would compromise the research as the data collected would not be as rich as if face to face interviews had been conducted, especially as with the former I would be unable to replicate environmental familiarity for the participants, which I had thought would promote reflective discussions regarding their perceptions and development of situational awareness within the influences of their everyday. However, I started to think more creatively, many of the horse-trainers had started to do online virtual teaching to maintain an income, which allowed me to observe, record, and hold the semi-structured interviews as they worked with their horses. Regarding the theatre-practitioners, I had less of a concern as I was able to conduct the interviews via Microsoft Teams (MST), with a perioperative background to create a virtual illusion of being in their professional environment.

The online interview, although considered an extension of the ideal gold standard of face-to-face interviews (Braun and Clarke, 2013), did work better than I anticipated, as the participants demonstrated having 'presence' in their environments which supported the production of rich and explorative narratives. This I felt was demonstrated through their reflections and mindful consideration of what would happen whilst in the environment. Equally, I felt my position as a research-participant was advantageous to the research method as it allowed me to delve deeper into the participants' reflections and interpret their inner voice and the nuances from their accounts of their experiences (Bonner and Tolhurst, 2002; Brinkmann, 2014b; Kakilla, 2021; Wengraf, 2001).

However, as I was aware, as a researcher-participant, I needed to be careful not to lead the discussions, I requested a second interview with the first horse-trainer, as I recognised, I may have steered the discussions by making suggestions of what I thought should be said. This may have been attributed to my own lack of experience, as the first interview with a

horse-trainer was in real time, therefore the discussions were, understandably, made relevant to the present, while I was expecting the discussion to be reflexive. Therefore, I felt I kept steering the discussion to reflect on the past, rather than allow the participant to freely discuss what was happing in the present. The participant in question agreed to a further interview, where I allowed the participants narrative to naturally progress, but I decided to participate in the discussions to explore the points and thoughts of the participant further, a technique I continued, as discussed earlier. One of my main reasons for this was I was not prepared to distance myself from the interviews and become a passive listener, as I believed this would restrict the gathering of useful data, due to the differences in the group's understanding of situational awareness. From my reflections on the first interview, I was able develop my technique to support the horse-trainers and the theatre-practitioners more constructively, as I was careful to explore points rather than direct them. This resulted in me directing the concept but not influencing their narrative.

Throughout the whole process, and to ensure confidentiality, each recording was anonymised and stored within encrypted files on the university's OneDrive in line with the university's ethics standards. The data will only be kept for as long as required for the research and all information will remain confidential for this research in line with General Data Protection Regulations (Regulation 2016/679).

3.4 Conducting the Semi-Structured Interviews.

Six semi-structured interview questions were prepared and designed to guide the exploratory methodology discussions and align to the more-than-human-Lefebvrian axis. This allowed each participant to naturally express and reflect on their 'everyday' environmental interactions and how they impacted on their development of situational awareness (Figure 2: 79). The first question was the primary question, while the other questions were only asked or adapted to meet the individual participant's trajectories. This, as suggested by Rubin and Rubin (1995), allowed me to explore the research aims with participants without rigidity, therefore allowing them to naturally progress through reflecting on their experiences. This was especially helpful in the horse-trainer group as situational awareness was not something they normally considered, this, therefore allowed

me to explore with them their development of situational awareness through the horse-human-relationship.

Figure 2: *Semi-structured Questions*.

The following are examples of the questions for the semi-structured interview
1. What is your understanding of situational awareness? 2. How do you think you have developed situational awareness within your role? 3. Why do you think situational awareness is important in your role as a horse-trainer/ODP? 4. How do you feel the horse/theatre environment have supported your understanding of situational awareness? 5. Can you think of an example of when you have used, needed or developed situational awareness? 6. What do you believe are the qualities needed to be situationally aware? 7. What do you believe are the skills needed to be situationally aware?

3.5 Participant Groups.

As stated earlier, I recruited two distinct groups of participants, one group consisted of seven horse-trainers, and the other six university theatre-practitioner lecturers. To clarify, both groups were separate from each other, none of the participants were required to be a member of both participant groups and have knowledge of each other's discipline. However, I was part of each of the research groups acting as both participant and researcher.

The decision on the required total number of participants took into consideration time availability and data management over two groups. Sergeant (2012) explains in qualitative research there is no specific ideal number, however, participant numbers are often low because of the depth the researcher investigates for each individual narrative. The number, I felt, also depended on how much data I anticipated to collect from each participant which was equally dependent on length of interview and forms of questions. I had calculated each interview would take between 40 minutes to 1 hour per participant. Therefore, the decision was to err on the side of caution, and I looked to enrol six participants for each group. I felt that six participants in each group would give enough leeway if data was limited in some interviews, or was not as useful to the data analysis as I had hoped, or if any participants decided to withdraw, this would leave enough data to be analysed. Equally, I felt it was important to get an equal number on both sides, if possible, to provide a more balanced and

valid discussion from the findings (Gray, 2018). However, in the end I had seven horse-trainer participants and six theatre-practitioners including myself, which, retrospectively, did not disadvantage or imbalance the overall data analysis and subsequent findings, because there was substantial data collected.

Fourteen theatre lecturers were approached and twenty horse-trainers. Seven theatre-practitioners agreed to take part but two, later withdrew. Nine horse-trainers agreed to take part, again two, later withdrew. The four participants that withdrew, prior to the interviews commencing, were due to increased workload and uncertainties due to the onset of the 2019 Covid pandemic and lock down being initiated in the United Kingdom. However, this unprecedented event opened new doors to approach potential participants within the horse training communities, as previously discussed. It was more difficult with the theatre-practitioners due to workload changes, and my ethical approval applied only to theatre-practice lecturers within my own institution. However, the horse-trainers were external participants who were approached through closed horse related Facebook groups, and allowed me to gain two unexpected participants outside of the United Kingdom.

3.6 Recruitment of Participants

The participants were selected through a purposive sampling method, which Denscombe (2014) described as recruiting participants known to have knowledge in the respective fields, which would save time but, most importantly, would provide participants with expertise in the area of investigation. This was important as my research is quite specific, therefore it was more beneficial to have participants that had experienced the phenomena under discussion, and be experts in their field, to provide substantial data from a range of their experiences. As the researcher, I firstly approached the theatre-practitioner lecturers by emailing them individually and providing a participant information sheet and consent form. I contacted each lecturer theatre-practitioner individually, who declared an interest to participate, to talk through the research requirements and expectations. The horse-trainers were approached via closed Facebook groups relating to horse training and horse-awareness. I had several replies which were considered in line with the inclusion criteria. Each member was then contacted individually to discuss expectations, I also provided a participant information sheet (Appendix 6: 221) and consent form (Appendix 7: 224). The

participant information sheet outlined the research and its rationale and impact for the research project and why they had been chosen to take part. This provided essential information to allow the potential participants to make an informed decision. Participation was not subject to any conditions, payments, or potential monetary benefits. Equally, the decision to participate was an individual choice, and there was an option to withdraw after data collection was provided. I was careful to ensure my university position, professional relationships, or friendships, did not put undue pressure on any of the potential participants decisions by accepting their decisions to not participate without further discussion.

Interviewing theatre practice lecturers that I worked alongside had potential areas of ethical concern. For example, Bonner and Tolhurst (2002), suggest participants may reduce sharing of information with interviewers they know because of a belief they are already aware of the phenomena. Equally, their perception and development of situational awareness may not be fully shared because of not wanting to say something that they felt maybe incorrect, controversial, or that they may be judged on, something Lipson (1984), had discussed as a consideration as an insider researcher, but also something to consider when interviewing known colleagues. However, these concerns helped me shape the semi-structured interviews in a way that allowed participants to develop confidence during the interview and expand on their own understanding and unpick their experiences. This was supported by progressive discussion that built on the participants' reflections and experiences in a two-way conversation that allowed wider probing as the discussions progressed. However, I also felt my insider knowledge was an advantage which allowed the participants to feel comfortable to discuss their experiences openly.

The horse-trainers were a mix of people I had either no connection with, trained with, or had previously worked with. I wanted to try to avoid any trainers who were also friends because it may create an awkwardness in the discussions or the potential to go off topic. Two of the horse-trainers were unknown to me which I found to be advantageous as they shared their experiences more freely and were more descriptive and explicit in their discussions which provided an overall picture for me, which I found useful. Nonetheless, I found all the participants provided narratives that were in-depth, however, the participants I already knew did not feel the need to share extensive information as I already knew their

backgrounds. Equally, each participant had a different background which offered a wide and rich set of narratives which was very valuable across both groups.

3.7 Inclusion Criteria

The inclusion and exclusion criteria (Table 2: 83) were adapted due to the pandemic, however, I did want to maintain the requirement in levels of experience. This was to support the potential of gaining a richer and more in-depth understanding of situational awareness from the participants' narrative.

Originally, I wanted to only interview the operating department practitioner (ODP) lecturers but, due to the uncertainty the pandemic brought, there was less ability for the ODP lecturers to participate. Therefore, I widened the criteria to all qualified lecturing theatre-practitioners, thereby extending the available participant group. However, by widening the criteria to include the whole clinical theatre practice team I maintained the participants' knowledge base by inviting experts across all phases, which would have been limited if only ODPs had been interviewed. Even though ODPs are trained in all three phases they rarely work in all three and remain current only in one or two, thereby adding no extra value to the research. The participants included two male ODPs, two female ODPs and two female theatre-practice nurses; each practised in, or had extensive experience of all three phases of the perioperative environment.

The original criteria for the horse-trainers required them to train using a natural horsemanship method, natural horsemanship, means to work with the horse with consideration of their natural ethology rather than the more classical method of human control (Visser et al., 2009). My rationale to only include horse-trainers who use this method was due to how they use the horses' ethology in their training methods, however, from the literature review it became apparent that in respect to any horse training methods environmental interactions are required and this was the focus of my thesis. Therefore, I widened the participant criteria guiding principles to include horse-trainers from different backgrounds to get a wider understanding of how the horse-human-relationship supports the mutual development of situational awareness. Again, this provided a richer cross-sectional level of data I may have not collected if I had stayed with my original inclusion

criteria. The participants were three natural horse trainers, one international showjumper, two qualified equine assisted therapy trainers and, one experienced ex-professional horse trainer.

Table 2*: Inclusion Criteria: Inclusion Horse-trainers*

	Inclusion Criteria	Rationale
1	Over 18	To allow for depth of experience.
2	Any gender	Gender has no bearing on experience or ability.
3	Experienced Horse-trainers	To provide depth to the discussions.
	Guiding principles for participation	
1	Has more than two years, experience with horses	I felt that less than two years would not be enough exposure to understand how the horse's situational awareness affected the trainer's own development in training methods or their own perceptions and development of situational awareness.
2	Experience across equine sports and training methods	I felt this would provide a wider view of how situational awareness develops from different experiences and maintain a constant in terms of training paradigm.

Inclusion criteria theatre-practitioners

	Inclusion Criteria	Rationale
1	Over 18	To meet guiding principle 1.
2	Any gender	Gender has no bearing on experience or ability.
3	BCU Theatre practice lecturers and HCPC or NMC Registered	Must be registered practitioners but currency of theatre practice was not a consideration, but must have worked across surgical specialities and shift patterns for greater depth of experience.
	Guiding principles for participation	
1	Qualified theatre-practitioners for three years plus	Must have worked in theatre practice for at least three consecutive years' to have been exposed to a number of different experience and exposure to different surgical situations to add a depth of understanding of Situational awareness.
2	A range of working in different specialities and shift patterns	I felt this would give the participants a broad range of experiences to draw on in their discussions of perceptions and development of situational awareness.

3.8 Data Analysis

At the beginning of the process of analysing the data I wanted to use an analysis tool that was flexible, embraced the participant-research position, employed reflexive thinking, did not use a repetitive data coding system, and allowed interpretive analysis to maintain the integrity of my research. The main reason for this was due to using an explorative research methodology, where the analysis should continue to allow an explorative and interpretive understanding of the complex strands of data. I also wanted the analysis process to allow the lens of the more-than-human-Lefebvrian axis to be core to the way the data would be explored and interpreted. I was neither collecting nor framing the data but somewhere between the two. As Brinkmann (2014a: 720) writes, the "abductive researcher is neither data-driven (induction) nor hypothesis driven (deduction) but driven by astonishment, mystery to breakdown, one's understanding (abduction)". Thereby, the abductionist view provides the opportunity to move between my data and my theoretical framework to interpret, explore and overlay meaning, paying attention to what Lefebvre (1992) considers as the 'murmurs and traces' of 'rhythms', in this context the 'rhythms' are within the participants' narratives. Consequently, I felt the abductive approach aligned to my explorative research methodology most appropriately, as I was using the more-than-human-Lefebvrian axis as a lens to explore and interpret the data, rather than frame it. Further the abductive approach offers the opportunity within my analysis to explore and interpret the data from beyond the elements of rhythmanalysis (Lefebvre, 1992) to give meaning to what the more-than-human Lefebvrian axis illuminates, for example, how 'dressage' can be transcended. Furthermore, the analysis method, needed to allow and support the interpretations of the data, to ensure the underlying meaning relevant to the research questions, could be understood by the reader. This is particularly required in my thesis as the raw data is used to provide insight into how situational awareness develops, rather than being a verbatim explanation of situational awareness development, meaning I want the analysis to go deeper than relaying experiences of situational awareness, rather it is the interpretation of the impact these events have on developing situational awareness.

Although my thoughts were added to the participants' narrative as a researcher-participant, I was seeking to answer the research questions through the interpretations of the participant's voice. Adams (2015) reinforces how the researcher-participants' position

allows deeper probing and exploration of the participants meaning through their lens, which, I felt deepened my understanding and provided the platform to interpret the individual narratives of the participants. In the first stage of the analysis the more immersed I became in the research; it became apparent that each participant's voice not only had individual meaning because of their individual backgrounds and experiences, but brought different perspectives to the development of situational awareness. This meant there was more to the data than just words, there were individual experiences, perceptions, values, and connections, for example the values the participant held to teaching or following policy, as well as the disciplines or specialities they were involved in . Therefore, the participants', own perceptions and understanding of situational awareness was influenced by their individual environments which chimed with Lefebvre's (1992) theory of rhythmanalysis, as each experience was formulated through the individual participant's own experienced 'rhythms'. While the differences in experiences originally concerned me, I found it was the comparison between the differences, and the similarities, that were important in the interpretations of the data, allowing the nuances of the participants' experiences to be heard.

Therefore, the data analysis needed to be able to explore individual ways of knowing through the participants and my own conceptualisation of our experiences, feelings, senses, and observations. I did this by adding my notes to the participants narratives and then broke them down, with consideration of each, individually, and then I compared them collectively. I wanted it to be rigorous but flexible enough to allow the seeking out the murmurs, clues, cues, emotions, and feelings of the 'intra-actions' between the horse-human-relationship and the perioperative experiences in relation to the research questions. I felt this would allow for the recognition of the collisions, and entanglements, of the data to explore the 'murmurs' of the participants' narratives that provided insight into how situational awareness was developed.

Braun and Clarke's (2022) reflexive thematic analysis provided the best analysis tool for my research. Braun and Clarke (2013) emphasise the importance of the researcher immersing themselves into the data to be able to appreciate the lived experiences of the participants. Equally, I felt it also validated my position as a researcher-participant and embraced the idea of my own entangled connections to the participants and subject matter. Reflexive

thematic analysis, as discussed, allowed me, as the researcher, to interpret the data to create themes through the lens of the more-than-human-Lefebvrian axis, recognising the influences of 'dressage', 'presence', and the 'moments of 'time' and 'space', to create an epistemic rhythm of co-produced knowledge (Jackson and Mazzei, 2013).

3.9 Using Reflexive Thematic Analysis

Braun and Clarke (2022) updated their original thematic analytical tool (2013) to incorporate the reflexivity of the researcher. This development aligns with their philosophy that the researcher is a resource rather than an agent of potential bias to be managed and controlled. This is particularly important as Braun and Clarke (2022) are highlighting that research bias is a myth which is not possible in qualitative research. Braun and Clarke's (2022) philosophy explains how the participants and the investigation are as strong as each other and that an answer, or a single truth, is neither the aim, or possible, in qualitative research, rather it is concerned with a subjective interpretation that has a dynamic reality between subjects dependent on time and space. I argue in my analysis that the participants' experiences are important but have meaning within a time and space that is individual and variable. Braun and Clarke's (2022) philosophy fitted with my own research position because my research was exploring perceptions of individuals within their own time and space, interpreted by me as a researcher-participant, as discussed above. Furthermore, Braun and Clarke (2022) explain the difference between thematic analysis and reflexive thematic analysis lies in the purpose of reflexivity. Reflexive, in their theoretical framework refers to the researcher and the process, rather than the analysis method, meaning the researcher is situated in the research, for my thesis this is important as I am both researcher and participant. The term reflexive values the researchers' position as subjective, situated, aware and as a questioning analyst (Barrett et al., 2020; Braun and Clarke, 2019). This perspective was useful for my research as it embraces the idea of the researcher-participant involvement both as an insider but also as a reflexive researcher as discussed earlier in this section.

Importantly, Braun and Clarke (2013) emphasise coding is not prescriptive - the size or repetition of the data codes are irrelevant, it is the relevance it has to the research question that is important, this refers to the material Braun and Clarke (2022) call "Gold Data". As I

am using a more-than-human-Lefebvrian axis, the data was considered using elements of rhythmanalysis (Lefebvre, 1992), Lefebvrian 'presence', 'dressage', 'the everyday', 'time and space' and 'repetition and difference', to understand their influence on situational awareness for horse-trainers and theatre-practitioners. This elicited data chunks, which were broken down using my reflexivity as a researcher-participant, to create the codes and themes. As Braun and Clarke (2013) reiterate, data should be interpreted subjectively and created from the reflexivity of the researcher's analytical thoughts and processes. Additionally, Braun and Clarke (2013) emphasise the researcher needs to immerse and familiarise themselves with the data to elicit meaningful codes and establish patterns, I have related this to 'rhythms' to develop appropriate themes. As I immersed myself in the data new emerging elements appeared from the data beyond rhythmanalysis (Lefebvre, 1992), such as education and learning, cues and clues, and sensory affect and feel. Braun and Clarke (2022) explain, within their analytical philosophy that changes are expected to occur as the analysis process unfolds, because the researcher moves back and forth throughout the analysis process. Therefore, reflexive thematic analysis (Braun and Clarke, 2022) equally enabled me to explore my data from the different perspectives of my own experiences of horse-training and theatre-practice, moving back and forth to consider the data from different positions to create new understanding. Braun and Clarke (2013) suggest the researcher should move between each stage several times to really delve into the data, they call this process "bending back". Therefore, by 'bending back', I was able to find new meanings from the different perspectives gleaned from each of the participants' data.

Therefore, reflexive thematic analysis supported my exploratory and interpretive approach of how horse-trainers understand situational awareness to inform a new perspective in theatre practice teaching. Equally, as a researcher-participant, reflexive thematic analysis offered a way to apply my insider position to support the data interpretations as research reflexivity and subjectivity is at the heart of reflexive thematic analysis. I felt it was essential to be able to interpret the data in these ways as my research was bringing together the notion of situational awareness in horse-trainers and theatre-practitioners. The horse-trainers' data was demonstrating that their development of situational awareness was an unconscious skill that emerged through the horse-human-relationship. While the theatre-practitioners could not fully articulate how they developed situational awareness through

their relevant experiences. Therefore, I needed to be able to subjectively interpret what they said through my own experiences and the associated available theory.

Therefore, reflexive thematic analysis enabled me to interpret the narratives from both participant groups subjectively, by being reflexive in my researcher-participant position and delving deeper into their perceptions and understanding of their own developing situational awareness through their 'rhythms of the everyday' (Lefebvre, 1992). As Braun and Clarke (2022) cite from Elliott et al. (1999: 9), "Reflexivity is key to good quality analysis, researchers must strive to understand and own their perspectives". Braun and Clarke (2022) further suggest creativity is central to the process and rigour. I felt this provided me with a clear process that would allow me to explore the complexity of my data strands and be creative through my interpretations and positionality (Elliott et al., 1999).

However, reflexive thematic analysis has some limitations when used by more novice researchers and it is important to be aware of these as the researcher embarks on their reflexive thematic analysis journey. Although personal knowledge can be applied due to the reflexive and subjective nature of reflexive thematic analysis it should be exercised alongside the research framework. Javadi and Zarea (2016) emphasise how data should be explored deeply to prevent missing out important information, as this can demonstrate a weak analysis; I used the process of 'bending back' and analysing the individual and collective data separately to ensure I considered all the information from different perspectives. A weak analysis provides potential for superficial themes that are created to answer the research question without deeper analytical thought (Braun and Clarke, 2006; Vaismoradi et al., 2013). Equally, rhythmanalysis, as a qualitative analysis model, is not defined, and is, therefore open to interpretation, which allowed me to use it as my initial starting point to analyse the data. To ensure rigour and depth of thought I gave the analysis process a lot of time to really consider what each participant was saying individually and then collectively.

3.10 Using the Six Stages of Reflexive Thematic Analysis.

As stated above, I utilised Braun and Clarkes six-stages of reflexive thematic analysis (Figure 3: 89) to analyse the data by mobilising elements of Lefebvre's (1992) rhythmanalysis, 'presence', 'dressage', 'the everyday', 'time and space' and 'repetition and difference', as a

lens to extract relevant data chunks as initial codes. This process also allowed the 'differences' and unexpected 'murmurings and traces' (Lefebvre, 1992) to be extracted and considered. Due to the 'murmurings' within the data, I added, as stated above, sensory perception, affect, intuition, education and learning whilst extracting the initial codes. By using Braun and Clarke's (2022) reflexive thematic analysis process I was able to immerse myself in the data, and by 'bending back', unpick the meaning behind the individual and collective narratives, to build the final codes across both groups to create the research themes.

Figure 3: *Braun and Clark's Reflexive Thematic Analysis*

1. Immerse and familiarisation with the data and transcribe data, to familiarise myself-with the data and start the interpretive process.

2. Generating coded from the data.

3. Searching for threshold themes.

4. Reviewing threshold connections.

5. Defining and naming thresholds into themes.

6. Producing the analysis and report.

3.11 Analysing the Data

During the data analysis process and due to interviewing two very different groups of participants, I initially found the data analysis to be challenging but equally, very interesting, as it unveiled several similarities and differences between the two participating groups. Below is a descriptive account of how the six stages of reflexive thematic analysis were followed to complete my data analysis. Figure 4: 93, provides a visual representation of the reflexive thematic analysis process I followed using the more-than-human Lefebvrian axis.

> Stage 1. The Raw data collected from all the participants during their semi-structured interviews was transcribed by myself, with my own notes and reflections intertwined, to segregate and provide a record of my thinking at that time so it would not be lost within the passage of time.

Stage 2. Elements of rhythmanalysis: 'the everyday', 'presence', 'time and space', 'dressage', 'repetition and difference' were the lenses of which the data were assigned to. Later learning, education and sensory, and affect were added as the participants' narratives were expressing how these influenced their own situational awareness. The initial codes connected to elements of Lefebvre's (1992) rhythmanalysis theory as my thesis lens. I defined each element mobilised from Lefebvre's (1992) rhythmanalysis theory to be able to pull out the appropriate data chunks. I defined each element, utilising Lefebvrian thinking, to situational awareness to be able to recognise the important data chunks in relation to the research questions. Each definition is outlined below:

- 'The everyday': the mundane 'rhythms of the everyday' that influence situational awareness.

- 'Dressage': training, which should be differentiated to assess meaning and importance to the research question and aims, and their importance in developing situational awareness.

- 'Repetition and Differences': Links to 'dressage'. Learning through 'repetition' and experimentation which allows for the noticing of 'difference' and allows for action, therefore, developing and enhancing situational awareness.

- 'Presences': The essence of situational awareness developed through peripheral and immediate awareness of self, environment, and other agents by being immersed in each moment through an understanding of the current situation and its influences to sit in 'liminal spaces'.

- 'Time and space': the locations, seasons, specialities and places that alter due to influencing factors that occur with the moments of 'the everyday'.

- Experience/ learning/teaching/education: individual actions to become situationally aware, beyond training.

- Cues, sign and affect: how non-verbal communication impacts on understanding and environmental awareness.

- Sensory: sensitivity to individual sensory perception to recognise 'difference' and maintain 'presence'.

Stage 3. The initial codes pulled from the data chunks were considered due to their importance to the research questions and understanding of the perceptions and development of situational awareness in horse-trainers and theatre-practitioners. I used chunks of data as the initial codes rather than individual words because I felt these represented the participants' experiences' more effectively and they fitted the more-than-human Lefebvrian axis more accurately.

Stage 4. Each participants' narrative was broken down and considered individually. This process allowed the meaning behind each data chunk to be explored to create the initial codes. The initial codes were then considered to pull out any murmuring 'rhythms' that influenced the participants' situational awareness. To create the final codes the 'murmurings' were explored to interpret their meaning by creating a descriptive outline, pulling out hidden meanings and finally exploring the conceptual meaning (Table 3: 92). This was completed for horse-trainers and theatre-practitioners to narrow down and concentrate the data chunks' importance to the perceptions and development of situational awareness across both groups.

All the interpretations from the data were collated and explored to create the themes and subthemes: 'presence': professional curiosity: critical thinking and collective consciousness (Table 4: 94). For a more in-depth snapshot of my analysis process refer to Appendix 4 and 5: (219-220).

The aim of stage 3 and 4 was to separate the entanglements between both groups of participants' data and find commonality between them, which would enable the exploration of the different experience's both groups of participants had and the meaning behind the data.

Stage 4: Each of the actions in stage 1, 2 and 3 were revisited to ensure the links between the themes connected to the interpretations of how the horse-human-relationship and theatre-practitioners' perceptions, and development of situational awareness were mapped to collate their similarities and differences.

Table 3: *Consolidated Analysis Example, Repetition and difference, of the Theatre-Practitioners Leading to the Research Theme*

Research lens, Repetition and difference	Initial codes	Murmuring 'rhythms'	Exploration of murmurs to finalise codes	Final Code	Theme
Data chunks SA in theatres is important for you and the team you need to know if something has changed been moved otherwise it can cause all sorts of problems.	Changes in the environment, vigilant to the differences Notice difference reduce risk.	Alert, vigilant and understanding the repetition will also have subtle differences. Not knowing not finding out	Descriptive PE same process everyday but different patients, individualised cases. Group the same but expect the differences Hidden meaning Need to see the differences from the mundane. Look for subtle undertones prepare for change Conceptual – Individual differences in experience. Demonstrates and appreciation of the PE and the changing tensions between colleagues	Daily work is the same - P change - P knowledge and experience – PC Familiar with the environment -CC and PC Work as collective participants -CC Intuition and common sense -CC Comfortable in the environment -PC Switched on Eyes and ears of the medical staff, patient and colleagues Part of the support mechanism - P To be so involved and aware until it is second nature to be SA - PC, P	Presence -P Professional Curiosity -PC Critical thinking -CT Collective consciousness - CC
Chunks taken for the transcript considered relevant to elements of rhythmanalysis	Interpreting what it means	What the interpretations underneath or not said	Break down into component parts to see what those yield.	This formed the final code emerges	All the codes where collated and themes extracted

Figure 4: *Visual representation of the data analysis process I utilised from Braun and Clarke 2022) Reflexive Thematic Analysis*

| 1. The data was transcribed by hand to allow full immersion into the data | → | 2. Important sections of the raw data were selected and chucked in relation to the mobilised elements of rhythmanalysis, as the analysis lens: Presence Dressage, the everyday, repetition and difference, time and space | → | 3. The data chunks were then placed into the relevant elements mobilised from rhythmanalysis to form the initial codes | → | 4. Each initial code was broken down through reflexivesubjective interpretation into the emerging codes |

| 5. Any murmurings rhythms found within the data were extracted to create a new lens to place the initial codes to be broken down to emerging codes: education, sensory perception and affect . | → | 6. The emerging codes were explored through description, hidden meaning, and conceptualities from an individual perspective to create final codes | → | 7. Each stage from 2-6 were revisited to ensure the participants narrative was explored fully and mapped to the research questions to answer the research aim | → | 8. The final codes were collectively aggregated, and emerging themes outlined across both groups, separately and then together |

| 9. Themes and subthemes were created from the reflexive subjective interpretation of the meaning behind the final codes | → | 9. Outside of the 6 stages of the analysis both participant group's final codes, themes and subthemes were considered for similarities and differences to inform the findings and discussion | → | 10. The analysis was written, and the reflective subjective discussion formulated |

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Table 4: *Themes and Subthemes of the Data Analysis*

Theme	Research meaning to situational awareness
'Presence' (Subtheme) Self-'presence' (Subtheme) Environmental intunement	'Presence' is the ability to notice difference from repetition by being in the 'liminal' spaces of temporality
Professional curiosity	The exploration of the environment to develop understanding to be positioned in the 'liminal space's.
Critical thinking - (Subtheme) Sensory perception	Considers how knowledge from training differs from education and learning to support deeper thinking and environmental understanding to develop a high sensitivity to situational awareness through meta-awareness.
Individual and Collective consciousness	Collective consciousness considers the sense of individual situational awareness and how it effects teamwork and collective communication.

The final stage aimed to identify the similarities and differences between each group to inform the analysis and discussion. However, although I could see similarities and connections between the two groups in their perceptions and development of situational awareness, they may not be obvious to anyone without prior knowledge or understanding of either of the frames of reference. For example, horse-trainers did not explicitly demonstrate how the horse-human-relationship developed situational awareness. Although I was not surprised by this, after some reflection during the transcribing and immersing phase of the analysis, it began to unfold that the horse-trainers developed situational awareness unconsciously, as a by-product of their interactions with the horse. Therefore, I felt interpreting their experiences would demonstrate this phenomenon more accessibly.

3.12 Introducing the Participants

All the theatre-practitioner lecturer participants represent a mixture of experienced theatre nurses and ODPs. The horse-trainer participant group are a mixture of experienced horse-trainers that range across different disciplines. Each participant was provided with a pseudonym to maintain confidentiality with a corresponding suffix to represent their

participant group (HT- Horse-trainers and TP - Theatre-practitioners ; Table 5: 95). The pseudonyms provided were representations of horses I have known within my horse-training career. My rationale for this was to maintain my immersion with the participants narratives and maintain my more-than-human theme. Equally, this research is concerned with both cross-species and environmental experiences, therefore, I did not want to dehumanise the participants by referring to them as participant X for example.

Table 5: *Introducing the Participants*

Theatre-Practitioners (lecturers) - TP	Experience and phases	Horse-trainers -HT	Experience
Amber (Theatre Nurse)	20+ years; Qualified in all 3 phases	Comet	International show jumper
Teddy (ODP)	20+ years; Qualified in 3 phases	Alfred	International horse-trainer – Natural Horsemanship
Max (ODP)	10 + years; Qualified in 3 phases	Lika	Leisure rider 20+ years' experience. Horse owner
Freya (ODP)	10 + years; Qualified in 3 phases	Puzzle	Therapeutic horse qualification. 20+ years' experience
Laja (Theatre Nurse)	5 years + qualified in 2 phases	Jasper	3 years' therapeutic horse experience
Jack (ODP)	20 years; Qualified in all 3 phases. 40 + years; experience as horse-trainer	Akon	20+ years' experience classical and natural training

3.13 Ethics

Each group had different ethical considerations but as a researcher-participant, I needed to consider any power imbalances that may affect the participants with regard to my data collection method. This was primarily perceived between hierarchal differences between lower grade staff within my university and horse-trainer participants who were friends. The intentions and aims of the research were provided in a written format along with details of the participants' rights and what they can expect. These included no differentiation between nurses or ODP participants, no bias between groups, rewards, or punitive outcome for, or for not, participating within the research process. The potential for any power imbalances were considered minimal, however, an attempt to further reduce these was

addressed by providing participant information sheet so they were fully aware of how the interviews would proceed, their essential part in the research, and that the interviews would be both anonymous and confidential. However, it was acknowledged that any potential power imbalances may not be removed, as power imbalances are an everyday occurrence (Foucault, 1972-1977, cited in Mambrol, 2016) and they can be perceived as real, for example between interviewee and interviewer, or due to their ranges of experience.

Consideration of the participants is at the forefront of the research and reflected in several ways through the ethical application. All participants within the research were over 18 years of age and fully informed of the aims and purpose of the research and the benefits to themselves and others. As part of the research involves horses it was assured that the research itself would not cause harm to them and complied with current animal welfare legislation.

Before commencing the research, an application of the proposed research was submitted to Birmingham City University (BCU) ethics committee for approval (Appendix 8: 227) and access approval (Appendix 9: 229). The proposal outlines how the participants will be informed and protected within the research context including informed and voluntary consent, minimise risk and explain how data will be used and stored (Denscombe, 2014).

3.14 Credibility

Reliability and validity are terms usually connected to quantitative research paradigms to demonstrate credibility in the research or truth of the data (Cope, 2014; Denzin, 2014), while the researcher is responsible in qualitative research for maintaining credibility and trustworthiness (Denzin, 2014). Cope (2014) states the most common criteria used to evaluate research was formulated by Lincoln and Guba (1985). Lincoln and Guba (1985) reported four criteria, and in 1994 Guba and Lincoln (1994) added a fifth: credibility, dependability, confirmability, transferability, and authenticity.

I found it important, as a researcher, to follow Guba and Lincoln's (1994) criteria throughout the whole research process as the consistency between the alignment of the methodology and research process supports the credibility of the research. However, within the more-than-human research the potential anthropomorphising of animals serves to reduce this

perceived credibility because it crosses the boundaries of animal ethology and human essentialism (Hagström, 2016), meaning the researcher is making assumptions from a lens they cannot conceive by speaking for another; therefore, I have been careful and explicit that the research questions, analysis, and discussion stemmed from the entanglements of the horse ethology and the horse-trainers' experiences. Following Guba and Lincoln's (1994) process ensured I was reflecting on my own authenticity, as a horse-trainer, theatre-practitioner and researcher-participant, in the research design and data analysis.

Polit and Beck (2012) and Tobin and Begley (2004) explain dependability refers to the data's consistency across similar participants (Koch, 2006). I felt it was essential when deciding on my data collection method there should be an alignment in approaches of both groups to allow the interview discussion to be natural and rhythmic, therefore, using semi-structured interviews allowed this to happen in practice. I chose Braun and Clarke's (2022) reflexive thematic analysis because it provided flexibility in the unpicking and interpreting of the individual participants' narrative to create the themes that represented the participants' voices, whilst allowing my knowledge as a participant-researcher to be heard. Bochner (1994) and Ellis et al. (2011) explore this by suggesting the researcher should have authenticity and act from the heart and mind when telling their story. I feel my own credibility, connections and understanding of the phenomenon comes from my own experiences within both frames of reference, which allowed my experiences to inform the research. My rationale to use a researcher-participant model was to widen my understanding of how both groups perceived and developed situational awareness rather than relying on my own reflections, which would have limited the findings. However, this was an area I needed to consider, to reduce the potential for confirmation bias, where my insider understanding could influence the discussion due to prior knowledge, as argued by McSweeney (2021). Confirmation bias, as McSweeney (2021), suggests can reduce author authenticity and trustworthiness of the results. Consequently, it was essential I maintained the 'bending back' process to ensure I was not projecting my voice rather than the participants to maintain my researcher credibility.

3.15 Chapter Summary

Throughout the research I have used rhythmanalysis as a disposition to consider the research questions and to interpret the raw data. This provided a starting point to pull out the data codes to create the themes and subthemes. However, it is according to Braun and Clarke (2013), the researcher's values, beliefs, and experiences which formulate the way the data is interpreted. In some research this is considered as areas of bias whilst in others it is celebrated and supported as a resource to explore data. I personally found it liberating to share my own voice within the research, to be reflexive, and learn from my participants in how they understood and developed situational awareness, which helped me form my analysis and draw my conclusions.

Chapter 4: Findings

4 Introduction

In this chapter, I will present my findings, interpreted through the lens of the more-than-human-Lefebvrian axis. While the more-than-human lens allowed the horse-human-relationship and environment to be central to the analysis, rhythmanalysis (Lefebvre, 1992) drew out the importance of the 'rhythms of the everyday'. Equally the more-than-human lens enabled the horse's ethology to be used as a framework to understand and interpret the horse-trainer's narrative.

4.1 Presenting the Findings

In this section I will present the findings and explain the meaning behind each theme and subtheme. I have used the participants' individual voices from their narratives as examples of the data codes which support the themes. The findings demonstrate how I have interpreted the participants' voices' to really explore the nuances of the data and provide real meaning to the participants' narrative in respect to the research question. I have presented the findings under each of the main themes, 'presence', professional curiosity, critical thinking, and collective consciousness, which are required for situational awareness. However, each theme cannot be viewed in isolation, all four are entangled and threaded together in an exploration and interpretation of how situational awareness develops for horse-trainers and theatre-practitioners.

4.2 Findings

4.3. Introduction to Theme 1: 'Presence'

'Presence' is an essential element of Lefebvre's (1992) rhythmanalysis, to understand the nuances of the 'rhythms' in the environment and how they influence and impact 'the everyday'. For example, Freya-TP, alluded to this by saying:

> "you need to be in each moment, present, even if chatting".

Meaning even if you are doing something else you need to be aware of what is happening around you. Across the whole data analysis all the participants referred to needing 'presence' in 'the everyday' to have situational awareness. Therefore, the findings within

this theme interpret the idea of Lefebvrian 'presence' as the defining requirement to be situationally aware in both groups. 'Presence', therefore, is interpreted as being in, understanding, and a part of, the internal and external environment. There are two subthemes, self-presence and environmental attunement, which separate how 'presence' is broken down into components, demonstrating its importance and influence in developing situational awareness.

The horse-trainers voiced their understanding of how the horse's ethology demonstrates the horse's natural 'presence' within the moments of 'the everyday'. They suggested this supports how the horse reacts to the dynamics of their environment which alerts them to potential danger. They felt this was important because if the horse is constantly aware of what is always going on around them, as horse-trainers, they should also have that awareness of their environment and their horse, which supports Argent (2012) and Blignault's (1998) considerations for successful horse-training.

The horse-trainers went on to explain they needed to be present with the horse during training to be alerted to those changes themselves to maintain safety. As Puzzle-HT expresses:

> "Horses are masters of situational awareness, it is in their every second, - "do I need to flee, is this life threatening, is this okay, is this familiar, can I predict what is going to happen here?"

The horse-trainers felt this ability to recognise these characteristics, was established early on in their own horse-training education. However, a few of the horse-trainers explained how the horse's natural 'presence', as discussed by Irwin (1998) in chapter 2, can be used within their training strategies. Therefore, I felt that horse-trainers understood the importance of, being and having, 'presence' to manage safety within the horse-human-relationship, but some were also able to use the horse's awareness as a primary training tool. Alfred-HT explained:

> "Novice horses' have a short attention span; I use the idea of horses' 'presence' to bring clues and cues to their awareness to grab attention."

Both groups of participants expressed the importance of being present within their environment to be fully situationally aware. Within my analysis, I have taken the participants' meaning and understanding 'present' and 'presence' as being synonymous with situational awareness, this is because both groups of participants used the terms interchangeably in reference to a requirement to be situationally aware. Equally, I interpreted the participants' understanding of 'presence' and 'present', as needing to be aware and committed to what is happening between the moments of 'the everyday'. This is different to Lefebvre's (1992) representation, as he suggested 'presence' is the embodiment of being in an environment, while 'present' simply refers to the location of being within the environment. For example, when I asked each participant what situational awareness means to them each answered slightly differently, Amber-TP, referred to a present moment in time and space, the COVID-19 pandemic, and the need to be 2 meters a part (at the time of the interview):

"Being aware of what is going on around you and reacting appropriately to that, especially during the pandemic in the initial phases even more so, you know in supermarkets etc."

While Max-TP believes:

"Situational awareness is about knowing what's happening and what has happened, so it is forward thinking to save time or reduce risk, it's a way of being prepared."

Laja-TP, equally suggests something similar in her interpretation of situational awareness, by providing a specific example:

"It is the ability and importance of being ready and prepared and knowing the surgeon's preferences as well as the patient's status."

Here the participants are referring to having some degree of 'presence', being attuned to the environment to be prepared within it. While Puzzle-HT, provides a wider example that focuses on the influences with the environment:

"To me, it's really a holistic checking in with everything that goes into a situation. For example, if I am giving a session, I feel it is my responsibility to pay attention to every part of that even with things that are not necessarily connected to the curriculum itself, it will be the environment for sure, it's going to be the participants and it's going to be the horses and it's going to be my own inner landscape I guess for the day."

Interpreting Puzzle's comment regarding situational awareness allows for the consideration of the internal and external factors that influence moments in time. Puzzle-HT is referring to her own everyday 'rhythms' that influence her everyday, both internally and externally.

Akon-HT thinks about situational awareness:

"As a connection of moments overtime, so it's not about one thing but the whole thing, it is multifaceted, difficult to explain. It is about self-control and aware of self and emotions to be able to quieten the communication."

This idea links to Park and Chang's (2022) research discussed in the literature review that suggests effective non-verbal communication supports calm interactions. All the horse-trainers alluded to 'presence' as an essential requirement to connect and bond with the horse, which equally allows for successful training and happy, respectful calm relationships. Therefore, Akon's-HT narrative is suggesting 'presence' allows for a connection with the horse, as they live from moment to moment, so your communication with them depends on you as a human being, being able to do the same thing. However, Puzzle-HP makes it clear that situational awareness for them is a natural skill rather than a constructed one, because it can become confused with situational distraction. This is what Irwin (1998) suggests in the literature review as a human characteristic of being easily distracted and what Green et al. (2017) found to be a barrier to situational awareness:

"People show they have presence, you get to notice everything and there is a difference between noticing everything and being distracted by everything, I feel like we live in a very distracted distractible culture right now, click on this click on that, everything is like at the same intensity, it's like the same volume it's all adrenaline inducing or should I say dangerous."

Therefore, Puzzle is identifying how situational awareness can be falsified as being 'present', in the Lefebvrian sense, with reference to how we live, work and learn within a technologically driven society, with multiple data streams vying for human attention. In other words, how becoming distracted reduces the ability to have 'presence' in the environment and the danger this can create, because it limits your awareness to the wider environment.

From the interviews with the theatre-practitioners, it was more apparent that there was a consensus of thought, that being present was perceived as a requirement to complete immediate tasks. Conversely, horse-trainers alluded more to 'presence' as a requirement to be within the moments of 'the everyday' and respond to them, rather than being present to complete tasks. However, one of the theatre-practitioner participants extended this concept by adding another layer to the idea of being 'present' within an environment, in line with Lefebvrian thinking, you also needed to have 'presence' within self. Teddy-TP said:

> "Understanding the situation, I was in and my knowledge limitations, that I may need someone else's expertise or even just an extra pair of hands to give me a hand to free me to do something else."

Teddy-TP's statement refines how theatre-practitioners should understand situational awareness as a process of awareness of self and environment, for example, situational awareness requires 'presence' in the immediate environment and an ability to recognise their own limitations. Conversely, for horse-trainers 'presence' was expressed as the wider understanding of the environment, self, and 'the everyday' influences impacting on temporality.

Alternatively, horse-trainers consider situational awareness as a tool to train and maintain safety, but also recognise that it can create a different outcome than intended. Alfred-HT explained:

> "There are two types of awareness - mine and the horses - I have to be thinking for two when training."

Situational awareness does not always require quick responses and action, but the horse-trainers recognised their 'presence' is required to initiate action, as Alfred-HT suggests:

"You only have moments in training to give awareness and to get it right. You only have a moment to ask, if your timing is wrong or brings awareness to the wrong place you will get a different response than the one you are looking for."

Alfred's-HT narrative suggests that to be situationally aware through 'presence' there is an element concerned with meta-cognition, as discussed by Bateson (2000) and Casaway (2008) in the literature review. For the horse-trainer that is thinking calmly and authentically to decrease the intensity of a situation, or to bring awareness for change, tempo, or energy levels. Horse-trainers use authenticity as a term to mean 'bring your horse-self to horse-training', which I take to mean horse knowledge, respect and focus, as outlined in the literature review as an interpretation of what Gunter (2007) believes horses consider as authentic leadership. While in the perioperative environment, in an emergency, this is about acting fast but slowing the thinking (Kahneman, 2011) process to be effective. However, from this I interpret that 'presence' may not result in accurate decision-making all the time but does open a space and time which allows for the development of situational awareness through reflection. This is important because it highlights situational awareness as a separate skill to decision making, which the literature considers as synonymous (Tower et al., 2019).

From the data analysis, the idea of 'presence' was becoming to mean more than being in a "place", it was equally about the interaction between self and the environment and how that was understood in a time and space through interaction. It is not enough to have a superficial vision of the environment within any given time, rather there needs to be a deeper understanding and examination of the nuances at play. Therefore, two discrete subthemes were extracted to represent how 'presence' is manifested to encompass all that is needed to be situationally aware. Both subthemes delve deeper into the raw data, to demonstrate the subtleties in the way individuals acquire, perceive, or develop presence.

4.3.1 Subtheme 1: Self-Presence

The horse-trainers and theatre-practitioners discussed situational awareness as self-awareness, when you are aware of one's internal self and are in a position of understanding, something I have interpreted to mean meta-cognition comes from self-presence. Self-presence was highlighted as being aware of self within professional practice, developed

from 'repetition', experience and memories. It can be considered an unconscious attunement with the environment, even if one appears to be doing something else, one still notices and attends to it because one has, what the horse-trainers know as a 'soft eye' or 'peripheral awareness' (Swift, 1990), that develops because one does it every day. As Max-TP explains, it moves beyond just being task focused:

> "So having an understanding that it may be more than task-focused, that element of focus that you do need, but also having a broader picture of what is going on."

Teddy-TP provides a specific example:

> "Situational awareness is that situation, even if I am working with a consultant anaesthetist, you need to be mindful of where the equipment is, what you need in case you get into a difficult situation."

and continues with:

> "Even after a late night or something we need to be switched on in the anaesthetic room, even talking with students for example about football or EastEnders, and that is fine, but still you need to be aware of what's going on, it could be that one time he could not get the tube in, it is like you automatically forget EastEnders etc. and become switched on."

Theatre-practitioners also talked of making sure they have 'presence' by checking in to the environment or, what some termed as situational awareness, to be "switched on" if the situation requires it, taking responsibility for their own awareness. When situations were different or something different was planned, for example, swapping between specialities, or starting in a new area, you need to ensure you were focused and present in competence and expectation, which may require a heightened need to think about one's own ability or sense of situational awareness. Teddy-TP was able to specify situations where this was required:

> "In paediatrics I was aware I was more switched on, more expecting problems because they react so much more quickly – really need a heightened sense of awareness."

However, it is also about checking in on self to ensure one's own mind is where it should be. This is not always to do with the immediate environment, as highlighted by Max -TP:

"So sometimes it's the external factors or stuff that it is not work related, that can impact on your situational awareness."

This is important as Max-TP was the first theatre-practitioner participant, to discuss the importance of the wider environment. Therefore, to develop the ability to be situationally aware it appears the mind must be able to separate information gained from memories and past experiences, from the body to the mind and to action and reaction, to immediate past situations and understanding reactions as suggested by Max-TP:

"Filtering information into compartments to be utilised in different events, latent learning and memory to transfer skills and knowledge."

Horse-trainers also talked of self-presence as being mindful of what is going on and checking in being prepared around one's own ability and emotions. Alfred-HT considers this as:

"Work with knowing own movement, body and thought awareness as second nature."

While Jack-HT considers self-awareness holistically and developmentally, learning from previous experiences to tune into self:

"Need to learn to be calm, quiet, silent communication and observant periphery and immediately, learn to pick up the situation visually, feel, kinaesthetic as well as sensory. Always need to be open and listening if you are busy not listening well how you can see or understand what is going on."

4.3.2 Subtheme 2: Environmental Attunement

Alongside self-presence as a subtheme, environmental attunement reflects individuals' depth of understanding and association to the environment. To be attuned with the environment as alluded to by Lefebvre (1992), is to consider yourself as part of it, not separate, but associated with, or connected to, through harmony and understanding; this is equally outlined by Birke and Hockenhull (2012) and Haraway (2008), as a way of being or becoming, in the literature review. More precisely Lefebvre (1992) frames the process as

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being grasped by 'rhythms'. Therefore, to understand the internal and external influences of the environment, to be in control of self in body and mind, to understand 'difference and repetition', there is a requirement to be attuned to one's own surroundings and the influencing factors of self and others, using one's own senses. Horse-trainers and theatre-practitioners made the connection if they were attuned with the environment, 'difference' can be spotted more easily and reading the environment becomes a much easier process. I argue, within my thesis, to be environmentally attuned, requires a deeper knowledge of the 'social spaces' which influence the professional, social, and environmental interactions. This not only separates functions within 'time and space' but enables the transference of understanding between temporalities allowing the familiar to become unfamiliar. Freya-TP provides away to see how this happens in theatre practice, by providing an example of attunement in action:

> "When you're scrubbing a lot of the time, the people who make it look easy are watching what's going on and taking it in, it becomes second nature because you know what's happening because you know what's right and what isn't. So, it's almost like sixth sense, I think."

Although Freya does not term it in quite the same way as attunement, Freya-TP's thoughts are considering theatre-practitioners who are observant and become more situationally aware, who are unconsciously becoming part of the environment both harmonising and understanding its multiple 'rhythms'. What Freya-TP analogously describes is how horse-trainers become more 'horse-like' and connect better with their horses, as discussed by Evans and Franklin, (2010). As the theatre environment is dynamic it requires constant attention and updating of perceived information, therefore, practitioners need to develop an interactive attunement with the environment to develop deeper levels of situational awareness.

Within the horse-trainer's environment, it is more obvious because there is a need to be constantly looking and reading the environment as the horse does. Lika-HT provides an example of the consequences of not being attuned to the environment:

> "I think you have to be present all the time if you switch off that's when accidents can happen or potential for, my accidents have always been through lack of

attention on my part, yes paying attention you never know what will happen from one moment to the next."

Comet-HT provides a good example of not having environment attunement. Comet-HT explains her own situational awareness was reduced because the environment was different, the social spaces were unfamiliar. In trying to transfer knowledge, Comet-HT became distracted which affected being environmentally attuned:

"in the practice arena because you are jumping or warming up with 20 to 30 others who all want the same thing so you need to see what's what, when to jump when not, you need to see them and see what they are doing or are potentially going to do – it was here when I was at a competition abroad that I lost focus and concentration as things can be overwhelming and I had an accident in the warm up arena that threw me off my game."

From these narratives, I have interpreted environmental attunement as the ability to harmonise by interacting and engaging with the environment, therefore noticing the changes, seeing the 'liminal spaces' between 'repetition and difference'. By being attuned through environmental engagement the ability to be adaptable and flexible within different temporalities develops through an in-depth understanding of the environmental 'rhythms'. Therefore, to be in tune and have attunement with the environment, one is required to be situationally aware to work consciously within the mundane of 'repetition' to be alert to 'difference'.

Indeed, being attuned with the environment can also be considered embracing the 'rhythms of the everyday', allowing for the noticing of 'difference' within the mundane and 'repetition' of 'the everyday'. If the practitioner is environmentally attuned than it can be interpreted that they are seeing the value of being in each moment and its importance to situational awareness, which will reduce risk and improve safety. Amber-TP alludes to how the loss of situational awareness will cause issues, while Laja-TP brings attention to when the mundane is working against situational awareness, because of a loss of consciousness. Amber-TP observes:

"It's like once you relax, take your eyes of the ball that's when it goes wrong."

while Laja-TP suggests:

> "I think checklists can distract from situational awareness because it relies on the mundane, and you don't consider or notice the differences just repeat as previous times."

From the horse-trainers' interviews, nothing was directly elicited regarding the 'rhythms' of 'repetition' or mundane situations from which to understand 'difference' in the same way. For example, theatre-practitioners learn from the clear 'repetition' of activity and tasks with 'the everyday' which can be considered as mundane but are used to develop competencies. However, although there are changes and 'differences' coming out of 'repetition' and 'rituals' due to the nature of the job, they are not always anticipated. Whereas the horse-trainers' 'everyday' has 'repetition' but 'difference' is always expected with that' 'repetition', in other words you may do the same thing, but it is never expected to be the same and that is how learning develops. 'Difference' therefore, is a constant and dynamic process or at least 'the everyday' of unpredictability. The horse-trainers referred to the ability to be 'present' and situationally aware as mindful, and 'the everyday' builds confidence to deal with the predictability of unpredictability. Interestingly, Comet- HT, considers 'repetition' and the mundane as positive:

> "Doing something every day builds confidence and ability, builds a momentum."

While Puzzle-HT, suggests every moment requires positive attention:

> "It is our responsibility as horse-trainers to be mindful of our horses."

Here mindful is used to express constant and conscious awareness of the horse as a method of taking care and noticing 'difference' within the 'repetition', by being attuned with the environment.

Thereby, environmental attunement is the ability to be aware of the processes that influence 'the everyday' 'rituals' and 'routines' which allow for forward thinking and situational awareness for both groups. 'The everyday' of the perioperative environment requires a level of sequential learning because of the mundane, what Lefebvre (1992) terms as 'dressage'. Max-TP alludes to this by way of explaining how it is possible to forward think,

prepare and plan for eventualities because there is 'repetition' of what happens in 'the everyday':

> 'Presence' is about knowing what's happening and what may happen, so it is forward thinking to save time or reduce risk, it's a way of being prepared."

Theatre practice is based on 'routine', it is 'ritualistic' and embedded in a long history of practice development and changes to improve safety and reduce risk to patients in the perioperative environment, as suggested by Jack-TP:

> "You learn about the job from your colleagues, practice mentors tell you what to do and when, it's through custom and practice in many cases I guess".

While Laja-TP provides a focused and specific example of how environmental attunement supports practice and patient safety:

> "It is important to be ready and prepared and know your surgeons' preferences as well as the patient status."

Horse-trainers have a particular understanding of this, the processes come from 'routine', but also the accountability to check in and assess what is happening across a arrange of complex and entangled factors, to notice 'difference'. In theatre practice a process of team check-ins within the 'routines' of 'the everyday' would reinforce accountability and facilitate the development of individual and team situational awareness. Puzzle-HT emphasises how in 'the everyday' of the horse-human-relationship, checking is important as there are at least two agents, both with emotions and physiological 'rhythms' of their own, so checking allows for those to be considered. Puzzle-HT explains:

> "You need to read moments, kids, parents' attitudes, and emotion all of the time, each has an effect on the other. So, you are reading the parent too, it's just being aware, like oh there is a little tension in that family let's give the mentor or horse holder a little heads up as that kid may approach the horse differently that day, they may barge right up without brushing. So, to me that's what situational awareness is and I could go on about those small elements that make up the bigger picture. But for me it's pretty big."

While Akon's narrative shows understanding to how horses allow you to develop many skills that help you to become situationally aware:

> "You start seeing sides, all sides, inside and outside, looking, and interpreting effects and actions alongside consequences and future predictions. It is not a natural way to look but horses provide that for you, I think."

The above findings explain how theatre practice and horse-trainers' skills are guided and developed through the 'rituals' of 'the everyday'. Lefebvre (1992) discusses 'rituals', through 'dressage', explaining that they are intentional and desired, ingrained practices that are unwritten but are embedded within social communities, groups, or professions. Understanding these 'rituals' is a key to understanding how levels of 'presence' impact situational awareness as an individual, and by understanding the 'rhythms of the everyday'. This theme informs us that 'presence' is required to be situationally aware in both groups, but not how this complex ability develops.

4.4 Introduction to Theme 2: Professional Curiosity

The theme of professional curiosity builds on the previous discussion of 'presence,' by considering how seeking wider developmental opportunities allows the noticing of 'difference' within a 'time and space', by building confidence, comfort and allowing calmness. Some of the theatre-practitioners referred to how working within different specialties created opportunities that influenced their situational awareness because the familiar became unfamiliar. I interpreted this to mean situational awareness can be dynamic, and situation centred, highlighting how different temporalities enhance opportunities to develop different kinds of situational awareness by how it is perceived and negotiated within the respective environments studied in this thesis. However, it became apparent that professional activity can only support situational awareness development if professional curiosity is present.

The theme of professional curiosity became important due to two of the theatre-practitioner participants referencing their level of situational awareness developed due to their "nosiness". I have interpreted this as professional curiosity. The term aims to encompass the levels at which both groups of participants actively engage to seek out

information to support their understanding of a situation to have 'presence'. It is, therefore, professional curiosity that enables the noticing and interpreting of the environmental clues and cues. For example, Max-TP stated:

> "When I am scrubbed, I am still looking at the anaesthetic machine, checking on the patient's physiological status. I do this if something triggers a concern like swabs that are blooder than they should be, or it could be that I am just nosey."

While Freya-TP explained:

> "Situational awareness was not a term we used in theatres then, I just thought of it as nosey."

Although the horse-trainers did not make explicit references to being nosey, it was evident in their narratives that their situational awareness develops from their interactions with the horse in different temporalities. Equally, these interactions demonstrated that horse-trainers use the horse's natural curiosity in their training to help the horse learn but also to keep things respectful and fun, both consciously and unconsciously. Therefore, for the horse-trainer, professional curiosity is about finding, developing, building-on and using the human's inner curiosity to connect with the horse, as well as recognising that each moment is 'different'. Alfred-HT explained his training method was to:

> "Keep changing the horse's inner awareness, keeps it curious and fun for the horse, and self."

Thereby, horse-trainers spoke of professional curiosity as just knowing one's own horse to become a confident horse-trainer. Therefore, explicitly connecting 'presence' with curiosity. The communication between horse and trainer is constant, and, as stated in the first theme there is no concept as mundane, everything is different. I have interpreted the horse-trainer's level of professional curiosity as a two-way dialogue which aims at keeping the horse aware through the trainer 's own levels of curiosity in training. For Lika-HT it is following the horse's curiosity:

"Horses make you look for the differences, what changes, nothing is really the same all the time."

Professional curiosity, therefore, directly considers how theatre-practitioners' or horse-trainers explore their own understanding of the environment and its influences during different temporalities to develop confidence and comfort. The perioperative environment has three phases of patient care, each requiring situational awareness skills as highlighted in the literature review. As a theatre-practitioner, the opportunity to develop in each phase, either through formal education or experience, provides a broader understanding of the perioperative environment and other theatre-practice roles. This enables for a deeper understanding and ability to be more peripherally aware in each phase, if professional curiosity is employed. Amber-TP feels this was an important element in her own personal situational awareness:

"I worked in theatres for a while before I did my anaesthetic training, but it helped and gave opportunity to see what help other team members may need – I mean you knew what to do even without them needing to ask because you had your eye on it."

Time is significant here because it is building on knowledge through multiple experiences, which broadens levels of situational awareness by providing the understanding of different 'spaces'. Having a clear understanding of 'space' in different temporalities creates levels of comfort which enable situational awareness but also allows the 'differences' and 'spaces' between 'repetition' to become more apparent. Comfort develops through professional curiosity to know how the influencing factors fit together and where your responsibilities lie, which leads to confidence. As Teddy-TP explains you may deal with the same case, but the situation can be different, and you know this because of experiences, and you are confident because of them:

"What you do need to be is prepared, in case something happens, even if it's just where the emergency box is, or if I need the laryngeal microscope, I know where it is how to find it and get it here."

Participants in both groups discussed comfort within their environment as a way of exercising situational awareness. Comfort and confidence were interpreted as being

important for both the theatre-practitioners and the horse-trainers as it allows for calm and relaxed thinking. It allows problems to be solved through knowledge and understanding. However, discomfort can have an opposite effect and be a barrier to situational awareness (Dupont-Adam, 2021). A lack of situational awareness in the perioperative environment and within the horse-human-relationship creates risk and unsafe environments. For horse-trainers, discomfort can heighten energies in themselves, which causes a heightened awareness in the horse, which reduces the horse-trainers' awareness and affects the management of the horse's energy levels, therefore increasing risk. Consequently, levels of comfort are important to situational awareness. Akon-HT demonstrates this point clearly:

> "People can become overwhelmed or nervous in different spaces and what happens is a heightened sense of awareness that creates an energy that can be destructive to good outcomes, so it is about being self-aware of those and managing them – relaxing. Heightened awareness creates a type of awareness blindness which influences horses."

Akon-HT's, narrative, is important because it differentiates how discomfort can heighten situational awareness but reduce the ability to be productively situationally aware. In essence, even though there is a hyper vigilance, it is due to discomfort, it therefore increases unmanaged energy levels, increasing risk because calmness is lost creating "awareness blindness" as discussed by Rensink (2000) and Levin (2012). While equally, if comfortable in the situation, high energy levels will increase situational awareness if calmness is present.

For the horse-trainer, the difference in professional curiosity is understanding the horse between 'repetition' of training and 'differences' in outcomes, while taking account of different temporalities. Horse-trainers use their curiosity to reflect on different training outcomes to assess the similarities and differences between temporalities, to recognise developments in the horses and themselves to move the training along and recognise the horse's limitations. Comet-HT provides an example where if comfortable and confident, changing temporalities should not be an issue:

> "Learning and practising show jumping exercises, provides repetition but in new environments difference should be considered."

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While Puzzle-HT: suggests horse-trainers use feel as a system of curiosity.

"An unseen awareness and connection to the horse's-horse awareness."

I have interpreted this to mean that both horse-trainers and theatre-practitioners use curiosity actively, which enhances situational awareness, one through feel (physical and emotional), and the other through experience, although both overlap each other. Therefore, professional curiosity is a skill required by theatre-practitioners that necessitates embedding into the theatre practice curriculum.

However, the development of professional curiosity moves beyond the Lefebvrian concept of 'dressage' (Lefebvre, 1992) because it enables the noticing, understanding, and effect, of different situations, on self and others, within the 'repetition of the mundane'. In theatre practice this can be the same cases, but with important differences depending on temporalities, for example the time of day, elective or emergency cases, patients' status, and seasonal differences. Teddy-TP remembers:

"There were times I did need to be more switched on, particularly for instance, an example, I used to work in the ENT theatre and knowing there will be a difficult case or intubation coming in."

While Amber-TP considers this from a different temporality, specific to the environment:

"The problems came in the day, if you have more emergencies than theatres, you had to prioritise and be in control, so you could be up against available resources and power balances between surgeons and levels of, or category of, emergency, but also staff availability and space –so more difficult in the day working hours."

Individual experiences have the capacity to develop individual senses of situational awareness. For the horse-trainer, individual experiences provide opportunities to learn and understand what is common and what is not. Akon-HT puts this into context as a way of anticipating and dealing with difference calmly because of professional curiosity:

"I know my horse will be different in high energy or in louder, unpredictable situations, but I can work on their energy to keep them calm and lower energy to an acceptable level for him."

Here Akon-HT is simply demonstrating how professional curiosity heightens situational awareness and allows preparation to manage risk.

As a horse-trainer, it is learning to use the horse's sense of awareness, by developing one's own training skills, to keep the horse's energy levels low and be calm. For example, Alfred-HT:

> "I look at the horse's ears and eyes, feel the tension in my hand between the left and right rein. The eyes tell me where the horse's attention is, the ears the direction and their level of diffracted awareness and the tension is how much resistance the horse has, or suppleness."

For the horse-trainer it is important to develop feel and touch to assess the development of the training as well as the horse's acceptance or resistance. For horse-trainers, feel provides an internal sense of change or 'difference' that may, or may not, require the physical act of touching the horse. Feel is important for horse-trainers' curiosity, alongside developing the ability to compartmentalise, both one's own, and the horse's body, to work each area separately. Each need to work independently to develop suppleness, coordination and provide subtle cues and clues. Horse-trainers develop a heightened awareness of proprioception (bodily positioning awareness) to work horses effectively and safely. Alfred-HT explains how it is used and its importance:

> "Yes, you have to give the horse the context, the horse is not here because he wants to be, he has no interest in doing the training or being with humans. By giving context, you are bringing awareness. Need to create information that is relevant by making the environment relevant, you are bringing a point to the horse, but you cannot use this too much as you over emphasise and that defeats the point, it becomes too much for the horse. The trainer needs to think about these each day each session and each part, as it is in flux, there is no one way or recipe."

To acquire knowledge, confidence, comfort and calmness from professional curiosity, it is also important to associate the meaning behind the silent clues and cues that come from the environment. Professional curiosity is how sensory perception develops to read the internal and external environmental clues and cues.

For horse-trainers the conversation that occurs within the horse-human-relationship is the interpretation of the multiple cues and clues that come from the environment and the horse through sensory perception. Sensory perception for horse-trainers develops by reading the clues and cues of the peripheral and immediate environment, interpreting the horse's silent communication. Lika-HT provides an example of this:

> "I think you become aware of noise, foot falls, sounds, talking whatever, if that changes then something is different. This happened when a friend came off her horse, we noticed because the sound was different, I think, but we realised because she was behind us so we could not see her, but subconsciously recognised a change in foot falls. Sometimes you are relaxed talking with your fellow hackers and you will spot in the distance something that maybe an issue, so you prepare, a loose dog or Nordic walker something sometimes the horse reacts sometimes not, but I feel safer to prepare."

The horse offers clues and cues all the time through its body language, as a trainer it is picking up those cues and deciphering their meaning to understand the horse, its needs and potential reactions. Jasper-HT suggests through the clues and cues there is a mutual conversation:

> "When I am with them and not many people get this, we have, we do have a dialogue, we talk to each other and listen to one another."

For the theatre-practitioner, professional curiosity requires the reading of the environment in terms of mood, changes in noise levels, eye contact, or anger and anxiety, as well as more tangible clues, such as blood loss and a patient's vital signs. Sometimes these can be easy to pick up on, other times they may be more subtle. This ability is founded on professional curiosity, developing 'presence' by noticing 'difference' and being comfortable and confident within the environment to manage situations. Amber-TP suggests it is the importance of noticing the clues and cues within the environment:

> "In theatre's situational awareness is an everyday requirement, otherwise you are putting other people at risk – and that's how people get hurt." [continuing] "need to be always switched on and click into when things are going wrong, to that, for

example a change of tone in the voice, or the level of concentration on someone else's face, and you can adapt even if you do not know what is going on, but can adapt to what you are seeing or hearing and step back."

Therefore, professional curiosity for theatre-practitioners and horse-trainers is the active seeking and exploration of the environment, which creates situational awareness by building knowledge, confidence, comfort, and allowing calmness. This enables the safe management of situations, by noticing 'difference' in the environmental clues and cues which reduce 'never events' and enhance safety. However, professional curiosity cannot be considered alone, it creates 'presence' and acknowledges the need for sensory perception, but it also interacts with teamwork and collective consciousness which are discussed later. However, developing situational awareness requires more than the ability to be attuned with the environment within different temporalities, one needs to be able to develop the required cognition to manage adverse situations.

4.5 Introduction to Theme 3: Critical Thinking

This theme provides a connection between 'presence' and professional curiosity. The ability to have Lefebvrian 'presence' and understand the internal requirements of professional practice develop through knowledge production. This is about the knowledge gained in training and how education and learning support deeper thinking and environmental understanding to develop a high sensitivity to situational awareness. This suggests situational awareness develops beyond 'dressage', through the ability to self-produce knowledge, using the senses and by questioning the 'rhythms of the everyday' and harmonising reality with processes. The subtheme, sensory perception, considers how critical thinking allows for behaviour adaptation through reflective practices to enhance internal situational awareness.

Participants discuss several experiences and strategies that support developing situational awareness beyond formal training. Lefebvre (1992) explores training as 'dressage' within the concepts of rhythmanalysis. Lefebvre (1992) defines 'dressage' as training or breaking in, so it was interesting that the theatre-practitioner participants referred to beyond-formal training requirements, while horse-trainers encourage self-thinking and development. For

the horse-trainers, formal training is short in comparison. Although there are ways to develop through expertise once the basics are mastered, this does not follow the same level as a competency-based methodology. Therefore, this theme considers how training supports situational awareness and distinguishes the differences between formal learning and the individual desire to develop knowledge beyond training, through critical thinking and internalisation, which either requires effort, or becomes embedded subconsciously, but leads to situational awareness.

Both groups of participants agreed that a basic understanding of their practices was essential to be able to develop situational awareness, but their training alone did not transcend cognition or sensory development. Both groups of participants said developing their own critical thinking was to understand the environment and its nuances. They indicated the importance of connecting the environmental nuances together to understand how the components of the environment made up the whole by questioning their composition, processes, and impact. Alfred-HT feels that situational awareness is a term used by humans to measure a skill, while for horse-trainers it is something more encompassing:

> "Situational awareness for horse-trainers is a human term that suggests that skill and knowledge is not enough and it isn't. Situational awareness helps trainers work with individual horses."

My interpretation of Alfre-HT's narrative here is that there must be something from within that allows one to communicate with the horse, through intuition and feel. It is not just about external knowledge and internal feelings but becoming more 'horse-like'. Alfred-HT continues by expanding on his point:

> "Foundations start the knowledge and understanding of horse ethology. Having knowledge is required but allowing freedom to think and reflect and experiment develops your own way of doing."

Interestingly Jack-HT explains how they recognised their need to move beyond training and the difficulties that it brought:

"I think once I realised the textbook was not working and actually, I was feeling uncomfortable with traditional methods, I started looking for something new, something horse centred although I found it difficult to alter my thinking, it took effort."

However, Amber-TP recognised how training initially will start the idea of situational awareness because what seems ordinary becomes different and starts the process of moving between spaces:

"Training makes you think differently about hand washing or touching your face following policy and protocol."

From the participants' quotes two important considerations arise, one is training offers situated awareness in line with 'dressage' while the other moves beyond 'dressage' to critical thinking and self-internalisation of learning to develop situational awareness.

For critical thinking and internalisation to occur, understanding how formal training provides the foundations of practice is important in developing situated awareness, this means training offers a sense of role requirements and therefore situated awareness within it. From the horse-trainers' narratives, and as important for theatre-practitioners, is how the foundational knowledge forms the basic understanding and is the corner stone to being able to develop competence and heightened levels of situational awareness. For horse-trainers this is with, and from, the horse. Lika-HT feels:

"Rules are important to reduce the possibility of things happening."

Comet-HT also considered situated awareness should be so embedded that it becomes a subconscious act to maintain safety:

"I think the thing with horses is that they are living wild animals that have a mind of their own and you have no control over that really, so you have to be aware of them and their space and character even if you are knowledgeable about them."

However, it was also mentioned on a few occasions how incorrect cues and clues can cause the horse to misinterpret the situation. Alfred-HT specified within his narrative that:

"Inadvertent awareness can create issues in training".

Inadvertent awareness, I interpret to mean communicating with inappropriate clues and cues unintentionally, causing unwanted reactions and cross communication which can increase risk and heighten energy levels, reducing calmness. Therefore, developing situated awareness is not enough to recognise false clues and cues, critical thinking and self-internalisation are required to filter relevant information and communicate accurately.

From the theatre-practitioner's perspective, university education and practice placements lead to qualification, but do little to allow development beyond set regulatory body standards. Therefore, the pre-qualification curriculum informs the practitioner of the generic requirement and theory regarding the care of patients in the perioperative environment, developing situated awareness at a foundational level. Amber-TP refers to the need to really develop the initial knowledge:

"Understanding the rules and why they are important to follow".

This is because without foundational knowledge it is difficult to develop situational awareness and communicate accurately. It was something other practitioners thought of initial training as only the start. There was some discussion on how situational awareness developed as knowledge comes through exposure, experiences, and nurturing from qualified colleagues who share their own understanding and experiences of situational awareness. As Teddy-TP explains, colleague support and teaching helps develop situational awareness:

"Giving anecdotal examples of situational awareness, it is more logical when teaching to learners with less experiences the need to put it into context or real-life terms."

Laja-TP equally affirms the importance of experience:

"Definitely, the more you see in practice the more easily you hedge your bets or the more you kind of unpick and rationalise what you are doing, why you're doing it," Laja-TP continues: "The more and more you tap into your experiences almost like your clinical intuition the more situationally aware you become. But you have to

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have that experience of practice in order to develop those skills, bit like those skills from novice to expert by Benner."

Laja-TP links to the experiential move from novice healthcare practitioner to expert as outlined by Benner (1982) in her work demonstrating the growth in a practitioner's levels of competence. However, for any of the strategies discussed to develop situational awareness individual engagement and critical thinking is required to explore the nuances of the environment.

Critical thinking is concerned with how the theatre-practitioner participants recognised and explained their own internalisation of their experiences in the perioperative environment from their own individual learning preferences. It moves beyond curiosity; it is how they piece information together to be aware of the bigger picture and critique it. For the horse-trainers, this seems a freer process because they are working individually and have the freedom to work on their own and the risks are between themselves. This provides more opportunity to experiment and try out new ideas, therefore, mistakes are less important for horse-trainers. Alfred-HT explained that he honed his craft by:

> "Training through experimentation, free to make mistakes, and reflect without criticism."

> Alternatively, Puzzle-HT simply categorises this process as "trial and error."

However, the horse-trainers who are developing athletic horses explained their own situational awareness needed to extend to be at a more granular level, to be able to manage their proprioceptor awareness compartmentally. This included direction, tension, and flection, Alfred-HT explains this more by saying horse-trainers, need:

> "Knowledge of areas of work and need to plan training requirements. The aim is to develop athleticism; therefore, you need to have a higher awareness of different body areas to develop the horse's self-carriage."

This indicates more experienced trainers have a level of granular situational awareness where self was considered as much as the wider environment, therefore connecting to

internal and external situational awareness. Whereas Lika-HT has internalised from her own experiences, through trial and error, how to minimise risk from a more acute sense of situational awareness:

> "I think when I am on my own or unsure yes, I am hyperaware – I always have an eye on what's going on to minimise any potential risk, I think in any case I am a cautious person, most relaxed when out with others, my horse is always more relaxed when I am relaxed it seems."

Jack-HT equally believes situational awareness is as much about mental ability when riding:

> "Therefore, the mental ability (Strength) to ride well is part of the awareness of riding, also having an understanding of proprioception of both the horse and rider. There is an incredible amount to know and remember when riding or training a horse and this builds confidence but not overconfidence, which is, for me, the threshold level of good horsemanship."

However, Comet-HT explains that trial and error and practice can result in badly judged outcomes, although they can provide spaces for reflection and self-internalisation to develop practice and situational awareness. Nonetheless, it could knock confidence which is essential for situational awareness to be developed:

> "When something happens, and your confidence is knocked you have to think what you want and get back on the horse so to speak and learn from it, you learn not to let things take over, keep things in perspective."

From what Comet expressed, I have interpreted that reflection and self-internalisation can be taken forward to promoting self-development, self-awareness, and emotional control, to keep focused and calm, aiding situational awareness.

Theatre-practitioners equally felt to be situationally aware you needed to link all the entanglements together to see the whole picture. For Laja-TP, this was specific to the surgical phase:

> "I think it comes down to how well you know your team, how engaged you are with what the surgeon's requirements are. It is having that conversation with people, isn't

it? So, saying "okay we are doing this, it sounds a bit complicated, what's your guts saying?" I often go to my surgeons and say, "this doesn't look straight forward from my perspective, what's your gut feeling?" And that will then dictate how I will respond and what preparations I make in theatre, or what I prepare the other scrub nurses for."

Laja-TP is suggesting that it is important, in theatre practice, to connect all the 'rhythms' together to anticipate, prepare and plan situations to improve patient outcomes, which aligns to Puzzle-HT's narrative, in that noticing 'difference' to create the mental bigger picture, is situational awareness. This creates a linking process and provides a 'mental mode' of reality (White et al., 2015), supported by 'repetition' and experience. However, the process of 'mental mode' development in theatre practice is different to the horse-trainer, who develops situational awareness through trial and error and experimentation. However, both groups of participants demonstrated they were involved in actively creating their own meaning by seeking to understand and connect the complex 'rhythms' of their respective environments. I have interpreted this activity as critical thinking, as it involves seeking information and reflection as a process of internalisation of self to understand and work safely within the complex 'rhythms' of their respective environments.

However, Teddy-TP considers situational awareness as part of the job:

> "Situational awareness develops overtime if you are prepared to see it. It is an unspoken part of the job, it develops through experience and training and learning on the job through repetition, in a way, for example, patient dignity, covering the patient and advocating, it's ingrained, it's what we do." Teddy-TP also expresses that "I think you need to be a good observer, need to be able to understand what's involved in the care of a patient."

Therefore, Teddy-TP has expanded on all the previous participants' narratives by suggesting that developing situational awareness is as much about observing, thinking, and reflecting as it is from experience. The perioperative environment, as stated in chapter 1, is staffed by a multidisciplinary team who all need to be situationally aware, Teddy-TP explained from his perception:

"I don't think situational awareness is about being qualified, anyone can be, but experiences may change reactions or decisions over time."

However, Freya-TP brings attention to what can reduce the ability to be situationally aware by explaining that the processes that were designed to support situational awareness actually reduce it as they prevent critical thinking. Freya-TP provides the example of surgical checklists, which were introduced from a process used in aviation, to reduce risk. However, if the surgical checklist is used as a 'repetitive' and 'routine' process, the ability to critically think is removed and also, therefore situational awareness. Freya-TP suggests:

"Yeah, I think it is good and it's bad because it's formalised, so it's always done but the trouble is it has become a checklist mentality, so it's like we need to do these checks so some of the natural spontaneity has gone out of it."

This suggests checklists can prevent critical thinking because situational awareness' is about 'presence' in the environment that checklists potentially replace with being 'present' to perform the tasks without mental awareness. As theatre-practitioners, both Freya-TP's concerns match Laja-TP's suggestions that perioperative processes can reduce critical thinking. Laja-TP emphasises:

"Yes, I think it just takes the common sense out of the equation because you're so busy just focusing on those questions that are on the checklist, you're not actually thinking what else should I be asking"?

While Laja-TP said:

"The World Health Organisation checklist is hit and miss in my opinion; they added a part at the start named STOP, well that should be superfluous if you have buy-in."

The same as the horse-trainers, theatre-practitioners need to be able to compartmentalise the complex 'rhythms' that make up their professional working environment to assess individual situations and act accordingly. Max-TP explained in an emergency he could not distinguish between following policy and doing what was needed at that time, but recognised this as lacking the ability to develop situational awareness as he was relying on process and not thinking critically:

"So actually, I guess my sort of initial concern was, well, the policy is that you are supposed to wash your hands for this set amount of time, you should always count swabs before you use them. So, I think I recognised that my situational awareness at that point was one of following policy or procedure."

Critical thinking involves seeking and understanding the internal and external 'rhythms of the everyday' to create meaning. Reflection allows internalisation to occur to start to adapt behaviours to develop 'presence' within the environment through sensory perception.

4.5.1 Subtheme 1: Sensory Perception

This subtheme connects critical thinking with behaviour adaptation, which requires conscious effort. This is very apparent within the horse-trainer's narratives. Horse-training in any discipline is progressive and progression is measured through the development of sensory perception. Alfred-HT says:

"Separating your knowledge from what is in front of you and not having an agenda – so as we are indirectly learning, we may not see it but we improve our knowledge without realising it."

My interpretation here is it allows one's own natural situational awareness to take over and removes the intention and plan, but instead relies on instinct and intuition by reading what is before one, not what you think is before one. This takes some effort to change this behaviour mainly because, as Alfred-HT points out:

"As humans and predators, we get fixed on patterns and repeating behaviours especially when it worked previously. But horses are unpredictable and may choose not to do what you ask for, for different reasons and we, as humans need to be able to open up and explore those things." Alfred-HT also expressed, "I remember how frustrating it was developing my own muscle memory and not having an agenda, it was a difficult skill to learn."

Puzzle-HT discussed many skills that the horse teaches you:

> "More because of its size and strength but also you start to pay attention, naturally become aware of what's happening."

Puzzle-HT also connects being situationally aware to the recognition of responsibility and accountability:

> "I think there are links between situational awareness and accountability and responsibility to protect or safeguard others, I guess it's a summing up of experiences and advocating for those who don't have, or are not aware, of the dangers."

This process of thinking about accountability and its importance to situational awareness would hold true for theatre-practitioners, also.

There was certainly an element within the horse-trainer's narrative, that suggested developing as a good horse-trainer was becoming more horse, which meant a change in behaviours. Akon-HT suggested:

> "That the relationship grows between both, being changed, and challenged to communicate and learn, it changed my life. Horses are amazing teachers, but you do have to look and listen, but I think that's why people get drawn to natural horsemanship."

In theatre practice, the level of effort, or sensory learning, is less evident than in the horse trainers but from the theatre-practitioners' narratives and my interpretations, I still believe that it exists in developing situational awareness. Max-TP demonstrated learning from the discomfort of an emergency case and had to rely on his work-based assessors to share their own situational awareness:

> "Yeah, my mentor or, as then, work-based assessors, were brilliant because they had lots of experience in that particular situation, they sort of walked me through it and sort of did the debrief afterwards."

I feel this demonstrates the importance of reflective and latent learning that was made possible through effort and allowing the senses to inform understanding. However, Max-TP explained how he is a sequential learner who learns from a logically scaffolded learning style and suggested the idea of hot debriefing helping him to reflect and learn from adverse incidents to scaffold his knowledge; hot debriefing is the process of a team debrief straight after an incident has occurred to reflect and discuss the events, a further process derived from the aviation industry.

> "Hot debriefing should be used at the end of each day, or incident, to talk through what happened and recognise learning events."

For both participant groups, what was learnt subconsciously through the senses in the moments and individual settings was the reading of the environment's clues and cues. Amber-TP explains these can include:

> "Changes in noise or tensions, can happen quickly but you need to pick up on them, because it indicates a problem."

Lika-HT expresses similarly:

> "I am just reading the horse and the environment all the time."

However, Amber-TP acknowledges situational awareness was not a skill she learnt intentionally, it was an accidental phenomenon that happened unintentionally. Amber-TP's suggestion connects with how horse-trainers potentially develop situational awareness, through performing their role and learning through reflection and critical thinking to develop self, which incidentally, develops situational awareness.

> "Learning accidently through consequences, rather than reason, was the driving factor rather than thinking I am going to develop my situational awareness, so it would enhance that. I think the quicker you learn to be situationally aware the smoother things go, which saves time, safer for patients etc., and go home on time. I think this made me more proficient and so made me more aware, as you have an understanding of the nuances of things."

From Amber-TP's reflection, it is also possible to suggest incidents or mistakes provide opportunities to learn, this provides an opportunity to connect situational awareness with preventing incidents, and is beneficial to developing proficiency to enable confidence and comfort to develop, which perpetuates greater opportunity to improve individual situational awareness within both groups of participants.

4.6 Introduction to Theme 4: Individual and Collective Consciousness

Collective consciousness considers how situational awareness is transmitted and picked up as a team. Situational awareness as a collective awareness is concerned with how the elements of the environment and the dynamic data streams are communicated between team members. Picking up on these collective elements often moves beyond verbal communication, it involves the reading of signs, clues and cues that individually and then collectively, radiate consciously and unconsciously between team members. This theme can only function if horse-trainers and theatre-practitioners engage with all three themes because the environment can only be read accurately if one has 'presence' in their environment and this happens through critical thinking and professional curiosity. Therefore, collective awareness requires a wider understanding of the 'rhythms of the everyday' and the individual 'rhythms' of human and non-human agents alongside the understanding of synthesised knowledge, as interpreted from all participants' narratives.

This theme considers how situational awareness is acquired across all team members, both as individuals and as a collective. Without collective awareness each member acts individually and without consideration of the influences between the environment and team members, which reduces the overall safety mechanism that situational awareness affords. Both in the horse-human-relationship and perioperative environment there is a requirement to communicate with each other to ensure risk is reduced. Horse-trainers are aware they are not going to be successful if they act as an individual agent without the horse and equally, in the perioperative environment cross communication with all the team members is vital to reduce risk and maintain high standards of patient care.

The horse-trainer participants emphasised the horse as an agent within the relationship who required the trainer's attention. It is this attention to the horse that supports the development of situational awareness in the horse-trainer. Therefore, it is the trainer's

responsibility to raise their own awareness of the horse's method of communication to read the environmental influences as suggested by Blignault (1998) in chapter 2. This can be facial expressions or energy levels, as Jasper-HT explains in her own horse-human-relationship development:

> "Looking for facial expression, some obvious, others more subtle. Sometimes it's their legs, or tail, or just the way they are standing. I feel their energy, that's one way of communicating but you need to be open to it."

However, one's own self-awareness is equally important to be aware of one's own influences on the team, or horse and environment. Puzzle-HT says:

> "The relationships between horse and human can provide both a sense of awareness and reactions to the environment both positive and negative, it can be supportive or destructive."

Theatre-practitioners in their narrative were not prescriptive but they did emphasise the importance of understanding each other's roles and how growing as a team was important for team situational awareness. Amber-TP states:

> "In theatre's situational awareness is the everyday requirement otherwise you are putting other people at risk – and that's how people get hurt."

while Teddy expresses the importance of knowing other roles:

> "It is important to know everyone's role and limitations to support your team."

For the horse-trainer collective awareness is between the horse and the trainer. It is essential to the building of a respectful partnership. Akon-HT explains this as:

> "not rushing in but being respectful of space."

Whereas Alfred-HT calls it:

> "Respectful, communication and clear objectives are important to achieving good results, by being and maintaining consistent awareness of the details between the horse, self and the environment."

As the communication develops and awareness builds between the horse and trainer, a form of telepathic communication often occurs, what Haraway (2008) calls the 'contact zone'. Alfred-HT offers insight into this:

> "Yes, I think there is something in that but I do not really understand it, but I think every thought that we have either in our mind consciously, or unconsciously, causes micro changes in our body language and so the horse can pick that up through their exceptional perception to body language."

Being able to achieve this level of awareness in the horse-human partnership creates harmony and can directly affect the horse's energy levels. Akon-HT considers this skill which is due to cause and effect between two species:

> "I think that is the difference between a good horse-trainers and umm not so good is like they don't react to those moments where the horse suddenly gets scared, I think this non-reaction works with the herd ethology, if one reacts, they all react but if one stays calm, they will all stay calm."

This is an exceptional observation as it highlights how the horse-human-relationship can mutually affect situational awareness across-species and suggest situational awareness has different levels that indicate different stages of situational awareness development. It is this concept of different levels of situational awareness which needs consideration. The concept suggests that situational awareness can be developed in stages, which may be useful in implementing situational awareness education into the current theatre-practice curriculums.

In the theatre environment, collective awareness supports the development of cohesive safe practice. Developing such a cohesive awareness can depend on the team's dynamics of teaching and sharing knowledge, equally group reflection after the event, or as part of placement training, can help develop collective understanding. Laja-TP personally expresses this as important and emphasises why:

> "Teaching is essential to support staff in all stages of their career".

However, Laja-TP also suggests you should:

> "Never take for granted a situation or a person's level of engagement or awareness, keep your eye on the ball."

I interpret this to mean there is a need to always consider, and work towards cohesive connection and to support collective situational awareness. This is supported by each team member ensuring they are sustaining their own individual situational awareness whilst also checking in with their team members.

Teddy-TP also explains that:

> "You need to respond to the situation you are in, and it's about honesty, if you don't realise what it's about, you really shouldn't be doing it. It's also working together, being aware of each other not working in isolation."

Even in the different phases of the perioperative environment it is a team effort. No one works on their own, therefore collective, awareness is essential.

Freya-TP also considers how the individual can affect the team's collective awareness through their own situational awareness and having good leadership skills:

> "You will know instantaneously what kind of day you are going to have because it depends on how the situational awareness to some extent of the person who's running that list. It's their job to consider the everyday to stay on top of things, developing awareness, assess situations, really just know what's going on and let the team know."

Freya-TP continues to explain:

> "It comes down to communication, it's recognizing that things are happening, that you know the changing situation, it is being able to think on your feet, and actually be able to slightly change things to make sure that the flow is better, it is actually it's also the organization behind the list as well."

However, Freya-TP, also like Laja-TP, suggests it's everyone's individual responsibility to be prepared and know the procedure and equipment:

"Knowing equipment well and being situationally aware are distinct from each other but support each other."

I have interpreted this last quote to mean that all elements of situational awareness are important - competence, cognition and sensory perception - as each are required to allow 'presence', professional curiosity, critical thinking and collective consciousness, to develop individual and team situational awareness.

Some of the participants in both groups distinguished between collective awareness and individual awareness through separating what the individual's responsibility was. For the horse-trainers this was about self-learning, developing, and adapting behaviours to be more 'horse-like', as Alfred-HT explains:

"The horse will tell you when things are right you just need to know how to interpret it, horses know the difference between authenticity and falseness, horses cannot lie."

For the theatre-practitioners, this was about taking responsibility for your own actions and pre-empting situations through your own situational awareness. Laja-TP clarifies this by explaining as a practitioner you are responsible for your own awareness and not to let anyone else think for you:

"Being prepared is important because 1 minute can feel like 20 in theatres if its urgent, I want it now not in a bit, it's frustrating – you have to make your own decisions not just follow what others say it's your case and your area."

Teddy-TP agrees that individual situational awareness is not only about understanding what can happen as much as what will happen and being prepared for it:

"Also need to be able to act, how can I say this, act outside of what is happening, so again being prepared for, or beyond, the norm. So, in anaesthetics it may mainly go smoothly, in the norm, but occasionally say 1%, it doesn't, and you need to be prepared for outside that norm just in case it goes wrong and be prepared. So, you need to be prepared and able to recognise when something doesn't seem right, normal, or the same. For example, knowing normal cardiac rhythm so when it is different you can alert someone."

Equally, both participant groups thought the ability for an individual to be situationally aware was about learning to read the clues, cues and acknowledging the signs, being observant, confident, self-aware, and curious. Therefore, each theme supports cognition and competence but are expressing how these elements alone are not enough for situational awareness to be embedded and developed. This is further emphasised by Teddy-TP:

> "I feel sometimes it is experience but also a need to nurture the ability to take notice, be observant, mindful, and therefore situationally aware. I don't think it is a specific trait or characteristic, more building experiences. We say we are carers but it is more than caring, you need someone to show you how to nurture it."

While Amber-TP equally expresses the need to be alert to changes in atmosphere:

> "In an emergency there is a change in pace, speech, tone things become more precise and urgent not pre-empting but doing it now type thing - sometimes you don't know it will go wrong till it does. We had a surgeon who always played music if that was turn down or off, we knew something was wrong."

Laja-TP agrees, and suggests the environmental clues and cues can be obvious if you are individually situationally aware:

> "Yes, they turn off the music and stop telling jokes, a change of atmosphere that becomes much more consolidated and is very, very tangible."

Equally from a horse-trainers' perspective the same levels of being attuned to the environment enable situational awareness. Comet-HT outlines this by saying:

> "It is paying attention to cues (such as) smells and sounds as well as sight both in and out of vision."

This quote echoes peripheral vision, or a soft visual awareness, and sensory perception that is more than observant and vigilant it is being attuned with the environment. Lika-HT explains:

> "Visuals are important you can tell a lot from ears etc."

However, Akon-HT provides a clear connection to how the senses support situational awareness:

> "Being situationally aware of what you cannot see as much as what you can through feel or other senses."

However, some of the horse-trainers' narratives indicated there are potentially different levels of situational awareness, providing higher order potential, meaning, higher order situational awareness can be used as a horse-training method, allowing it to work for and from you. This helps maintain the horse's situational awareness and improves the horse-human-relationship. According to Alfred-HT this occurs due to:

> "Calm subtle actions, always hyper vigilant, with younger horses their focus time is short. Primary senses are connected to the horse, the more you learn and use this develops a better understanding of mind and body. It is understanding these can cause a reaction and a change in behaviour, aware of self, become detached from our bodies and voice to communicate through our bodies, eyes and own body awareness, you are developing affective memory through positive awareness."

While Laja-TP suggests something different but associated to individual awareness:

> "Developing situational awareness is based on your beliefs and values, you need emotional intelligence and self-awareness."

Laja-HT further suggested:

> "With experiences it becomes more intuitive, you sort of read people – it's more non-verbal and you become or acknowledge your own experiences and tune in to your environment."

Importantly much of what Laja-TP suggest overlaps with horse-trainers' perception of, and development of, situational awareness.

However, Freya-TP muses over differences in situational awareness:

> "I think there's difference between having an awareness of what's going on and situational awareness, it might be that you just are able to react faster."

This is important because it comes back to situated awareness through training and situational awareness through self-development beyond training. To further cement this idea of individual situational awareness both Freya-TP and Amber-TP consider situational awareness is to become intuitive. It seems a little like the horse-trainer's idea of telepathic communication as Freya-TP suggests "situational awareness, it's like your sixth sense" and what Amber-TP calls "Spidey sense."

4.7 Chapter Summary

This chapter has considered the themes and subthemes from two perspectives, horse-trainers, and theatre-practitioners, to understand how both groups perceive and develop situational awareness. The first theme of 'presence' was discussed by both groups of participants, however, their views and understanding were different. Horse-trainers saw 'presence' as the individual requirements to pay attention to, and become attuned to, the horse and wider holistic environment to reduce risk and improve horse-training outcomes. While the theatre-practitioners had a more immediate task focused view, although they did discuss their individual responsibilities to understand their own and colleagues' limitations and their impact on the immediate perioperative environment.

The second theme of professional curiosity denotes how engagement with the environment across opportunities provides for the development of comfort and confidence in dynamic situations and dealing with them calmly, for both groups of participants. For horse-trainers, professional curiosity supports the horse's confidence by developing the horse-trainer's confidence, comfort and calmness, through experimentation, sensory perception and feel. While for theatre-practitioners, it is more of an active intent to seek out information through embracing opportunities to increase experiences. However, from both perspectives sensory perception was created from professional curiosity to read and interact with the internal and external environment.

The third theme of critical thinking incorporated internalisation, which considered how both horse-trainers and theatre-practitioners move beyond the formal training of 'dressage', to situational awareness through critical thinking and internalisation of knowledge and development of unconscious sensory awareness. This was discussed by all participants in the ability to move thinking beyond 'dressage' and develop understanding. Although horse-

trainers felt they had more scope and possibilities to achieve this with their horses, as an innate desire to improve connection and training outcomes, theatre-practitioners needed to internalise the need to think more critically and manage behaviours, either through colleagues' instructions, or self- perpetuated desire. However, elements of theatre practice stifled critical thinking, which was a barrier to developing situational awareness.

The final theme of collective consciousness demonstrated the importance of sharing situational awareness to manage safety, indicating that individual situational awareness was not enough on its own to maintain safety within the environment.

Moving forward, chapter 5 will discuss the importance of these findings and interpret how they inform the research questions. However, the findings did bring into question the limitations of training from the theatre-practitioners' perspective compared to horse-trainers', therefore the initial discussion will explore how 'dressage' impacts 'presence' and therefore, situational awareness before building on the research questions to address the research aim.

Chapter 5: Analysis and Discussion of Findings

5 Introduction

In this part of my thesis, I will explore the significance of the findings and how they answer my research questions. However, it is essential to convey, the participants narratives have been used to formulate the discussions from, what Braun and Clarke (2022) express, as a reflexive and subjective interpretive lens to enable the research questions to be answered meaningfully. This method of interpretation allows the researcher to use their own experiences to inform the discussion, giving meaning to the participants' narrative. Therefore, the participants narratives are drawn upon throughout the discussion chapter to illustrate their influence in answering the research aim and questions. Savin-Baden and Major (2013) advised a discussion should interpret findings to provide meaning to the data analysis. The analysis demonstrated how 'dressage' and 'presence' impacted horse-trainers and theatre-practitioners differently in developing situational awareness. Therefore, I will begin the discussion by interpreting these findings and proceed to discuss the implications through the research questions. I will continue by integrating the discussion to demonstrate how the findings offer potential in developing a curriculum which will support the teaching of situational awareness to theatre-practitioners in higher education. Equally, Savin-Baden and Major (2013) expressed the researcher should allow the participants' voices to be heard throughout the discussions. I have achieved this by interpreting the participants' voices through the more-than-human-Lefebvrian axis as a lens which pays attention to the 'rhythms' and 'murmurs' of the data.

5.1 'Dressage' and 'Presence'

The findings in chapter 4 revealed how Lefebvre's (1992) concept of 'dressage' is beneficial but can, equally, be limiting as it focuses on the 'repetition' of 'tasks and routines', meaning it can also lead to adverse incidents. This is because 'dressage' focuses on training rather than learning, paying attention to tasks rather than skills, which Yule et al. (2008) and Stewart et al. (2007) suggest are the main causes of adverse incidents in the perioperative environment. Both groups of participants demonstrated a semi-conscious awareness that 'dressage' and learning are two separate actions that impact on the ability to be

situationally aware; for example, Amber-TP (p. 120), suggests training such as "handwashing made you think differently", therefore, this helps to develop situational awareness from a foundational level. While Alfred-HT (p. 119), suggests it is the "foundations that start the knowledge and understanding to allow freedom of thinking", which allows the development of situational awareness. While Lika-HT (p. 120) "equally suggest[s] how rules are important to reduce incidents", but wider knowledge is required to develop one's own confidence to develop situational awareness. From the above interpretations all the participants agreed that training was important, suggesting 'dressage' develops practice through the mundane of 'repetition' but not learning through interaction, as Jack-TP (p. 110) suggests "learning from mentors and colleagues, and customs and practice". Lefebvre (1992) considered this as a one-sided activity of 'repetition' in practice, which stifles 'presence'. Considering 'presence' as attunement to the environment, not only in it, but a part of it, forges the ability to recognise and be prepared for 'difference', which in essence encouraging situational awareness.

Therefore, 'dressage' is beneficial because it provides a threshold level of competence, which provides a foundational level of environmental situational awareness. However, as indicated it can also be limiting, as it prevents the development of a deeper sense of environmental situational awareness within 'the everyday' and, therefore, reduces 'presence'. This is because the 'repetition' of Lefebvrian 'praxis' (practice) through 'routine' and 'rituals' informs environmental interactions, therefore, limiting situational awareness. Consequently, if situational awareness is stifled, the ability to notice 'difference' is reduced, allowing 'routine tasks' to be repeated without wider understanding, which creates compliance and limits performance, creating an environment for potentially unsafe professional practice. Although compliance within healthcare requires policies and external guidelines to be followed as systems to protect patients, without wider thinking, compliance will prevent wider awareness of the environment thereby reducing patient safety. This was indicated by Max-TP (p. 126), when in an emergency situation he was concerned with the policy and not the best care for the patient at that moment in time, therefore recognising his "situational awareness at that point was one of following policy or procedure." and therefore, being compliant.

Consequently, one can argue that the restrictions of 'dressage' can create an over reliance on 'routine and tasks' experienced through the 'repetition' of ''dressage'' leading to a crisis of compliance, as Miller and Sanderson (2005) considered in chapter 2. Therefore, 'dressage' can be regarded as reductive and one-sided, which can lead to a crisis of overcompliance, resulting in over-confidence in completing tasks. This can be dangerous when familiarity through 'repetition' becomes 'the everyday' without 'presence'.

It is, therefore, pertinent to this thesis to consider Lefebvre's (1992) concept of 'presence' and its relevance to situational awareness in the perioperative environment. Lefebvre (1992), as previously explained in chapter 1, defines 'presence' as understanding the 'rhythms' of socially constructed and natural interactions which impact 'the everyday' and warns how the 'present' can masquerade as 'presence'. Ultimately this means, for theatre-practitioners to have 'presence', there needs to be recognition and understanding of the impact of the environmental interactions between the 'rhythms of the everyday'. By bringing the 'rhythms of the everyday' and 'presence' together there is an alignment to Smith and Hancock's (1995) ecological model of situational awareness, as discussed in the literature review, which requires perpetual interaction with the environment.

However, I argue in the literature review that although Smith and Hancock (1995) consider all influences within the environment, they were only concerned with the immediate interaction, rather than the wider influences, which Lefebvre (1992) projects as a requirement of 'presence'. This is important as it underpins my rationale for a curriculum change in theatre practice training and the consideration of situational awareness as environmental. This consideration moves away from Endsley's (1995) process model and Bedny and Meister's (1999) activity sub-system model by moving the focus of situational awareness to the attunement of the perpetual and wider environment interactions.

By paying attention to how situational awareness is perceived and developed in the perioperative environment, I am not only addressing the paucity in the literature with regard to theatre-practitioners, I am also reframing situational awareness to 'environmental situational awareness'. This will allow theatre-practitioners to develop and sustain the skills necessary for perioperative situational awareness by transcending 'dressage'. In support of this, the findings extracted four themes, it is proposed that my focus on the key themes,

'presence', professional curiosity, critical thinking, and collective consciousness, will encourage theatre-practitioners to view 'dressage' type practices as a limiting factor, focusing more on developing environmental situational awareness and attunement through 'presence'.

Lefebvre (1992) proposed that to see, recognise, and understand the interactions of 'the everyday' is to be a rhythmanalyst. A rhythmanalyst is able to understand and interpret the entangled 'rhythms of 'the everyday' by employing all their senses and, in doing so, develops an attunement to the environment through intra-action (Barad, 2007), which potentially develops situational awareness. In chapter 2, it was discussed how Barad (2007) considers the horse-human-relationship as the process of mutual intra-action, my findings demonstrate how the horse-human-relationship develops through the duality of 'mimesis', meaning the mirroring of intra-actions between horse and trainer, but this in itself does not explain how situational awareness occurs from the horse-trainer's perspective. Equally, how theatre-practitioners develop the ability to read the environmental clues and cues is evidenced in the literature by Kang et al. (2015) but they do not explain how it occurs. Therefore, my findings have provided information that demonstrates how the gap between 'praxis' and 'poiesis,' (beyond dressage), for theatre-practitioners, can be bridged through cognition and sensory perception by becoming a rhythmanalyst (Lefebvre, 1992; 2016) supporting the development of situational awareness.

What my interpretations from the findings indicate is bringing 'praxis' and 'mimesis' together forms a method to align theory and practice to support moving away from linear thinking to 'poiesis'. In essence, critical thinking, professional curiosity, and collective consciousness, create 'presence' through rhythmanalysis. This occurs as professional curiosity creates appreciation of the nuances of 'the everyday', critical thinking allows for deeper understanding of the internal and external environment, while collective consciousness develops cohesion between individual agents to pay attention to the 'liminal spaces' between 'repetition and difference' within the mundane 'routines' of 'the everyday'. Hence, when combined, each theme supports the other to develop deeper levels of environmental situational awareness and, therefore, attunement and 'presence'. In short, 'dressage' develops 'praxis' while the themes demonstrate how to move beyond 'praxis'. As

Lefebvre (1992) suggests, 'dressage' is not enough to have 'presence' within 'the everyday' of the environment - it is the full understanding of all the influences that impact on 'the everyday' that allow 'presence' to evolve.

The findings further demonstrated how horse-trainers use 'mimesis' to develop on going 'praxis' through critical thinking, professional curiosity, and collective consciousness to create 'poiesis', the creative side of 'dressage'. Alfred-HT (p. 103) explains this as how he uses his own awareness to train his horse's "as having to think for two". While theatre-practitioners are constricted and constrained by 'mimesis' and 'praxis' through a weighted competency-based curriculum, which creates minimal extrinsic motivation to reach 'poiesis', Laja-TP believes "situational awareness" currently develops in theatre practice through "individual beliefs and values" (p. 135). However, it is this merging of 'mimesis' and 'praxis' within my research that is an important element to grasp as it directs us to understand the importance of developing critical thinking and curiosity within the curriculum to support the development of 'poiesis', which initiates situational awareness. However, it is important to outline that horse-trainers did not discuss their training in the same way as theatre-practitioners, potentially because there is a less formal development process which reduces the ritualisation of compliance. Alfred-HT (p. 119) expressed the importance of developing their own practices and experimenting to find their own individualised way of being in the environment, by using but not following and mirroring ('mimesis'), other horse-trainers. Akon-HT (p. 102: 135), Alfred (p. 131) and Puzzle-HT (p. 115) suggest that to bond with your horse you need to understand the horse's individual and collective rhythms rather than following the rule book, and critically explore your individual ways of training that strengthen your connection. This philosophy provides the move beyond 'dressage' (Lefebvre, 1992) or competency-based training to create individual ways of knowing through meta-analysis (Casaway, 2013). Horse-trainers, in their narratives, demonstrated creative thinking through curiosity and critical questioning as part of their 'praxis' to develop their training styles and allowing them to move to 'poiesis'. Consequently, these interpretations suggest horse-trainers perceive information but develop situational awareness subconsciously, which does not align fully to Casaway's (2013) definition which, suggests consciousness is required to perceive information, but this does not relate to processing information. However, both cognition and sensory perception are ingredients,

which demonstrates 'praxis' and 'mimesis' do not have to be self-limiting but can be a framework to move towards 'poiesis'. It is this premise of implicit situational awareness development that rationalised my underlying framework of a proposed curriculum change.

While my curriculum turn aims to decentre 'dressage' to supplement learning, Lefebvre's (1992) concept of falsified practice requires consideration. Lefebvre (1992) suggests that to impose a new ritual or 'routine' can easily become the norm, meaning it may not address the process of developing situational awareness. This is potentially seen in the use of checklists within the perioperative environment that both participants Freya-TP (p. 125) and Laja-TP (p. 125), suggest generate a crisis of compliance through a mechanistic approach, in other words, they become expected and 'routine', diminishing situational awareness rather than sustaining it through personal autonomy and critical thinking, which moves away from Toff's (2010) view of their value to maintain situational awareness.

Therefore, 'dressage' and 'presence' play their part in the understanding of the nuances of 'the everyday' for both sets of participants in their development of situational awareness. Equally by using the senses to explore and grasp the 'rhythms of the everyday' attunement is developing, which elevates the ability to be situationally aware. Furthermore, 'presence' has an intensity which transcends the constraints of one-sided 'dressage' by using 'mimesis' and 'praxis' to develop curious critical thinking to initiate 'poiesis'. In short, 'dressage' is limited but not self-limiting. Further, it is from the understanding of how 'dressage' influences the development of situational awareness that we can start to understand how horse-trainers transcend 'dressage' through the horse-human-relationship which demands horse-trainers to have 'presence' and attunement.

The next part of my discussion will address the research questions by exploring how the horse-human-relationship creates situational awareness for horse-trainers, compared to theatre-practitioners, in the perioperative environment and what this can offer to teaching theatre practice in higher education.

5.2 Addressing the Research Questions

Within this section I will address the individual research questions to explore how the horse-human-relationship develops situational awareness in horse-trainers and what information

this may provide in developing an effective curriculum to teach situational awareness to theatre-practitioners in higher education.

5.3 Question 1

How can an understanding of situational awareness in the horse be used to inform teaching situational awareness to students in theatre practice?

In answering this question, I aim to expand on how 'mimesis' and 'praxis' can be a framework to transcend 'dressage' to create 'poiesis' for theatre-practitioners. Irwin (1998) explains the horse has a natural and inherent 'presence' to their environment, which I have interpreted as situational awareness, which means, in this context, the horse is always vigilant and prepared to react to the internal and external environmental threats. Therefore, Irwin's (1998) consideration of the horses' 'presence' can be reframed to environmental situational awareness, meaning awareness of the internal and external factors of 'the everyday', as required by theatre-practitioners. This draws significantly on Lefebvre's (1992) concept of 'presence', relating to how understanding and grasping the 'rhythms of the everyday' supports the noticing of the 'liminal spaces' between 'repetition and difference', which is essential for situational awareness.

For the horse to have environmental situational awareness I considered, from the literature, how two of the horses' ethological characteristics created the ability to have 'presence'. These characteristics are visual capacity and silent communication (Budinsky, 1999; Bukowski and Aiello, 2019; Irwin, 1998) Moreover, the 'traces and murmurs' (Lefebvre, 1992) of the findings demonstrate how these ethological characteristics are the components that provide the ability for horse-trainers to gain situational awareness through the horse-human-relationship. Lika-HT (107) and Alfred-HT (p.119: 126), make reference in their narratives, how, as horse-trainers they mimicked (mimesis) these characteristics in themselves and their training methods, to maintain safety, and improve the horse-human-relationship, by developing their own 'presence' and non-verbal communication. This idea of mimicry, although not discussed directly by McGreevy et al. (2007) or Hawson et al. (2010), equates to the maintenance of safety within the horse-human-relationship, thereby developing the idea that mimicry does not only improve the horse-human-relationship but conversely, also enhances situational awareness.

However, the ability to mimic the horse requires both effort and repositioning of human behaviour from predator to the lens of a prey animal, as suggested by Alfred-HT (p. 126) and Jack-HT (p. 120). This complies with both Irwin (1998; 2005) and Leiner and Fendt's (2011) argument that a better horse-human-relationship can be created through a change of lens, as it allows the horse-trainers to become more ''horse-like''. Equally, Birke and Parisi (1999), Haraway (2003) and Maurstad et al. (2013) argued becoming more 'horse-like' creates co-being and becoming between species which supports mutual adaptation and change. However, to become more 'horse-like' and change practices means horse-trainers go through a continual process of reflexive practice and behaviour adaptation. Comet-HT (p. 108) makes reference to this after a show jumping incident that caused her to reflect on the event, while Akon-HT (p. 115) alludes that through reflection you develop a heightened level of situational awareness and thinking patterns. I argue that reflecting on action and in action (Schön, 1983) highlights the importance reflective practice has for theatre-practitioners to develop internal growth and intrinsic motivation, as suggested by Ryan and Deci (2008), and transcend 'dressage'. Even though mimicry cannot be an identical replica of the horse as anatomically, ethologically, and physiologically, the two species are different, the murmurs from the horse-trainers' narrative indicated horse-trainers focus on developing their visual awareness and non-verbal communication skills through enhancing peripheral vision and subtle body language. Laja-TP (p. 109) references this to learning as paying attention to the clues and cues in the environment and becoming aware of noise and changes in sounds to enhance peripheral awareness, which Lika-HT (p. 113), equally discusses, is a skill she uses when riding her horse. It is the interpretations of the horse-trainers' narratives which brings attention to how the horse-human-relationship subconsciously create situational awareness in horse-trainers, by horse-trainer mirroring the horses 'ecological characteristics to reduce risk and create connection. I argue within my thesis how enhancing theatre-practitioners' visual awareness and non-verbal communication skills within the theatre practice curriculum will support the development of professional environmental situational awareness in theatre-practitioners.

5.3.1 Importance of the Horse-Human-Relationship

The horse's natural 'presence' and horse-trainers use of mimicry creates a constant level of interaction within the horse-human-relationship and environment which aligns to Smith and Hancock's (1995) model of perpetual interaction. As theatre-practitioners work within similar interactive environments, employing Smith and Hancock's (1995) perpetual situational model would provide a more appropriate starting point to consider situational awareness from within the perioperative environment, rather than a model based on systematic and logical processes, seen in Endsley's (1995) three level model based on aviation.

Within the literature review, Christensen et al. (2006) explained how the horse's level of vigilance is perpetual, while Saslow (2002) highlighted how horses have the ability, through their subtle, silent, communication systems, to transfer their awareness to other members of the herd to alert them to potential dangers, quickly and accurately, demonstrating the power of individual and collective 'presence'. This concept of collective 'presence' adds further value to Van Beuzekom et al.'s (2012) considerations of the importance of a shared vision and White et al.'s (2015) shared mental models, to increase effective team situational awareness. Subsequently, the findings from the horse-trainers revealed that understanding the horse's ability to have 'presence', and response to subtle clues and cues, guided their training practices, but also required them to have 'presence' with the horse by developing their own levels of visual awareness and silent communication. As my data shows, horse-trainers are vigilant to the internal and external environment to maintain awareness of the environmental stimuli which creates the horse's unpredictability. Here, there is a similarity to theatre-practitioners' needs to be peripherally aware and vigilant to subtle environmental changes. In chapter 2, Kang et al. (2015) and Park and Chang (2022) indicated, in their research, how surgical practitioners managed their environment. Their research demonstrated how by having a wider awareness, being vigilant and paying attention to detail, surgical practitioners are able to be prepared, and be ready to respond to, unpredictable situations, by reading co-workers' non-verbal cues. However, how this develops within 'the everyday' 'praxis' of surgical practitioners has not been given any attention, therefore, this does not demonstrate how sensory perception is used to visualise

and transfer team mental modes through non-verbal communication, as seen in horse-trainers.

For the horse, 'presence' is a basic awareness of the environment, where they use their own sensory perception to be alert and communicate danger to others, in other words, become attuned to the internal and external clues and cues of the environment. While for Lefebvre (1992) 'presence' is understanding the deeper influences and impact of human social constructed activity. Therefore, from the literature it can be argued horses rely on sensory perception (Evans, 2010; Irwin, 1998) while the competency-based curriculum formulates human knowledge through cognition (Yule et al., 2006). However, for horse-trainers, the two must merge to become more ''horse-like'', as Haraway (2003) discussed in chapter 2, while this thesis argues that for theatre-practitioners the same skills are beneficial to manage and respond to environmental changes, which Teddy-TP (p. 105: 113), explained as being mindful, even in familiar surroundings. Therefore, from the findings 'presence' can be considered as the cognitive and sensory perception sustained through attunement to the internal and external environmental 'rhythms of the everyday', and this supports the concept of becoming and developing elevated levels of situational awareness.

Furthermore, the horses' ethological characteristics allow for a sense of intuitive ability to anticipate events. This intuition arises from elevated levels of 'presence' which both Akon-HT (p. 102) and Jasper-HT (p. 117) discuss as levels of knowing; therefore, it is these ethological characteristics, which mean horse-trainers can develop elevated sensory perception, allowing for intuitive anticipation of the internal and external environment. However, this requires detailed observation, control, consistent and subtle management of emotions, and body language by the horse-trainer to provide effective cross-species' communication to prevent misinterpretation between species (Alfred-HT p. 103: 106: 116; Akon-HT p. 102: p. 114). This level of internal awareness and attunement to the environment, although a key point, has had little if any real consideration in understanding and developing situational awareness in healthcare practices. Therefore, the importance of the horse-human-relationship demonstrates how the horse's natural sensory perception, paralleled with cognition, subconsciously develops situational awareness in horse-trainers. Consequently, my research aims to further discuss its importance, adding value to a unique

way of thinking and teaching situational awareness skills, by considering sensory perception, intuition, and attunement alongside cognitive ability.

5.4 Question 2

Do the interactions within the horse-human-relationship provide information about the mutual development of situational awareness?

5.4.1 The Horse-Human-Relationship and Mutual Situational Awareness

While interpreting the findings three murmurings emerged from the horse-trainers: fear, desire, and connection, considered by Lika-HT (p. 107: 128: 134) and Puzzle-HT (p. 127), as the need to have presence all the time to reduce risk, develop connection, and develop confidence (Comet-HT p. 120). It is these murmurings that provide an understanding of how horse-trainers transcend 'dressage' unconsciously within their everyday and develop mutual situational awareness. This expands on Hockenhull et al.'s (2015) discussion of how a good horse-human-relationship is reliant on good connection. From the horse-trainers' narratives, I interpreted fear, not as being scared, but as the driver to have continual attunement to the horse and environment, which provides the ability to deal with unpredictable dangerous situations and develop calm horses. Akon-HT (p. 115) discusses at length the need to have a connection to reduce horses' energy levels and to have respectful calm horses. This corresponds with Keeling et al, (2009), McGreevy and Mclean (2007), and Keeling et al.'s (1999) considerations of how the horse-human-relationship can be dangerous without human consideration. Fear, therefore, supports horse-trainers to develop immediate and peripheral vision, and silent communication systems, to calmly communicate with their horses to manage situations as they arise. This process equally provides a similar mirroring of calmness that the horse picks up to filter out unimportant information, Jasper-HT (p. 130) suggested that human calmness supports horses' filtering important environmental information before reacting, which reduces risk. Irwin (1998) suggests horses can filter environmental information due to their attunement to their internal and external environment, a skill that would benefit theatre-practitioners in the perioperative environment, as suggested by Fore and Sculli (2013) in chapter 2. As discussed in the literature review, calmness and mutual team awareness reduces tension and aids the

management of emergency situations (Nomikos, 2018). This mutual situational awareness provides an avenue of thought that the development of interpersonal skills allows for the transference of situational awareness between agents to maintain calm respectful actions and reactions. Laja-TP (p. 134) supported this by suggesting part of situational awareness's development requires emotional intelligence and interpersonal skills. Therefore, interpersonal skills support team effectiveness and heighten collective situational awareness through collective awareness, which further builds on White et al. (2015) and Van Beuzekom et al.'s (2012) work, where effective teamwork and working relationships can influence team situational awareness.

Interpreting desire provided further links to how horse-trainers develop situational awareness, desire encourages and motivates horse-trainers to change inherent behaviours through behaviour adaptation. Both Jack-HT (p. 106) and Alfred-HT (p. 112: 126) explain behaviour adaptation is the management of self, through controlled behaviours to maintain calm and respectful interactions of self and the environment. The changes in behaviours include: managing energy levels, slow and fast thinking (Kahneman, 2011), and self-awareness; these behaviours do not align with the human natural predator instincts, so require behaviour changes. This is particularly important as the wider literature highlights qualities such as fast and slow thinking as specific attributes to support and sustain levels of situational awareness to manage unpredictable situations (Kahneman, 2011). Therefore, managing and adapting behaviours seems an essential characteristic for situational awareness.

Finally, connection is the goal for horse-trainers, however, to develop and maintain connection, fear and desire must be on a constant loop, reducing the possibilities of a crisis of compliance; Alfred-HT (p. 100: 112: 116) considers this a constant two-way dialectic in communication and thinking between horse and trainer, which supports Irwin's (1998) belief that the horse-human-relationship is a two-way 'intra-action'. Preventing over-compliance allows, and maintains, duality in the mirroring process, that develops a calm respectful horse-human-relationship through collective valuing made possible through silent communication and environmental attunement. The importance of these murmurings is the value they bring to supporting a pedagogical model that seeks to promote and reinforce the

qualities of slow and fast thinking, reading the environment, reflection, non-verbal communication, and behaviour adaptation, to develop interpersonal, self-awareness and observational skills. Mitchell et al. (2013) and Flin et al. (2008a) discussed perioperative situational awareness as the gathering and understanding of information, and anticipating events, all of which are important but do not offer away to develop these qualities. Therefore, Mitchell et al. (2013) and Flin et al.'s (2008a) work is a start to thinking about situational awareness in the perioperative environment but requires deeper understanding of how it develops beyond situational awareness qualities. This leads to the potential, fear, desire, and connection may present to the design of a theatre practice curriculum, which promotes intrinsic motivation by refiguring these elements to align to the perioperative environment's needs and allowing situational awareness to develop implicitly.

5.5 Question 3

Are there differences in the perception and development of situational awareness between horse-trainers and theatre-practitioners, and if so, what do these differences tell us?

Throughout the findings the themes highlighted the similarities and differences between horse-trainers and theatre-practitioners in how they perceive and develop situational awareness. Therefore, within this section I will discuss the importance and potential the research themes offer to developing an alternative approach to a weighted competency-based curriculum to teaching situational awareness in theatre practice in higher education.

5.5.1 Similarities and Differences Between Horse-Trainers and Theatre-Practitioners

The research themes of 'presence', critical thinking, professional curiosity, and collective consciousness in this thesis demonstrate ways to transcend 'dressage'. Moreover, the findings suggest engaging with each theme is reliant on the confines of 'praxis and mimesis'. Horse-trainers are not restricted by 'dressage', as Alfred-HT (p. 122: 126), suggests, horse-trainers are able to experiment and have freedom of development through reflection, therefore, they are able to engage in each of the themes, to improve the horse-human-relationship and, therefore, transcend 'dressage'. Theatre-practitioners develop 'praxis' through 'mimesis', as they are confined by the 'rituals' and 'routines' of 'the everyday',

which, conversely, provides a foundational level of situational awareness by complying with procedures but does not allow for meta-awareness (Max-TP p. 127: 128; Teddy p. 105: 113: 122). For this reason, horse-trainers develop situational awareness unintentionally as a by-product of the horse-human-relationship, which I considered as one of the core elements for an alternative curriculum development proposal, which allows situational awareness to be nurtured implicitly rather than left to chance.

Before discussing the development of an alternative curriculum, I will summarise and compare the research findings, which have informed how situational awareness is perceived and developed in horse-trainers and theatre-practitioners. The horses' level of 'presence' is key to understanding situational awareness as an attunement to the environment, supported by Irwin (1998) and emphasised by the narratives of the horse practitioners, either to reduce risk, as suggested by Lika-HT (p. 112) and Comet-HT (p. 114: 134) or as an aid for training as utilised by Alfred-HT (p. 100). Attunement allows the influences and impact of the 'rhythms' of 'the everyday' to be understood and felt, thereby, providing the ability to anticipate and prepare for adverse incidents. For both horse-trainers and theatre-practitioners, this is an essential professional requirement. The horse's level of 'presence' arises from their natural ethology, visual capacity, and silent communication; by mirroring the ethological characteristics horse-trainers maintain safety and have 'presence' with the horse. Consequently, horse-trainers use 'mimesis' to develop 'praxis' in a beneficial way, which conversely restricts theatre-practitioners. While, contextualising this concept, theatre-practitioners discussed learning from colleagues, which provides a similar duality of mirroring within the horse-human-relationship, Teddy-TP (p. 121), discusses teaching through experiences. However, this duality of mirroring for theatre-practitioners, unlike horse-trainers, is embedded in 'dressage', as there are no complementary drivers, such as fear, desire and connection involved to motivate transcending 'dressage' for theatre-practitioners within their curriculum. The theatre practice curriculum is formulated through 'repetition' of 'routine' and 'rituals', which promotes 'dressage'. While for horse-trainers 'mimesis' and 'praxis' prevent the one-side of 'dressage' because they stimulate critical thinking, professional curiosity and collective consciousness as a mechanism to become more 'horse-like' to create connections which support the transcendence of 'praxis'.

Therefore, moving beyond 'praxis' occurs by utilising critical thinking, professional curiosity, and collective consciousness, which is initiated once confidence and comfort are established for horse-trainers and theatre-practitioners. I have interpreted confidence as the tacit appreciation of one's own ability, and comfort as the readiness to expand knowledge through experimentation. While experimentation is not learning through trial and error, rather, through self-determination to push the boundaries of confidence and comfort and develop ideas. Therefore, for horse-trainers engaging in critical thinking, professional curiosity and collective consciousness, improves practice allowing the creative side of 'mimesis' and 'praxis' to blend to develop 'poiesis'. For horse-trainers 'poiesis' occurs due to the continual pushing of the boundaries of confidence and comfort, intensifying meta-awareness through internalisation, managing self through behaviour adaptation, and sustaining mutual 'presence' through collective valuing. Each of these elements and characteristics arise due to pursuing harmony and respectful authentic interactions through sensory perception and cognition with their environment and horse.

By interpreting 'presence' as an attunement to the environment, not only is 'dressage' transcended, but also cognition because sensory perception forms part of the equation. Situational awareness in the perioperative environment is currently embedded as a concept that favours mechanist processes, and the logical acquisition of knowledge, to decipher meaning, as Endsley's (1995) model shows us. However, horse-trainers use sensory perception to communicate subtly with their horses, as defined by all the horse-trainer participants; for example, Alfred-HT discusses feel (p. 106: 116) and Lika-HT (p. 113) reflects on sounds to support peripheral awareness of the environment, which along with cognition goes beyond 'present' to attunement, with the internal and external environment's clues and cues. Therefore, this thesis argues that perioperative situational awareness can be reframed to encompass the perpetual interactions of the environment, similar to horse-trainers, which allows for the attunement to the internal and external environment by applying cognitive and sensory perception. This concept develops Smith and Hancock's (1995) ecological theory of perpetual interaction to a wider dimension to cojoin cognition and sensory perception, as requirements not only for situational awareness, but attunement, which could be considered as an elevated level of environmental situational awareness.

It is from understanding how horse-trainers develop situational awareness unconsciously by developing their cognition and sensory perception that supports my argument of how the current theatre-practitioner competency-based curriculum should be reframed. I argue, within this thesis, that replicating how horse-trainers' develop situational awareness, unconsciously, would offer a framework to develop implicit learning opportunities, whilst maintaining and complementing core 'dressage' 'routines' and 'rituals'. The aim would be to transcend foundational competencies by implementing activities that offer the opportunity to develop learning through experimentation, environmental interaction, and reflection. Therefore, the theatre practice curriculum will apply the characteristics used by horse-trainers to add value by harnessing 'presence' to develop attunement that will move the theatre-practitioner beyond being 'present' within the perioperative environment. Consequently, the curriculum will aim to enable theatre practitioners to develop meaningful critical thinking, professional curiosity, and collective consciousness skills, to allow the characteristics of internalisation, behaviour adaptation and collective valuing to develop attunement, and thereby naturally develop environmental situational awareness.

Furthermore, the methods used by horse-trainers to develop attunement requires careful exploration and consideration to achieve the desired outcomes in theatre practice. Horse-trainers' utilise critical thinking, professional curiosity and collective consciousness within the horse-human-relationship to gain connection, however, during this process internalisation, behaviour adaptation and collective valuing occur, which supports peripheral awareness, meta-awareness, reflective practices, interpersonal skills and self-awareness to develop. It is these latter skills which should be included as the intended learning outcomes of a curriculum aimed at supporting theatre-practitioners to develop environmental situational awareness. Therefore, the curriculum should offer a process of education through learning and guided intention, rather than single experiences to develop situational awareness.

This section will continue to break down how internalisation, behaviour adaptation and collective valuing are relevant to theatre practice and how it can potentially be applied to the theatre practice curriculum in higher education.

5.5.2 Internalisation

Internalisation is how I have interpreted the stages the horse-trainer goes through to manage their own sensory perception, which influences and impacts on the horse-human-relationship. Internalisation, is therefore, the ability to take-in information and internally process it to synthesise and understand the 'rhythms of the everyday' to develop the duality of internal and external interactions creating situational awareness. The horse-trainers expressed that once they felt confident and comfortable in their ability, they became more critical in their training approach by fusing methods together and experimenting with their own ideas. Both Alfred-HT (p. 115) and Lika-HT (p. 106; 122: 127) discuss this as transcending 'mimesis', or confidence in one's own abilities as a trainer, by becoming hyper-aware. Therefore, comfort and confidence appear to be the precursors to developing situational awareness and allowing critical thinking and internalisation to evolve. This resonates with Lefebvre's (1992) idea of 'dressage' because it clearly demonstrates that there are differences between training, education, and learning (Lefebvre 1992). Training is something associated with learnt behaviours, while education as, Garavan (1997: 42) says, is "the development of an individual mind and learning is the ability to think, do and feel". For horse-trainers this learning comes from cognition, developed sensory perception and experimentation, reflection, and internalisation.

The literature review brought together research from Fryer (2017), Marriot et al. (2007) and Graafland et al. (2014), which suggested the current understanding and reliance of developing situational awareness in theatre practice has evolved from a rigid paradigm where training through 'routine' and 'rituals' produces variable results in the ability to manage unpredictable situations. Equally, the characteristics of situational awareness within the perioperative environment have been prescriptive in nature, suggesting gathering information from the environment to anticipate and be prepared for changing data streams (Fioratou et al., 2010; Flin et al., 2013; Riley et al., 2006) is limited and focused on a 'zone of proximity' (Fracker, 1988). However, Fracker's (1988) 'zone of proximity' limits peripheral awareness and can be considered as a barrier to situational awareness, as suggested by Green et al. (2007). It is this rigidity and focus on characteristics which limits moving away from training to think critically and understand the influences and 'rhythms' of the whole

environment. The reliance on following procedures and policies can be viewed as beneficial to ensure safe practice but can also be the cause of 'awareness blindness', or 'change blindness' (Rensink, 2000; Levin, 2012), because the situation is seen through a predetermined lens, similar to a crisis of compliance. Therefore, paradoxically, the idea of comfort and confidence can be dangerous, as Lefebvre (1992) suggests it can lead to a misrepresentation of the 'present' over 'presence', as Comet-HT (p. 122) and Max-TP (p.125: 126) demonstrate in their reflections when they experienced adverse incidents. An over-reliance, or comprehensive understanding of procedures, can give a feeling of over confidence and personal comfort that potentially can lead to mistakes because the 'bigger picture is not understood' (Puzzle-TP p. 109). This can be a cause for concern, as Rensink (2000) and Levin (2012) suggest, over confidence can create either 'troubling egos', which ignore the periphery in favour of the immediate, or develop a crisis of compliance which cannot distinguish between 'repetition and difference', which equally misinterprets the boundaries of slow and fast thinking (Kahneman, 2011).

Therefore, the importance of 'dressage' is not in question, neither are the characteristics of situational awareness; it is how to transcend 'dressage' and sustain environmental situational awareness; that is significant. My research is seeking ways to create the ability for internalisation within the formal training of theatre-practice in higher education as a method to encourage critical reflective thinking, question possibilities and given freedom to synthesise the 'rhythms of the everyday' to develop the duality of internal and external situational awareness. These elements could be gained not only through developing a deeper understanding of the theatre environment beyond immediate practice, but by using reflexive practice to link the pieces together through the theatre-practitioners' own personal mental mode and professional curiosity, developing the capacity for internalisation by theatre-practitioners.

A deeper delve into understanding how horse-trainers can more easily develop their own personalised methods to train their horses comes from their own professional ability to internalise their position within the horse-human-relationship. This has been considered as professional curiosity and meaning making to understanding the influences within the environment. Alfred-HT (p. 111: 115) discusses using curiosity to develop training and horse-

engagement. Both Max-TP (p. 111), Freya-TP (p. 111) explain curiosity as being nosey which provides wider knowledge to develop situational awareness. The literature suggests this is a higher order adaptive learning ability, as stated earlier by Maslow (1993) and Wessels et al. (2018). The horse-trainers demonstrated in their desire for connection, curiosity, included the corporeal of understanding body and mind, this therefore, can be interpreted as going beyond cognition. Meaning making is the understanding of information, actions and outcomes that can be adapted, or used, to support your personal development and mental mode, which is important when considering the influences of the environment, as the literature has demonstrated as important especially, in high-risk professions (White et al., 2015).

This seems to occur for the horse-trainers through the exploration and experimentation of different ideas and methods, to improve the horse-human connection as previously discussed in this chapter. It is this process that captures the real development of situational awareness as it enables and allows for personal development, through the horse-human-relationship. This personal development seems to develop self-awareness by adapting behaviours (controlling emotions, actions, and energy levels), patience (training is a slow developmental process), attention to detail (noticing subtle communication clues and cues and stages of the horse's development), non-verbal communication skills (reading the horse and environment) and peripheral awareness (more attuned and aware of the environment). It is each of these developmental processes, which build on the ability to be situationally aware. Therefore, understanding how horse-trainers develop situational awareness reveals situational awareness is not built from one single aspect but a complex assemblage of personal characteristics that enables situational awareness to flourish. Subsequently, this adds to the debate in chapter 2, on whether competence is considered solely at a cognitive level, or whether aspects of sensory perception and motivation are involved in developing situational awareness (Wessels et al., 2018).

The findings suggested that theatre-practitioners' professional curiosity and meaning making may be dependent on the individuals' work ethic, values, and beliefs, that both Freya-TP (p. 131), Laja-TP (p. 134) and Puzzle-HT (p. 126) emphasise as important elements to the development of meta-awareness. The findings, demonstrate how current theatre

practice training methods encourage reliance on meeting set competencies and following protocols, stifling practice, and situational awareness. While it is understood there are legal implications to follow policy and protocols, there is a need to move beyond this to improve safety which occurs when situational awareness is sustained. Therefore, as Adams et al. (1995), and Ryan and Deci (2008) suggest, it is motivation which requires development to continue personal and professional development which is required to engage in internalisation processes that drives self-determination. The findings found, currently, this is not encouraged consistently across training or practice, rather it is an individual's own determination and desire to know more that promotes the development of situational awareness as previously emphasised by Max-TP (p. 127), Amber-TP (p. 127) and Laja-TP (p. 130), as a requirement for questioning the environmental 'rhythms' to gather all the information. This highlights a need to create a more motivational focused curriculum that supports independent learning and self-determination. Therefore, developing and embedding situational awareness into the theatre-practitioner curriculum, to take a step away from a competency-based approach, as suggested by Garavan (1997) and called for by Dedy et al. (2013), will encourage the move beyond 'dressage' to a self-determined learning model. Thus, supporting the development of the skills that provide environmental situational awareness, and encourage ongoing professional development and behaviour adaptations.

5.5.3 Behaviour Adaptation

The findings and discussion demonstrate how horse-trainers mirror the horse's ethological characteristics to become more 'horse-like' and attuned to the environment and the horse, however, it requires behaviour adaptation. Undoubtably, this is something that develops overtime through experience, confidence, and comfort. For example, building awareness of the wider, and immediate environment, is not possible in the same visual way as it is for a horse, so an awareness of what is going on is developed through evolving, what Wanless (1987) termed 'riding with your mind' to develop 'soft eyes' (Swift, 1990), to be peripherally aware to read the immediate and wider environmental clues and cues, but also to pick up on the horse's movement and tensions, as Alfred-HT (p. 115) and Akon-HT (p. 114), explained in the findings. The horse-trainer's aim is to develop skills, knowledge and

understanding through practice, reflection, learning and experimentation, and formulating and enhancing sensory perception by allowing instinct and intuition to have an internal voice; understanding self and controlling emotions to be calm in managing situations to reduce energy levels and enhance cross-species connection.

In theatre practice, similar skills are required and in some respects the findings demonstrate the participants do refer to being alert and inquisitive, to understand the internal and external influences and pick upon clues and cues more effectively. Freya-TP (p. 134), Laja-TP (p. 134) and Max-TP (p. 105), all discuss being vigilant to notice difference, letting your intuition support your actions, and to know what is happening in the external environment.' While Teddy-TP (p. 123) and Amber-TP (p. 127) discuss alertness and inquisitive nature developing through their training to some extent, as well as learning in practice. However, the theatre-practitioners did not fully articulate how situational awareness was taught in practice, rather they indicated it was something you picked up or did not. However, for most theatre-practitioners, they do not have the same advantage of having a horse as a teacher. Therefore, it is harder to adapt characteristics such as peripheral vision and non-verbal communication, but the fundamental principles and outcomes are worthy of dissection to enable supportive teaching strategies to help ignite and develop theatre-practitioners' ability to adapt behaviours to embed situational awareness in the moments of 'the everyday'.

The horse-trainers indicated that within their everyday they reflected on past experiences, not to dwell on them, but to actively learn about what happened and understand the environmental internal, and external, influences that impacted both positively and negatively on the situation (Comet-HT p. 107; Puzzle-HT p. 109: 129; Akon-HT p. 110). Equally, horse-trainers bring those reflections forward to create reflection in action (Schön, 1983) which also expands the benefits of reflective practice as an in-depth process of developing situational awareness. Horse-trainers spoke of the need to prepare and anticipate, underlining requirements and to think critically about the correct way to be with the horse in each moment (Puzzle-HT p. 108) to have an effective intra-action which maintains self and calmness in both the horse and human (Alfred-HT p. 134; Akon-HT p. 134: 114). Jack-HT (p. 119: 123) identifies how this process is not easy for the horse-trainers,

and it requires dedication and attention to detail, as well as internalisation and behaviour adaptation. While working with their horses, horse-trainers are constantly thinking critically and developing calm, subtle communication cues as required. In these moments the horse-trainers, whether astride, or on the ground, must think and check multiple influencing Lefebvrian 'rhythms': for example, temporality of the seasons; 'time and space', environmental noise; weather; objects and elements; self and the horses' emotional state and energy levels; alongside the horse's way of going and their own riding ability within a 'time and space'. All these elements form a critical perception and reflexivity between each moment in the horse-human intra-action. To be able to think in multiple ways to assess the situation and weigh up options, as well as consider limb movement and muscle tensions, requires a heightened sense of meta-awareness. Meta-awareness is the conscious awareness of multiple streams of data that impact and influence situations as well as ways of knowing, for example, sensory perception and intuition. How meta-awareness develops and sustains situational awareness develops through Casaway's (2008) concept of conscious awareness of your own situational awareness needs, which includes Bateson (2000) and Flavell's (1979) considerations of thinking about thinking, as a wider concept when sensory perception is added to the process. Potentially, this develops through time and experience but relies on the willingness and ability for the horse-trainers to be reflexive and move beyond 'dressage' but also to create what now can be considered as environmental situational awareness, as practice, or a way of being, rather than as a skill or way of doing. Therefore, situational awareness seems to be a state of being for horse-trainers, not conscious behaviour but a sense of becoming.

Within theatre practice there is a similar, or comparable, analogy between the complexities of the environment where practitioners must be alert to the fluctuating 'rhythms' of the environment and reflect on practice (Teddy-TP p. 113). During training these skills are supported by learning in practice and through module design but not necessarily connected and made explicit. Development of these skills may go beyond threshold level and depend on individual drive and understanding. It was evident in the findings that both the horse-trainers' and theatre-practitioners' ability to develop critical thinking enables elevated levels of situational awareness. Therefore, in theatre-practice education it is how to create reflective, internalising, and behaviour adaptation skills to become theatre-practitioners.'

Many of these skills are realistically more likely to develop post training through experience. However, initiating personal and meaningful reflexive practices into the curriculum is one way to allow theatre-practitioners to understand how as individuals and as a team, they influence the perioperative environment.

5.5.4 Collective Valuing

Collective valuing has been taken from the horse-trainers' narrative to mean the mutually respectful and empathetic relationship between agents, which enables open communication and understanding (Akon-HT p. 129; Alfred-HT p. 129; Puzzle-HT p. 108: 114). The findings provided the understanding of how the horse-human-relationship is based on a mutually respectful and empathetic system of subtle but silent communication, through a mutually understood language. As the literature and horse-trainer participants discuss, the language is based on a universal system of clues and cues which evolves naturally into a more personalised sensory understanding between horse and trainer. The language, as Ruffieu (2015) suggested, builds using primary (natural) and secondary (artificial) aids to develop a mutual language that aims to build an effective connection between horse and trainer, this is something Alfred-HT discussed as a way to keep the horse's attention (p.100: 134). Therefore, Alfred-HT (p. 130) alludes to be fully situationally aware and connected, both horse and trainer become so attuned with each other that intentions are recognised before either agent is formally asked. This is something that facilitates moments of synchronised connection developing a deep level of communication. The communication of shared values and ideas becomes almost telepathic between horse and trainer which agrees with Haraway's (2008) research, who argues, becoming offers connections that transcend interactions, offering a heightened awareness. However, the findings demonstrated the perioperative environment was less appreciative of the importance of non-verbal communication and the role it plays in the effective running of the perioperative environment, as Freya (p. 124) explains, the surgical checklist relies on verbal communication but prevents critical thinking. This could be because of the reliance on verbal communication, however, as the findings outline this is not always appropriate. Lingis (2007) suggests reliance on verbal communication is a human trait, but within the perioperative environment, Kang et al. (2015) report how theatre-practitioners are able to

read the clues and cues but do not indicate if they are able to respond non-verbally in the same way.

Therefore, within the perioperative environment, the development of non-verbal communication is equally important. Within the findings, the theatre-practitioners allude that this is something which develops in practitioners but is not necessarily taught, therefore, does not even feature within the phases of 'dressage', so it becomes harder to transcend cognition to think in a more sensory way. The theatre-practitioners (Teddy-TP p. 132; Amber-TP p. 127; Laja-TP p. 134) suggested they started to use their individual senses to pick up on tensions, stress, anxiety, and energy levels through experience which was dependent on comfort and confidence, which resonates with Kang et al.'s (2015) research findings of how scrub practitioners develop nonverbal communication to assist surgeons more effectively during operations. What Kang et al. (2015) found was how silent communication speeds up understanding that verbal communication may extend, and therefore is an important skill to develop for theatre-practitioners. Equally, the perioperative environment requires equal levels of focus and concentration that the horse-human-relationship benefits from, therefore, being able to pick up on the environmental clues and cues allows action and response to occur immediately as a way of shortening instruction through feel and mental modelling, which creates closer teams through collective valuing, which agrees with Van Beuzekom et al. (2012) and Stanton (2006). However, non-verbal communication may develop for surgical practitioners more intuitively, while scrubbed for a case, as everyone is wearing surgical masks, which creates a barrier to verbal communication, so it becomes important to recognise how people work, their individual personalities, as well as understanding each person's role within theatre in each moment of 'the everyday' similar to the horse-human-relationship. Therefore, by developing attunement with the environment, a natural ability can develop that potentially aligns to a sensory and intuitive level of situational awareness.

Therefore, it is essential in perioperative practice to support trainee theatre-practitioners to develop and appreciate how communication is essential in reducing risk, speed up intentions and reduce adverse incidents. Incorporating a multimodal approach to communication and teamworking skills, to draw on the importance of collective valuing,

within the curriculum, will support the building blocks to the practices of situational awareness and internalising individual strengths and weaknesses in understanding and communicating effectively to develop sensory awareness through a more intuitive lens.

5.6 Question 4.

Can the research findings be applied to support curriculum development regarding the teaching of situational awareness?

The final research question will explore how the research findings can be applied to the theatre-practitioner's curriculum to support the teaching of situational awareness.

5.6.1 Applying New and Co-produced Knowledge to the Curriculum

From my interpretations from the research findings, I have demonstrated a process by which horse-trainers are able to transcend 'dressage' and develop environmental situational awareness, that can be implemented into the theatre-practitioner's curriculum in higher education to develop their attunement to the perioperative environment. The process develops through the engagement of learning and environmental interaction rather than training. However, this moves situational awareness away from a process driven theory used by Endsley's model (1995) to a blended approach that combines stimulus-response theory (Dickinson, 1976) and Smith and Hancock's (1995) ecological theory, incorporating sensory perception. Furthermore, Stanton et al. (2001) referred to situational awareness in terms of systems, indicating paying attention to a series of processes that are aligned systematically, however, the findings from my research validate how environmental factors are dynamic and unpredictable, it is these factors that require attention. Therefore, I argue that situational awareness requires paying attention to the dynamic interactions impacting the wider environment.

Continuing with the Lefebvre's (1992) concept of rhythmanalysis, situational awareness continues to be a concrete abstract concept that is fluid within 'the everyday', however, there are identifiable connections with sensory perception and intuition which support a deeper level of sustainable situational awareness. By breaking down and summarising the individual findings from the research we can understand the importance 'presence' has to situational awareness and how it can be developed through, critical thinking, professional
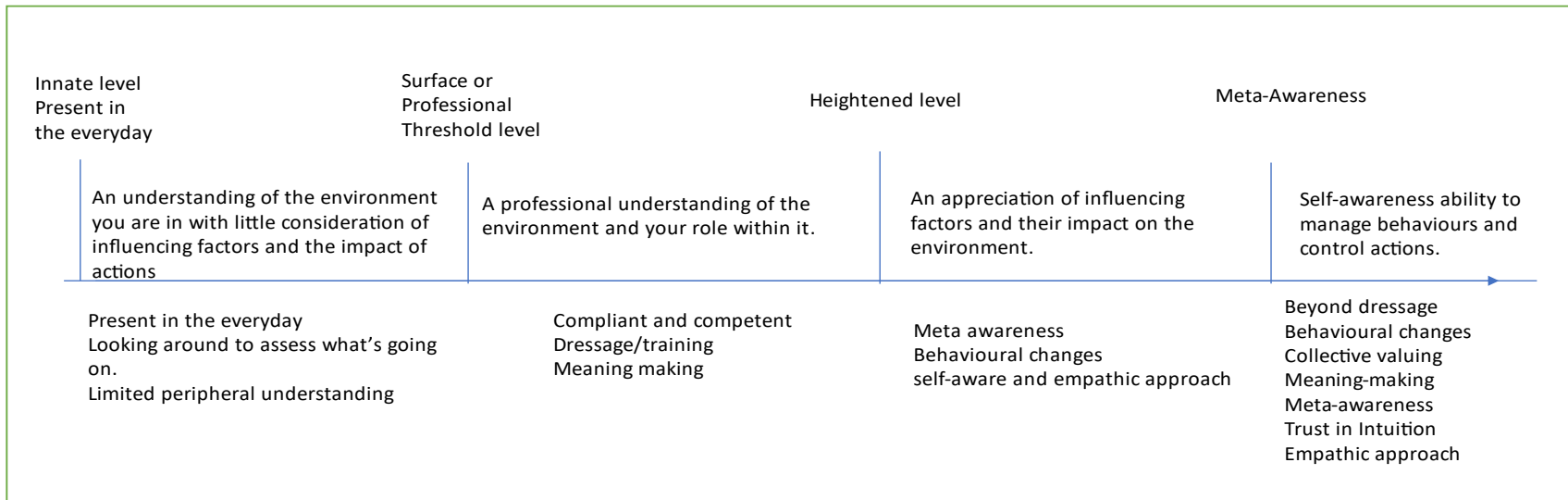
curiosity, and collective consciousness as interpreted from some of the participants across both groups. For example, Lika-HT (p. 117) and Alfred-HT (p. 126) demonstrate, in their discussions, how they use critical thinking to reduce risk by developing their 'presence' by being professionally curious and use collective consciousness to improve the horse-human connection. While Freya-TP (p. 125: 132) alludes that by not developing critical thinking, professional curiosity, and collective consciousness, theatre-practitioners are unable to develop 'presence', and therefore, rely on 'routine' and 'rituals' of 'the everyday' to inform practice, which increases risk. Each of these elements are driven by a combination of fear (the need for attunement to the environment), desire (to become) and connection (to create comfort and confidence). Once these are attended to, transcending 'dressage' occurs through internalisation (understanding the influence, impact, and entangled elements of the environment), behaviour adaption (self-awareness and peripheral awareness), and collective valuing (non-verbal communication and interpersonal skills). As these elements develop, situational awareness heightens along what appears to be a situational awareness continuum (Diagram 4: 165) to allow the ability for preparedness, teamwork, and anticipation to develop.

The interpretations and exploration of the findings drew attention to the idea that situational awareness developed across a continuum as situational awareness appears to develop through an amalgamation of skills and characteristics, such as competency, self-awareness, emotional intelligence, and reflective practices. The first level, I argue, is an innate level of situational awareness, one that develops through life experiences, and although none of the participants discussed this in any depth, Amber-TP (p. 101), highlighted that situational awareness is required in everyone's every day, for example when discussing the implications of the 2019 COVID pandemic. The second level comes from 'dressage', as 'dressage' provides the foundational level of being 'present'. That is 'dressage' develops professional threshold level competence required for initial practice, which was outlined by Lika-HT (p. 120), Amber-TP (p. 120) and Alfred-HT (p. 126). The third level is an elevated sense of situational awareness that develops once comfort and confidence have been met, as suggested by the participants within their narrative, which I have interpreted. For example, Max-TP (p. 126) discusses how he became more professionally curious as his confidence grew. This elevated level commences once critical

thinking and professional curiosity start to influence understanding the wider environment, thus developing meta-awareness, and affecting behaviour adaptation to inform practice. The final level is mastery of self and external awareness, as all characteristics are advanced: presence, critical thinking and behaviour adaptations, thus sensory perception and intuition connect ideas and situations to inform practice beyond 'dressage' to 'poiesis'; this was demonstrated by Alfred-HT (p. 100: 103: 116) as he discusses how he combines his thinking with the horse's, and uses his situational awareness with the horse's situational awareness as a primary horse-training aid.

How individuals progress along the continuum of situational awareness could be dependent on their levels of 'presence', appreciation of the influencing factors that impact on a situation, personal interest, and experience. This is what Lefebvre (1992) expresses as being 'present' without having 'presence'. Therefore, from this understanding my recommendations are based on the literature, research findings, and discussions, to develop a curriculum that encompasses all the elements required to develop mastery of environmental situational awareness.

Diagram 4: *Representation of the Situational Awareness Continuum*

Innate level
Present in
the everyday

Surface or
Professional
Threshold level

Heightened level

Meta-Awareness

An understanding of the environment you are in with little consideration of influencing factors and the impact of actions

A professional understanding of the environment and your role within it.

An appreciation of influencing factors and their impact on the environment.

Self-awareness ability to manage behaviours and control actions.

Present in the everyday
Looking around to assess what's going on.
Limited peripheral understanding

Compliant and competent
Dressage/training
Meaning making

Meta awareness
Behavioural changes
self-aware and empathic approach

Beyond dressage
Behavioural changes
Collective valuing
Meaning-making
Meta-awareness
Trust in Intuition
Empathic approach

5.7 Chapter Summary

The discussion aimed to synthesise and integrate current understanding of situational awareness based on the interpretations of the empirical data, available literature and research findings, to answer the research questions. The discussion illuminated a number of important elements regarding how the horse-human-relationship supported the development of situational awareness and how this could be transferred to teaching student theatre-practitioners in higher education. One of the important elements which came out of the discussion chapter was how horse-trainers develop situational awareness unconsciously within the horse-human-relationship, through a combination of fear, desire, and connection. My research findings also demonstrated how cognition and sensory perception were required in the development of situational awareness for horse-trainers. Initially, in chapter 1, I argued that situational awareness is a concrete abstract concept because situational awareness arises from the dynamic influences of the environment, which alter between temporalities and are perceived differently between individuals due to differences in experiences, cognition, and sensory perception. Lefebvre (1992) suggests rhythmanalysis implies that understanding the multifaceted entanglements of the 'rhythms' of 'the everyday', and Leander and Hollett (2017: 102) suggest it "cultivates a heightened sense of awareness", with the capability to be affected by, or to be attuned to the ongoing 'rhythms of the everyday.' Therefore, understanding 'rhythms', and their influences are interpreted and understood through the senses, created from situated effect to develop situational awareness. However, the discussion chapter demonstrated that situational awareness is developed through an amalgamation of cognitive and sensory skills and characteristics that occur through a developmental process that transcends 'dressage' to create 'presence' and attunement for horse-trainers. The development of cognition in situational awareness for horse-trainers and theatre-practitioners, I argue in my thesis, is acquired through critical thinking, professional curiosity, and collective consciousness. While the sensory perception of situational awareness, I have argued, are developed through internalisation, behaviour adaptation and collective valuing once professional comfort and confidence are established. It is this understanding of how cognition and sensory perception are important to develop situational awareness, that supports my recommendations for a change in theatre-practitioner programmes in higher education's curriculum design to

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decentre competency-based training and move towards a complementary curriculum, that has a substantial focus on non-technical skills. My final chapter will provide my research recommendations based on the discussions within this chapter.

Chapter 6: Recommendations and Conclusion

6 Introduction

The concluding chapter will summarise my thesis, affirm my doctoral contribution and set out the research recommendations. I will further reflect on the research process, drawing out the challenges, limitations, and strengths of the research, before discussing the implications for practice and future research.

6.1 Thesis Summary

The aim of my thesis was to explore the notion of situational awareness and how it develops within the horse-human-relationship and its educational implications for teaching situational awareness in theatre practice education. I used the more-than-human-Lefebvrian axis as a lens to interpret horse-trainers' and theatre-practitioner lecturers' perceptions and development of situational awareness in their everyday practices. I invited two separate participant groups to take part in a semi-structured interview with the aim to gain an understanding of the participants' experiences of situational awareness. As an insider to both groups within the research, horse-trainers and theatre-practitioners, I shared in the discussions as a researcher-participant to extract rich data from the participants. I employed Braun and Clarke's (2022) reflexive thematic analysis model to analyse the data, while continuing to use the more-than-human-Lefebvrian axis, to facilitate the findings and discussion to provide consistency and meaning to the research recommendations.

The literature review and data findings found similarities between the horse-trainers, and theatre-practitioners, in how their environments were dynamic and unpredictable and how they needed to interact and read the environment to develop and maintain situational awareness. Equally, both groups of participants applied the same methods but the rationale and processes of developing situational awareness were different. The research found, using the more-than-human-Lefebvrian axis, 'dressage' in the Lefebvrian sense limited the theatre-practitioners' level of 'presence' and, therefore, their level of situational awareness which the horse-trainers were not affected by as 'dressage' plays a less important role in horse-trainers' professional development. The findings interpreted how horse-trainers developed situational awareness through a combination of situational awareness theories,

stimulus-response (Dickinson, 1976), ecological (Smith and Hancock, 1995) and sensory perception, due to the interactions within the horse-human-relationship. However, both groups of participants demonstrated they were able to transcend 'dressage' by engaging in critical thinking, professional curiosity, and collective consciousness, which developed their level of 'presence' within the environment. However, horse-trainers were found to develop further characteristics, behaviour adaptation, internalisation, and collective valuing, more easily than theatre-practitioners, as they are essential requirements to connect with their horse. It was these enhanced characteristics that underpinned the development of higher levels of situational awareness by heightening sensory perception. Consequently, the research findings provided the evidence to inform both of my thesis recommendations. The first recommendation is to reframe the concept of situational awareness in the perioperative environment to support the theatre-practitioners' perceptions and development of situational awareness by emphasising the importance of cognition, sensory perception, and environmental interactions. The second is to implement an applied implicit curriculum, this is a curriculum designed to focus on the application of non-technical skills to complement competencies through carefully designed course content, intentions and assessment. The rationale for an implicit curriculum is to mimic the horse-trainers' unconscious development of situational awareness through the application of their own professional practices. The implied implicit curriculum will have more of a focus on non-verbal communication, external and internal environmental awareness, reflexivity, teamworking and interpersonal skills, to support the development of professional situational awareness in the perioperative environment. Equally I am suggesting these skills will develop characteristics such as self-awareness, emotional intelligence and respectful interactions developing meta-awareness, thereby encouraging higher order and sustainable levels of environmental situational awareness.

6.2 Doctoral Contribution to Knowledge

The basis of my doctoral thesis comes from my own positionality and interest in how horse-trainers and theatre-practitioners perceive and develop situational awareness to reduce risk and maintain safe practices. There is an abundance of literature considering how situational awareness is defined and measured in aviation and how this has been manipulated and implemented in the perioperative environment, which, I argue throughout this thesis, as

being unsatisfactory. Equally, the available research on situational awareness in the perioperative environment mainly considers the importance of situational awareness from a medical practitioner perspective, there is a paucity which considers how it is perceived and developed by clinical theatre-practitioners. Therefore, the 'gap' in the literature is concerned with how theatre-practitioners perceive and develop situational awareness to maintain and improve patient safety within the perioperative environment to reduce adverse incidents. However, in consideration of the 'gap' in the literature, I have undertaken a unique and uncharted direction by considering how the horse-human-relationship develops situational awareness, with the aim to improve perceptions and development of situational awareness in theatre practice. My rationale for this is to explore the previously unnoticed similarities of the two environments on a deeper level, as they are both dynamic, environmentally unpredictable, and dispersed with multiple data streams, suggesting there are important findings to be uncovered that would be beneficial to theatre practice situational awareness.

Therefore, my original contribution to knowledge includes aspects of practice, pedagogy and theory, which include:

- **Extending the situational awareness discourse.**
  I have explored the concept of situational awareness from an unprecedented perspective comparing horse-trainers and theatre-practitioners from the more-than-human-Lefebvrian axis to expand understanding of the complexities of situational awareness.

- **Reframed situational awareness within the perioperative environment.**
  The research led to a reframing of how to view and understand situational awareness in the perioperative environment leading to a proposed change in practice from a process driven approach to a sensory, intuitive and ecological approach.

- **Added to the current understanding of teaching situational awareness to student theatre-practitioners in higher education.**
  Proposed an alternative framework to apply critical thinking, professional curiosity, and collective valuing within the curriculum implicitly. Although it is recognised these

methods are not new learning tools, their application in areas such as critical writing, teamwork, and reflection, are often used without consideration of their purpose and potential in developing situational awareness.

- **Developed a new continuum of situational awareness.**

  The research found that many characteristics are needed to build a mastery level of environmental situational awareness, which led me to develop a situational awareness continuum. This thesis has created a new framework which adds to the concept that professional situational awareness is multi-faceted, rather than a single skill, which agrees with Green et al.'s (2017) suggestion that situational awareness is made up of many integrated parts.

- **Added to the discourse of Lefebvrian 'dressage'.**

  My thesis has added to the concept of 'dressage' to demonstrate how training can be beneficial, but limiting, when considering theatre practice training. 'Dressage' has been shown to be necessary to develop safe and competent practice but also how it can be limiting, and even dangerous, if not transcended to cope with the unexpected.

- **Created a new theoretical lens; more-than-human-Lefebvrian axis.**

  I developed the more-than-human-Lefebvrian axis as a lens to consider how the 'rhythms' of the more-than-human are entwined and entangled in the social constructed 'rhythms' of human endeavour, thereby creating a new post-human lens to explore a variety of research practices, to support co-produced knowledge.

However, primarily my doctoral contribution supports my recommendations of how situational awareness needs to be reframed and considered within the perioperative environment. It is this reframing of situational awareness to include environmental situational awareness which can be applied to an implicit curriculum to decentre the current competency-based approach to complement a shared theoretical and applied pedological methodology.

6.3 Recommendations

My recommendations focus on reframing the concept of situational awareness in the perioperative environment and developing a curriculum that embeds the characteristics the horse-trainers demonstrated in developing their situational awareness.

6.3.1 Reframing Situational Awareness

By reframing situational awareness to align to the requirements of the perioperative environment, it will allow the concept of cognition, sensory perception, and intuition to co-exist. Equally, it will provide a visible and workable description of what it is to be professionally situationally aware, and provide a tangible description within the standards for education framework, therefore, as a consequence, my reframing of environmental situational awareness within the perioperative environment can be described as:

> **"Environmental situational awareness is the interaction with the wider environment (macro) to develop a sustainable 'presence', providing the ability to anticipate and prepare for dynamic environmental stimuli, by reading the clues and cues to maintain repetition, notice difference and circumvent adverse incidents in the microenvironment".**

And defined as:

> **"The individual and collective level of 'presence' sustained in the environment to maintain safety."**

6.3.2 Embedding the Characteristics Horse-Trainers use to Develop Situational Awareness

Equally, I have taken into consideration the many characteristics the horse-trainers demonstrated in developing situational awareness, such as observation, environmental awareness, self-awareness, sensory perception, and interpersonal skills. I considered how each characteristic developed without having precedent over another, that is, they are layered, enhancing the development of situational awareness. Moreover, the findings highlighted how horse-trainers develop these skills naturally and semi-consciously, through internalisation, behaviour adaptation, and collective valuing, in other words implicitly,

through engagement with the horse and the environment. Therefore, to replicate these skills within the theatre-practitioner curriculum would entail embedding the skills and characteristics utilised by the horse-trainers creatively, within an implicit and applied curriculum. An implicit applied curriculum would focus on developing skills and characteristics alongside competencies covertly, allowing the integration of theory, simulation, and assessment, therefore providing learning intention and adding value to the current curriculum.

Consequently, in light of my research findings and subsequent discussion, my proposed idea for a new applied implicit curriculum, detaches itself from a weighted competency-based training paradigm to a more outward looking, non-technical skills, and self-development, paradigm, which will focus on developing theatre-practitioners as situational analysts. Situational analysts, similar to the rhythmanalyst, considers the impact, interactions and influences of the wider external environment, as well as the internal environment, of self and others. Lefebvre (1992:22) explains that to become the analyst:

> "He will first have to educate himself (to break himself in or accept training) to work very hard therefore, to modify his perceptions and conceptions of the world, of time and of the environment, emotions will consequently also be modified in a coherent and non-pathological way".

This curriculum turn would support a programme that enables not only the development of competence and personal growth but also situational awareness as a product of combining 'dressage' and situational learning. The intention proposed is to increase focus on how theatre-practitioners can develop an understanding of the wider and immediate internal and external environment allowing a sustainable 'presence' to emerge, to provide a more natural sensory and intuitive level of situational awareness. Therefore, enhancing the development of situational awareness through a curriculum that has a focus on supporting wider environmental understanding, internalisation and behaviour adaptation, as well as enhancing the ability to embrace collective valuing, to develop situational awareness that has sustainable 'presence' in 'the everyday'.

As Lefebvre (1992) expresses, the rhythmanalyst is required to have self-discipline and inner control to, see, feel, hear, and sense the 'rhythms of the everyday', something horse-trainers do naturally in their becoming more 'horse-like', and one that this curriculum turn aspires to replicate. Equally, the alternative curriculum I am proposing will draw attention to the constant collision of 'rhythms' to accept they are dynamic and in constant flux within different temporalities, where there is no pure 'repetition', but where 'difference' lies within the 'liminal spaces' of 'presence'. This change in design would not remove the importance of 'dressage', rather decentre its position to allow the development and understanding of self and others within 'routines', 'rituals', and 'tasks' of 'the everyday'. The aim is to enable becoming sensory and intuitively part of the perioperative environment, by building confidence and comfort through internalising 'mimesis' and 'praxis', enabling the creativity of 'poiesis'.

6.4 Proposed Applied Implicit Curriculum

Therefore, a decentred curriculum would need to remove a training process that relies on instruction that either stifles the development of situational awareness or creates a process where it goes unnoticed or misunderstood. Hence, maintaining 'dressage' as fundamental requires an approach that develops immersive learning between theory and practice to support the development of the characteristics needed for sensory and intuitive situational awareness. For example, creating meaningful opportunities for reflexivity in and after practice and embedding critical thinking throughout the curricula. Emphasising the importance of reflexive practice which has a focus on the critical considerations of personal and professional understanding via an implied implicit curriculum, could enhance the ability to adapt behaviours and develop a greater sense of self and environmental awareness. Equally reflecting on situations to support teamworking skills, that will promote collective valuing, will develop situational awareness through respectful connections similar to the horse-human-relationship. Finally, by considering the skills required to be situationally aware, simulation strategies can be used to encourage behaviour adaptation and internalisation through applied meaning.

Potential methods for training could include more detailed simulation opportunities that develop wider abilities than competencies such as catheterisation, but which also increases

peripheral awareness and wider communication skills. This could include the use of scenarios and case studies, which are based on previous experiences of real-life events. A further option is utilising action-based learning to apply theory to practice and explore their own situational awareness skills and reflections in and on practice (Schön, 1983). For example, work through real life scenarios or case studies to explore specified concerns or previous actions. Equally, reflexive practice could be used to expand critical thinking, through guided conversation groups and individualised experiences through Socratic questioning. Clarke (2021) explains careful consideration of reflective practices develops self-awareness and emotional intelligence, both of which have been considered within the discussion, as essential to reach mastery level of situational awareness.

Thereby, moving from a more theoretical and competency-based approach to an applied learning model, allowing for opportunities to experiment in action, reflection and through discussions, which can occur in a safe environment. These approaches aim to activate and expand wider thinking to develop meta-awareness and professional curiosity, with the aim to allow situational awareness and sensory perception to develop naturally. Core ways to achieve these activities include reflective practice, simulation, and rehearsal of concept. Reflective practice has traditionally been concerned with the how, what, and what now, of a situation (Borton, 1970), while Clarke (2021) considers the experience, deconstruction, and implementation approach, which offers a wider understanding and growth, through internalisation and critical thinking, incorporating reflexivity, which in turn supports situational awareness. Therefore, my thesis supports a new curriculum infrastructure that provides the opportunity for theatre-practitioners to experiment and develop their own methods of practice in line with regulatory standards that supports their own way of knowing, similar to horse-trainers.

Therefore, the proposed curriculum aims to develop skills such as self-awareness, sensory perception and interpersonal skills, and reduce the dominated competency-based training system which pays poor attention to developing heightened levels of situational awareness (Table 6: 176; Diagram 4: 165). Consequently, 'dressage' is a good place to start but not the best place to finish.

Table 6: *Examples for Developing Situational Awareness in the Curriculum Turn*

Rehearsal of Concept Experience		
Method	Value	Intention
Auto-critique self (4-part process of internalising a scenario)	Consider and critique own perceptions, understand and levels of situational awareness	To develop self-awareness and internalisation skills
Rehearsal of Concept	Provide a short (3-5min) video written scenario or simulated scenario to allow students to discuss and explore a situation to draw out intended learning. Explicit- Develop observation, comprehension, interpersonal and decision-making skills. Implicit- Teamworking, articulation, communication skills.	To target specific learning requirements for example, what is happening, potential concerns, elements of risk, feeling and thoughts, knowledge of roles, consequence of practice, actions
Walk through the video or scenario with the students	Safe environment to develop skills and discuss consequences and findings.	Develop teamworking and collective valuing skills. Sharing perceptions and knowledge raising awareness to others-mental models
Post auto critique of event	Consider and critique own perceptions, understand and levels of situational awareness through reflexivity.	To build on self-awareness and internalisation skills. Develop emotional control and reflective practices.
Implicit methods immersed into the curriculum		
Method	Value	Intention
Assessment (Written, in action, engagement, teamworking, reflection)	Build in implicit skills to develop situational awareness, group assessment, role play, reflexive practices.	Develop teamworking, reflexivity and observational and communication skills
Group work	Action learning or problem-based learning	Self and interpersonal awareness skill, communication and empathy
Practice requirement	Professional conversation and SMART planning/GROW Modelling.	Self-awareness, interprofessional skills, organisation, preparing and planning.
Simulation	Apply work and new knowledge and skills.	Sensory perception, observation, communication, vigilance and presence.

6.5 Critical Reflection on the Research Process

Within this section I will provide an overview of some of the main challenges, limitations and strengths of the thesis and how they support the authenticity of the research process. I will complete with a reflective discussion on my journey as a research-participant and the impact the research process has had on my own research development.

6.5.1 Challenges

The research proved to be a very exciting study and I enjoyed the opportunity to co-produce knowledge with horse-trainers and theatre-practitioners. However, there were a number of challenges in undertaking the research. The first was the uniqueness of the research aim, considering how situational awareness developed through the horse-human-relationship. Second, was the reliance on rather dated literature regarding how situational awareness is defined, which was established in an era where technology was starting to distance humans from the situation, as Brennan et al. (2020) suggests. Furthermore, the aviation industry, considered as the main authority on situation awareness as a concept (Endsley, 1995), still dominates the discourse, as discussed in chapter 1. Equally, there remains limited literature regarding situational awareness in the perioperative environment from a theatre-practitioners' perspective and inadequate research regarding stimulus-response theory and ecological theory to inform situational awareness originally found by Flach (1995), Hone et al. (2005) and Smith and Hancock (1995). Consequently, these challenges meant I needed to interpret and blend current and seminal research of situation and situational awareness, while also interpreting the literature regarding the horses' ethology and how humans use this knowledge to inform horse-training practices. However, while these were challenging, they demonstrate the paucity in the literature and how my research is contributing to the wider discussion of how situational awareness is perceived, and developed, in horse-trainers and theatre-practitioners. Equally, the findings will potentially recontextualise the current understanding of situational awareness within the perioperative environment, therefore providing opportunity to improve environmental situational awareness practice and therefore optimise patient care.

A further challenge to the study was the COVID-19 pandemic which interrupted the research journey but offered different ways of thinking, providing its own level of 'poiesis'. The pandemic offered a wider participant range, as discussed in chapter 3, it also created a sizable quantity of rich data, which provided valuable insight into how both participant groups perceived and developed situational awareness. However, interpreting and connecting the complex strands of data from the horse-trainers and theatre-practitioners was challenging as they required connecting and interpreting, both individually and collectively, to give due diligence to their meaning.

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6.5.2 Limitations

The research clearly has its strengths, however, there are some limitations. George (2023) explains exploratory methodology potentially reduces the rigour, and questions the validity of the research design and findings as it is based on an idea, rather than something that is understood, therefore it may not be able to reveal all the information to answer the research aim. Equally, exploratory research can be very labour-intensive in finding and synthesising relevant information, which equally can introduce the idea that results could be subjective due to lack of pre-existing knowledge (George, 2023). This intensity combined with the limitations of time and available wordage, reduced the ability to provide the breadth and depth of the subject areas required to give a detailed understanding of the research topic under exploration.

A further limitation can be related to the use of semi-structured interviews within an exploratory research methodology. As a unique research topic there was limited previous knowledge to guide the direction of the participants' questions, which were equally dependent on the participants experiences (Gray, 2018), therefore, following the research aim can become broader than structured interviews would contain. Furthermore, exploratory research may impact on the research discussion as there is limited research to support findings to expand on previously known understanding of the phenomena. However, the discussion creates opportunities to explore new ideas that can be supported by synthesising findings from associated literature (Nargundkar, 2008). Additionally, there is limited literature to support and guide researchers using an exploratory methodology, which may lead to underutilisation in this methodological approach.

A further limitation lay with the participant numbers and purposive sampling, although qualitative research traditionally has low participant numbers this can reduce the amount of rich data that has potential to be gathered, however, I feel that I interviewed a generalised population to gain extensive information across a wide participant group. A further limitation lay, more importantly, in the homogeneity of both the participant groups which lacked diversity in culture and origins, as all the participants were white British citizens, meaning different cultures and experiences would alter the findings, or shed new light, on the discussion about situational awareness in theatre practice training- although there were

participants with neurodiversity considerations. This can be considered an effect of purposive sampling, as it focuses on expertise rather than population diversity (Denscombe, 2014) which, although supportive of the literature aims, did not allow for full representation of the population, especially as theatre-practitioners are a widely diverse professional group. Therefore, there is certainly scope for further investigation to build on understanding situational awareness across diverse groups.

A further limitation worthy of consideration is the potential for confirmation bias, as a participant-researcher and using an explorative interpretive analysis process opens up opportunities for both to occur. Consequently, as an insider, there was potential to lead discussions and interpret the data from a preconceived position, as discussed in chapter 3, therefore, it was important to maintain subjectivity through the participant's voice. Equally, as previously considered, as a participant researcher there was potential that participants would answer their questions, or move the discussions along a trajectory, they believed I wanted them to go, however using semi-structured interviews helped reduce this as the participants were allowed to wander in their own thoughts. Nonetheless, it is arguable the research would have a different lens if it was undertaken by somebody without insider expertise of both groups.

6.5.3 Strengths

Nonetheless, in many ways I feel the challenges and limitations of the study are equally its strengths. The uniqueness of the study was an exciting opportunity to develop new knowledge regarding situational awareness and its development within theatre practice. It also provided an opportunity to develop knowledge across disciplines, to develop and rethink the familiar with the unfamiliar. This, equally, added to the understanding of how situational awareness is perceived and developed in the perioperative environment in the United Kingdom.

Furthermore, my position as a researcher-participant offered the opportunity to subjectively use my own reflexivity to explore and interpret the data from a position of expertise to understand the participants' narrative and guide the discussion to answer the research questions, although this led to multiple data strands that proved a challenge. Nonetheless,

Braun and Clarke's (2022) reflexive thematic analysis provides an opportunity for the analysis to be an active process in which the researcher's subjective experience is at the centre of making sense of the data (Olmos-Vega et al., 2022).

However, the challenge of bringing the data strands together was achieved, and opened up new avenues for discussion, research, and methodological attention. Nonetheless, I recognised that all the data and interpretations are a representation of a moment in 'time and space' from both the participants, and myself, as a researcher-participant.

I felt a further strength was the consideration of the more-than-human lens to explore what is usually disregarded, if ever considered, within the perioperative environment. As stated in my positionality, I believe the more-than-human world is entwined in the human one and therefore, has much to offer humanity as a species, as well as the humanities as a field of research. Therefore, one of the strengths of my research is using the more-than-human-Lefebvrian axis to consider how the environment and the 'rhythms' within the internal and external environment can enhance perioperative situational awareness to improve patient safety.

Moreover, rhythmanalysis provided a well aligned lens to explore situational awareness through. Rhythmanalysis provided a lens to consider 'the everyday rhythms' of the participants and a method to analyse and interpret the data. Equally, rhythmanalysis has elements that are well-aligned to develop the stimulus-ecological and sensory approach to situational awareness, as it considers the interactions of the internal and external environment, as well as the Lefebvrian concept of 'presence' and 'dressage'. Therefore, the more-than-human-Lefebvrian axis provided a valuable lens to consider how situational awareness is perceived and developed across two quite different participant groups, horse-trainers and theatre-practitioners.'

Finally, the research has opened a new way of thinking within healthcare research to explore how we can develop individual and collective perioperative situational awareness. By implementing an applied implicit curriculum, as a new pedagogy, which decentres a competency-based approach, there is greater opportunity to develop theatre-practitioners' environmental situational awareness through a carefully designed and intentional teaching

and assessment process. The aim of the applied implicit curriculum is to support the development of an improved programme that not only leads to perioperative situational awareness but also enhances all of the non-technical skills required for effective safe theatre practice.

6.5.4 Reflective Journey as a Researcher-Participant

Subsequently, the limitations and challenges guided my research design to enable and rationalise the inquiry in a way that was rigorous and authentic. Moreover, I found through the research process I was also becoming a rhythmanalyst. Lefebvre (1992: 19) explains this as listening to the world to decipher the "noises, which are said without meaning, the murmurs full of meaning and finally listen to the silence." Lefebvre (1992) relates this to a psychoanalyst, where I compare it to the researcher-participant, who hears the environmental noises but pursues the 'murmurs' through sensory perception to understand the magnitude of the silence. Simply, the researcher-participant listens constantly to the voices and thoughts of the participants to maintain understanding of the narrative and intra-actions, in a similar way horse-trainers do to develop environmental situational awareness. However, as a researcher-participant and rhythmanalyst, I must maintain my past while remaining passive and not interpreting the data prematurely, so I can get a wider understanding of how situational awareness is developed and perceived by horse-trainers and theatre-practitioners.

While becoming a rhythmanalyst, I found it difficult to blend my own learning and experiences, new and old, to the participants' experiences, to extract, appreciate and understand their 'rhythms', "distinctly without disrupting them and without breaking them" (Lefebvre, 1992: 19). Therefore, in order to grasp and assemble new 'rhythms' to form situational awareness development from the participants' experiences, I needed to position myself as both an insider, grasped by the 'rhythms', and an outsider, looking into the 'rhythms' of others. I can relate to Lefebvre's (1992:20) analogy, "nothing is static, nothing is without meaning, no object is inert and time is not set aside for the subject but everything is merged". Although this more philosophical thinking was not initially easy, I found it important to merge and interpret the range of experiences between participants and myself to decipher the noises, murmurs, and enjoy the silences of differential understanding

through diverse temporalities. As a rhythmanalyst I was able to stand inside and outside of the data to make judgements and interpret the overall narrative more impartially (Bonner and Tolhurst, 2002). For me, this brought new meaning of how interpreting the data from an insider's perspective removed the neutrality of an outsider's lens giving the participants' voice added value and deeper meaning. The insider perspective supported my paying attention to detail, to the interpretations of experiences, and the words, feelings and senses, to allow a deeper, more meaningful understanding of the 'rhythms', to guide, circle and dictate the research experience. Therefore, as a rhythmanalyst, it is about starting from experience, and acquired knowledge, then listening to the audience (participants) to detect, become, and interpret the 'rhythms' of self, the world, and the more-than-human, and bring together harmony with meaning.

However, as a rhythmanalyst, it is without saying one's own 'rhythms', one's own interpretations and one's own presence, are not facts, nor laws, only thoughts and ideas, which hold the potential for understanding between temporalities. My position as a researcher–participant meant I had to 'bend back' and check I was not interpreting the data to match my own preconceived ideas. Rather, I needed to interpret the participants' voice, impartially, influenced from my own experiences, and understanding of the literature, to create an alignment to situational awareness and the more-than-human-Lefebvrian axis.

6.6 Implications for Practice

The implications of my research impact understanding, teaching, and reframing situational awareness, in theatre practice in higher education. By reframing situational awareness, I hope it will take a more principle role in the curriculum, across theory and practice, to ensure fitness to practice and enhance patient care.

The research demonstrates how horse-trainers develop situational awareness as part of their everyday practices; by applying these practices to the theatre practice curriculum a number of implications arise. The first is the potential to start developing situational awareness in theatre-practitioners early on in their training, by promoting 'poiesis' to transcend 'dressage', supporting the NHS commitment to reduce adverse incidents and improve patient safety. Second, it illuminates a robust rationale for developing theatre-practitioners who are able to think critically, develop professional curiosity, collectively

value others, and are reflective in their practices, as this enables sustainable meta-awareness to develop within the continuum of situational awareness. Consequently, this understanding offers the potential, through an applied implicit curriculum, to increase the benefits and value of simulated practice, by focusing and designing activities with greater insight to move learning beyond clinical competency. This supports the 2023 post - 2019 covid pandemic (NMC, 2023) initiative to supplement learning through simulated practice to support widening participation and increase student numbers to meet work force demands.

Equally, the development of a situational awareness continuum within theatre practice offers a method to articulate and measure situational awareness development to meet professional standards. The development of a continuum will not only benefit the profession by having a clear definition of situational awareness in the perioperative environment, but it will also provide meaning to the competencies required to meet the HCPC standards of proficiency, providing boundaries to assess when they are not being met and what training is required to improve safe practice. This is an area that is presently not understood and difficult to articulate in practice learning, which has been suggested by Fore and Sculli (2013) and Haber et al. (2017) as an ongoing concern. Consequently, the development of a situational awareness definition and continuum specifically for the perioperative environment, will facilitate an important change to practice. This change, equally, informs situational awareness theory and practice development within the perioperative environment ready for further research to ensure safe practice.

6.7 Further Research

There are three main areas that I anticipate would benefit from further research to support my initial findings from my explorative research study: situational awareness in the perioperative environment; curriculum development; and the impact of this research on the wider healthcare professions. First, additional research exploring students, newly qualified and post 12-months qualified theatre-practitioners, on their perception, understanding and development of situational awareness, across a diverse range of theatre-practitioners', would be a positive move to expand on my initial findings. Equally, the research has considered situational awareness in the perioperative environment from a more sensory ecological interactive approach that I proposed would fit more appropriately across the

whole of the multi-professional team. However, this is an area for further research to explore the effects of sensory perception on situational awareness and evaluate further implications to teaching situational awareness in the perioperative environment. All the proposed areas would support widening the research of situational awareness within the perioperative environment and offer potential to be transferred to other healthcare professional education programmes.

Additionally, the research aim was to identify the possibility of transferring knowledge found to occur within the horse-human-relationship regarding the development of situational awareness to teaching perioperative practice in higher education. The research identified potential for a more implicit applied curriculum to be formulated which utilises the method used by horse-trainers to develop a connection with their horse and, as a by-product, establishes situational awareness. However, further research is required to implement and evaluate the recommendations, to assess the impact an implicit applied curriculum has on developing and sustaining situational awareness in theatre-practitioners. Furthermore, a number of the methods may require further exploration to define and interpret their use and meaning in practice, for example, critical thinking, professional curiosity and collective consciousness, internalisation, adaptive behaviours, and collective valuing, and what this may mean on an individual and collective basis to the development of situational awareness.

Further interesting avenues to take to widen the research, within the area of situational awareness, would be to investigate the views of other healthcare students and practitioners to gather information regarding their understanding on the importance of situational awareness. This would provide a clear idea of where an implicit applied pedagogy could support developing situational awareness which may vary between professions and institutions. Equally, it may prove beneficial to explore and compare other frames of reference that may provide further insight to how situational awareness develops in individuals such as team sports. Meanwhile, to support an implicit applied curriculum an inquiry that considers the perceptions and correlation of self-determination theory and developing situational awareness would be interesting, to understand how much of

developing situational awareness is reliant on individual engagement. This could easily then be used to develop the levels of situational awareness across the continuum.

However, to strengthen my research findings between horse-trainers and situational awareness, exploring military horse-trainers and situational awareness may yield further data, especially in how process theory and sensory ecological theory may work together, this would also support making wider connections and creating deeper understanding of the relationships between these two fields of practice. Equally, this wider research remaining in the field of the more-than-human would have potential benefits to the impact, and value, the horse-human-relationship has on learning and developing important skills and characteristics in healthcare.

6.8 Thesis Conclusion

What this thesis has provided is a glimpse of the 'rhythms' and entanglements between species, and how the norms of social constructed human existence can preclude the actuality of human reality masked within norms of practice. Now is the opportunity to move into a new epoch of visionary difference, to step from the 'repetition' of the mundane and move forward towards a curriculum turn that inspires and crafts theatre-practitioners, rather than stifling and constraining their freedom to learn through the traditions of 'dressage'. A curriculum that thrives on 'poiesis', preventing the automation of practice, giving the required shudder that it is time to move freely on, and become uncomfortable, for a while, in the unfamiliarity of an applied implicit pedagogy. Allowing the mysteries of an implicit curriculum to lead the way, and for theatre-practice students to explore and experiment within their own entangled 'everyday rhythms'.

My doctoral research has simply been a manifestation of my own desire and inspiration to understand the value in cross-species' communication and its significance to developing situational awareness, but the findings should not be dispelled as mere thoughts and ideas. If we want to truly develop theatre-practitioners that excel in the 'rhythms' of their 'everyday' as individuals and teams, to provide quality patient care, we must take notice of Lefebvre (2004: 69), for one last time:

> "Thought strengthens itself only if it enters into practice: into use,".

Meaning, to ensure patient safety, an applied implicit curriculum is required to develop, sustain, and craft environmental, situationally aware, theatre-practitioners. Therefore, we must offer meaning and value to the abstract concrete concept that is situational awareness in practice by supporting a change in practice.

6.9 What next?

The potential impact of this research should not be understated, it holds significant importance for how situational awareness is taught to theatre-practitioners across a range of programmes. Implementing an implied implicit curriculum will enhance not only situational awareness, but also other non-technical skills to develop a better process within the perioperative environment to enhance patient care and reduce adverse incidents. In reducing errors in the perioperative environment requires a move away from an over reliance on technology and checklists that serve to distance the theatre-practitioner from the very environment it needs to perpetually interact with. Therefore, the aim is to bring the theatre-practitioner into the perioperative environment through an applied implicit curriculum to afford the opportunity to notice difference and reduce error.

In order to move forward my aim is to disseminate my research through publications and conferences, develop a community of practice across the wider UK based institutions to discuss and to establish a pathway to move towards this new pedagogy. This will also entail collaborating with simulation groups and communities of reflective practice, to discuss how my applied implicit curriculum recommendations and examples can be utilised to improve a curriculum that develops the hidden skills of our theatre-practitioners. Furthermore, opening lines of discussion with the Health and Care Professions Council, for the implementation of a more explicit development of situational awareness and other non-technical skills in the standards of proficiency in a more pedagogical way, is called for and one that the community of practice will be looking to influence.

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Appendices

Appendix 1

How my thinking developed through conferences and wider dissemination

Thesis progression (2018-2023)

Educational doctorate presentations – working with ideas of how horses influence human growth and impact on formal learning

Developing the concept of Equine methodology – Think Piece

December 2018: https://www.academia.edu/41775528/Think_Piece_Equine_Methodology

Wrote and published ResearchGate:

Equine Methodology – Exploring the Equine –Human Relationship and Situational Awareness through rhythmanalysis
Importance: to organising think and justification of the horse and links to Rhythmanalysis

1. Conference:

Conference: Research Conference Birmingham City University

Date: February 2018

Title: Equine Methodology

Presentation: Research from the Field – Joanne Thomas

Feedback: interesting idea, how will it be used as a methodology or is it a paradigm

Reflection and Research Development: Wider thinking on methodological approaches

Led to-: Justifying the use of Equine methodology

2. Conference:

Conference: Canterbury Methodology Symposium

Date: April 2018

Title: Explore EdD Methodologies and political considerations

Presentation: Research from the Field – Joanne Thomas

Feedback: Why the horse, the impact the horse has had on animal welfare and women's rights. Nice to see the horse in wider literature and how it influences people in different ways.

Reflection and Research Development: Justification for using the horse, consider the impact the horse has on human development and wider political arena

Led to-: Developing post human research using rhythmanalysis as a lens to explore how the natural and social constructed world meet and the impact.

3. Conference

Conference: Oxford Brookes Educational Doctorate Conference

Date June: 2018

Title: Explore EdD Research: Diverse Methodologies

Presentation: Using Rhythmanalysis as a Framework for Equine Methodology.

Feedback: Need more explanation of the connections between ODP, Rhythmanalysis and the importance of the horse.

Reflections and Research Development: Reading wider around post-human methodologies, explore rhythmanalysis s and other Lefebvre works

Led to wider understanding of Lefebvre and his work across a Marxist social theory and how that could fit in a post-human paradigm

4. Conference

Conference: IPDA Ason University

Date November: 2019

Title: Educational Development in Research

Presentation: Creative methodologies Supporting Operating Department Practice in the Perioperative Environment: Using Rhythmanalysis as a Framework for Equine Methodology.

Feedback: Need more explanation what an ODP is and how it links to Marxist theory

Reflections and Research Development: Starting to look at the animal turn and cross-species research to connect to rhythmanalysis

Led to: Developed the idea of a link between Lefebvre and the animal turn specifically the more than human

5. Conference

Conference: Birmingham City University

Date January 2020:

Title: Research in Health Care

Poster: Can the equine-human relationship provide flashes of insight into operating department practice education of situational awareness ?

Feedback: Need more explanation what an ODP and the connection to horses and situational awareness, fascinating idea

Reflections and Research Development: continuing to read around the animal turn and cross-species research to connect to rhythmanalysis. Staring to read wider around situational awareness and connection to the horse through horse ethology

Led to: How the horses ethology connects situational awareness together with some links developing from the operating department

6. Conference.

Conference: C-SCHaRR Birmingham City University
Date: June 2022

Poster: The teaching of Situation Awareness in Operating Department Practice: a matter of horse sense?

Feedback: Very interesting, how will this be applied and impact on ODP practice

Reflection: Reviewed finding and discussion

Led to. developed thinking and more focused discussion

7. Conference.

Conference: Birmingham City University, Winter showcase of current research

Date: November 2023

Presentation: Teaching Situational Awareness to theatre-practitioners: matter of horse sense

Feedback. Developing a spiral curriculum and using simulation to develop situational awareness.

Reflections. Developing the standards of proficiency as a pedagogical tool rather than set skills rather considering how they can be formulated to create both cognition, skill and sensory perception

Led to. Considering how to discuss finding and develop the standards to represent knowledge, skill or behaviours to ensure safe practice

Team Dissemination

Dissemination 2019 to Operating Department and International Equine Community of Practice on; Can the equine-human relationship provide flashes of insight into operating department practice education of situational awareness ?

Feedback: interesting, sceptic in how it will inform practice, concerns over move from aviation

Led to: Develop a robust discussion and understanding of SA in aviation and ODP, confirmed my ideas for a need to move beyond aviation as there was an overreliance on checklists and debriefs.
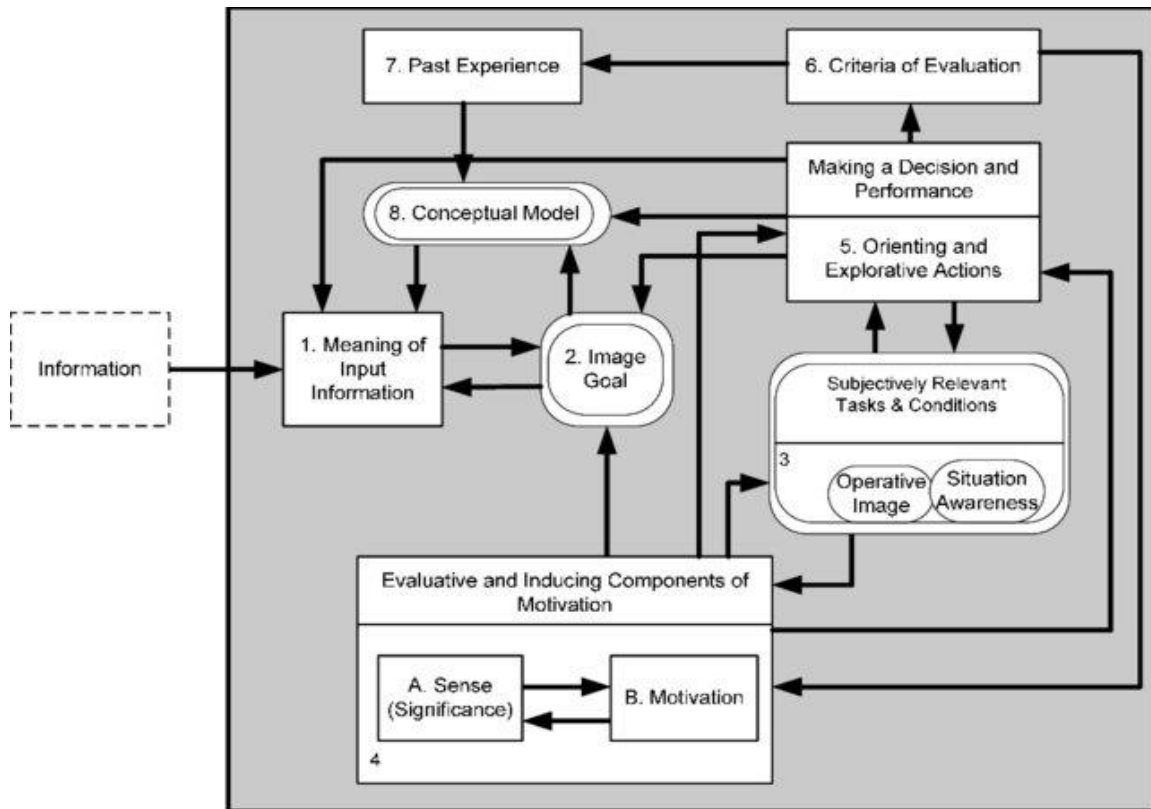
Appendix 2:

Overview of the Literature Review Strategy and Inclusion and Exclusion Criteria

Topic	Searches	Starting point to rhythmic trajectory
Situational awareness and understanding in aviation	PubMed, Web of Science CINAHL ScienceDirect	1. Define situational awareness 2. Importance in aviation 3. Situation v Situational Awareness 4. Decision making and intuition
Situational awareness in the perioperative environment and its important	PubMed, Web of Science CINAHL ScienceDirect Reports HCPC Standards	1. Definition and use 2. Reduce risk 3. Anaesthetics 4. Surgical 5. Recovery/Critical care
Complexities of situational awareness in the perioperative environment	Books Webpages PubMed, Web of Science CINAHL ScienceDirect	1. Team situational awareness 2. Meta-awareness 3. Barriers to situational awareness
Horse-human-Relationship	PubMed, Web of Science ScienceDirect Webpages Blogs Book Magazines	1. Horse ethology 2. Hores-human-relationship 3. More-than-human literature 4. Horses in human development

Inclusion	Exclusion	Date range (historical to current literature review)
English written	Non-English written	All relevant literature
Situational awareness in aviation	Other services	Nonspecific
Situational awareness in the perioperative environment	Other healthcare areas	1995 to 2023, ordered in currency
Understanding situational awareness and barriers	Not related to the perioperative environment	1995 to 2023, ordered in currency
Building and importance of team situational awareness and communication in the perioperative environment	Non perioperative environments	1995 to 2023, ordered in currency
Meta-awareness as process of thinking related to situational awareness	Not related to situational awareness development	2005-2023
Historical competency-based Curriculum development	Not concerned with competence-based curriculum information	1972-2023, progressive
Horse ethology	Other non-horse related areas Not related to individual horse and herd behaviour	0 to 2023, broad overview required
Horse-human-relationship	Only related to horses not other animals	0 to 2023, broad overview required
Horses and human development	not related to learning or therapeutic interactions	0 to 2023, broad overview required

Appendix 3:

Interactive sub-systems approach to SA (Adapted from Bedny and Meister 1999)

From: Hone, G. N., Macleod, I. S., and Smith, S. J. (2005). Awareness and Scenario-Based Requirements. Proceedings of the Human Systems Integration Symposium 2005, Washington, DC. *American Society of Naval Engineers*. Published on CD-RO

Appendix 4:

Example Data Analysis method; Individual Collective Emerging Themes

Alfred	Puzzle	Akon	Lika	Comet	Jasper	Collective analysis	Themes
Learn about horses as the foundation start to think through a different perspective of horse

Need a theoretical foundation

Horses SA transfer to human trainer to develop a bond and calm horse

SA can calm thinking | SA is theorised at the start of equine education this develops as curiosity and fearful moments appear.

The need covers the horse, riders, staff etc. as we are responsible and accountable for health and safety

It is important to see the sum of the parts to build heightened SA | It requires a development of skills more akin to the horse silent quiet calm observation looking for subtle changes and silent communication

Looking to connect between species Theory is a guide – especially ethologically but it's there to be tested and pushed If you have a happy horse, it must be right | The more nervous you are the more attention your pay. Has affect nervous transmit between horse and human cause and effect need to control them

Good SA is about relaxation, casual perimeter observation not hypersensitive scanning and expecting but seeing and dealing calmly and relaxed – inner centred control | Learning what the rule book doesn't tell you Inner drive

SA is seeing and adapting

Developing SA requires a driving force such as winning in competitions Beyond the rules Show jump training in itself is not enough need to learn and gain feel to really get the edge | If you want to be with horse you need to know the fundamentals but also explore and seek other experiences and advice. It not always simple and be patient

Let go of what's gone

Horse is guided by the environment that's its rhythm you just have to join in
Horse rhythm | Positive rhythmic development of SA Interprofessional presence People aware

We look so closely with the horse helps develop SA in other areas of life

Let go of what's gone

Multi-tasking and quick thinking
Control energy levels Arena focus, take each element at a time Balance leadership and companion between you and horse

Prepare and organise thinking | (Main theme) Critical thinking -

Foundational knowledge from books and people to learn about horses

Not always easy need to be patient

Curiosity develops and fearful moments encourage learning

SA is more than just seeing what's around you |

Appendix 5:

Example Data Analysis; Collective Themes and Subthemes

Collective analysis	Codes	Themes and sub themes
Standard foundation learning build on knowledge	Presence- Building on moments –BM	(Main theme) Presence/intunement –P
Learning what the rule book doesn't tell you Inner drive	Prepare and organise thinking - SP	(Sub theme) Self-presence -SP
If you want to be with horse you need to know the fundamentals but also explore and seek other experiences and advice. It not always simple and be patient	ego and give up control allow the horse to be the horse - SP	(Sub theme) Environmental attunement
	Stepping out of preconceptions and learning in the moments - SP	
SA is more than just seeing what's around you	Quick thinking and reactions - SP	
SA Theory is learnt at the beginning	Fight instinct - EP	
SA is seeing and adapting	Think in each moment - EP	
Beyond the rules	The work trains the eye and feel of self - SP	
Curiosity develops and fearful moments encourage learning	Control energy levels - SP	
Training helps develop a connection but there is always unpredictability	Arena focus, take each element at a time - EA	
Training allows for understanding ability	Macro- micro details and attention - P	
Horse is guided by the environment that's its rhythm you just have to join in Horse rhythm	Control energy levels - SP	
	Interprofessional presence -EA	
	People aware - EP	

Appendix 6:

Example Participant Information Sheet (Theatre-practitioners)

BIRMINGHAM CITY University

The Teaching of Situation Awareness in Operating Department Practice:

a matter of horse sense?

Participants Information sheet (18/01/2020)

Theatre-practitioner Lectures and associated staff at BCU

My name is Joanne Thomas, and I am undertaking My Educational Doctorate at Birmingham City University. I am amateur equestrian with over 40 years' experience and have an Honours degree in equine science and I am also qualified operating department practitioner and senior lecturer of 12 years at Birmingham City University.

My research is considering how the horse and the Horse-human-relationship supports the development of situational awareness in humans. I aim to use this information to explore how we can improve situational awareness development for student operating department practitioners.

My contact details are: joanne.thomas@bcu.ac.uk + (44) (0) 0121 331 6147

The research aim is:

The of aim of my qualitative research is to explore the notion of situational awareness in the

Horse-human-relationship and its educational implications in teaching Operating

Department Practice to develop situational awareness.

Horses have a long history of supporting human development in a number of ways, which will form part of the background research.

Invitation of participation and overview of participant involvement

The purpose of this information sheet is to inform you about the project so that you can decide whether you want to take part. You have been invited because of your individual and specialised knowledge, experiences, and expertise in the topic area of perioperative practice (There is no horse involvement). The research aims to understand the perceptions and development of situational awareness so support students in developing this skill which in turn will provide better and safer patient care.

I will be asking you to take part in some discussion through semi-structured interview about your understanding and application of situational awareness. The interview will be held via Birmingham

City University BCU Microsoft Teams to promote individual safety. Each interview will be recoded on a BCU encrypted audio recorder. I will contact you via your chosen method from my home office to ensure privacy. All participants will be provided with pseudonyms to protect their identity in the research findings.

Each participant will be asked to give up to 2 interviews over a period of 10 months at a time that is suitable for them. Each interview will for be for a maximum of 1 hour. The aim is to allow enough time for each participant to feel comfortable and happy with the discussions and the aims of the research.

Interviews and information management

The semi-structured interview method is being used to allow each participant to discuss openly their experiences and accounts in their field of expertise rather than being restricted to set questions.

The information will be collected and drawn together for analyses that represents the participant's discussions.

All participants will be anonymised, and the information provided will be confidential including any personal information, places or dates.

The information will be recorded and transcribe on to a word document and stored with in an encrypted protected password file to ensure confidentially and meeting the GDPR directives in line with BCU requirements (2018).

All the information collected will be coded to ensure anonymity and kept until the research has been completed (potential of up to 3 years after the research has completed (2026)

All collected information will be discussed or disseminated to each participant for approval for final use

Consent

Once you have read the participant information sheet and considered the requirements of the research you will be asked if you wish to participate in the research and provide your consent. You can consent by signing the provided consent form attached to the information sheet. You may withdraw this consent at any point within the research information collection process and without prejudice. However, if you withdraw your consent any data collected may still be used under the above terms.

If you have any concerns, please contact details are below

As part of this research and Educational Doctorate, I have a supporting supervisor Tony Armstrong

Contact details

Dr Tony Armstrong,

Associate Profess, Director of PGR Degrees in Education & Social Work,

Faculty of Health, Education and Life Sciences,

112 Ravensbury. Birmingham City University, Birmingham b15 3NT

tony.armstrong@bcu.ac.uk Phone: 0121 331 7365

Or you can make your complaint directly to the BCU ethics committee HELS_Ethics@bcu.ac.uk

If you wish to raise concerns about how personal data is used please contact

BCU Data Protection Officer on informationmanagement@bcu.ac.uk or +(44)(0)121 331 5288. or Data Protection Officer, Information Management Team, Birmingham City University, University House, 15 Bartholomew Row, Birmingham, B5 5JU.

Or you can direct your complain directly to Information Commissioner at Information Commissioner's Office, Wycliffe House, Water Lane, Wilmslow, Cheshire, SK9 5AF, further information available at www.ico.org.uk

Horse-trainers/Riders Participant Consent form

Reference Thomas/3525/R(A)/2020/JAN/HELS FAEC

Title of project

The Teaching of Situation Awareness in Operating Department Practice:
a matter of horse sense?

Summary of the research

To explore situational awareness of the horse-trainer by interviewing them to discuss their perceptions and understanding of their own situational awareness with the aim to apply the finding to operating department practice training.

Statement about voluntary participation

I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my legal rights being affected. I also recognise that I will be treated equally and without bias due to title or service and if I choose not to participate, I will not undergo any discrimination or employment or individual rights.

Withdrawal of consent

I understand I can withdraw my consent to participant at any point without prejudice. I also understand that any data provided may still be used within the research under the same terms and conditions of anonymity.

Data Protection

I understand that relevant sections of my data collection during the study may be looked at by individuals from Birmingham City University and from regulatory authorities where it is relevant to my taking part in this research. I give permission for these individuals to have access to my records.

I understand that personal data about me will be collected for the purpose of the research study including Name and role within the research, place of work as appropriate and job and role, and that these will be processed in accordance with the information sheet. However, none of the above will be presented or used within the data as personal information will be anonymised.

An invitation to participate.

The participant information sheet has outlined the research content and provided information about anonymity and confidentiality and an invitation to participant as an expert in the topic area. I understand that this is my decision and I do not have to participant.

You can consent by signing this consent form. You may withdraw your consent at any point within the research information collection process and without prejudice.

Delete as appropriate.

I agree to audio recordings and the use of anonymised quotes in the research reports and publications.

I agree for my anonymised data to be used in future research here or abroad that has ethics approval.

I agree for my anonymised data to be used for teaching and research purposes within this research project.

Signature   Date

I understand I have the right to anonymity.

I have read and understood the information sheet.

I have had the opportunity to ask questions.

I understand participation is entirely voluntary.

Yes   No

Signature ___   Date

I agree to being interviewed.

Signature   Date

I agree to the interview being recorded.

Signature   Date

Participant Name _____ Date

Role

Emergency contact name and contact details.

Appendix 8: Ethical Consent

BIRMINGHAM CITY University

Faculty of Health, Education & Life Sciences Research Office
Seacole Building, 8 Westbourne Road
Birmingham
B15 3TN
HELS_Ethics@bcu.ac.uk
23/Jan/2020

Ms Joanne Thomas
joanne.thomas@bcu.ac.uk

Dear Joanne.

Re: Thomas /3525 /R(A) /2020 /Jan /HELS FAEC **-** Enquiry into horse Situational Awareness and its application in the development of Situational Awareness in the student Operating Department Practitioner.

Thank you for your application and documentation regarding the above activity. I am pleased to take Chair's Action and approve this activity.

Provided that you are granted Permission of Access by relevant parties (meeting requirements as laid out by them), you may begin your activity.

I can also confirm that any person participating in the project is covered under the University's insurance arrangements.

Please note that ethics approval only covers your activity as it has been detailed in your ethics application. If you wish to make any changes to the activity, then you must submit an Amendment application for approval of the proposed changes.
Examples of changes include (but are not limited to) adding a new study site, a new method of participant recruitment, adding a new method of data collection and/or change of Project Lead.

Please also note that the Health, Education and Life Sciences Faculty Academic Ethics Committee should be notified of any serious adverse effects arising as a result of
this activity.

If for any reason the Committee feels that the activity is no longer ethically sound, it reserves the right to withdraw its approval. In the unlikely event of issues arising which would lead to this, you will be consulted.

Keep a copy of this letter along with the corresponding application for your records as evidence of approval.

If you have any queries, please contact HELS_Ethics@bcu.ac.uk

I wish you every success with your activity.

Yours Sincerely,

Professor Trixie McAree

On behalf of the Health, Education and Life Sciences Faculty Academic Ethics Committee

Appendix 9: Access Approval

BIRMINGHAM CITY
University

<div align="right">

Alex Kendall
Faculty of Health, Education and Life Sciences
Birmingham City University
City South Campus
Westbourne Road
Birmingham
B15 3TN
alex.kendall@bcu.ac.uk
27th January 2020

</div>

Joanne Thomas
Birmingham City University
Room SCT 371
City South Campus
Westbourne Road
Birmingham
B15 3TN

Dear Joanne,

Re: Enquiry into horse situational awareness and its application in the development of situational awareness in the operating department practitioner

Following receipt of your application to conduct research within the Faculty of Health, Education and Life Sciences at Birmingham City University, I am pleased to inform you that you have satisfied all the necessary requirements in relation to ethical approval and indemnity cover.

I am therefore able to grant you my formal permission to begin your research project from 16/02/2020. Your access to the Faculty will expire on 23/02/2023. If an extension is required, you must contact me to apply at least one month before the expiry date.

Tony Armstrong has been identified as your lead contact from within the Faculty of Health, Education and Life Sciences.

Yours Sincerely,
Alex Kendall
Associate Dean (Research & Enterprise)
Faculty of Health, Education and Life Sciences