

Thesis Declaration

I Rachael Kostusik verify that in submitting this thesis;
the thesis is my own account of the research conducted by me, the Candidate;
any proof-reading by professional editors comply with the standards approved by the
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Attribution Statement

The content in this thesis was developed by the Candidate with advice from their supervisory panel.

The following individuals contributed to the thesis.

Contributor	Contribution (%)	Concept Development	Data Collection	Data Analyses	Drafting of Chapters
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Contribution indicates the total involvement the individuals has had in the creation of the thesis.

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Abstract

Theatre improvisation supports the development of interpersonal skills, building verbal and physical imagination, whilst enabling compassionate interaction between people to enhance connections. Improvisation is emerging in health care as a pedagogical tool that can enhance human to human connections such as the interaction between a nurse and patient enabling experiential learning. This thesis argues that the ludic nature of improvisation exercises stimulates enhanced interaction skills (Toivanen, 2011). The ancient body-mind practices that improvisation draws on offer valuable skills to the learner, contributing to the andragogy of nurse practice and pre-registration education and training. Nurses require unique cognitive capabilities to multi-task, problem-solve and prioritise urgent needs in a fast-paced hospital environment. Human factors such as communication and situational awareness are essential to maintaining high-level patient care across a challenging environment (Eisenhardt, 2021). The World Health Organisation (WHO, 2019) and The Australian Commission for Quality and Safety in Health Care (Report *The State of Patient Safety and Quality in Australian Hospitals*, 2019; Fotis, 2010) found that deficiencies in human factor skills in hospital settings are affecting patient safety; fifty per cent of adverse events are preventable. Communicating for safety in training is a number one priority to reduce preventable adverse events.

This thesis explores the principles and theories of theatrical improvisation through engaging with the work of Viola Spolin, Rudolph Laban, Augusto Boal, Jacob L Moreno, David Kolb and Howard Gardner. It comprises both a theoretical/critical component and a creative component which is a digital toolkit, the *Improv-e-toolkit* designed to be used in blended delivery, face-to-face and digital mode. The *Improv-e-toolkit* is a prototype that aims to unite important clinical nursing skills such as situational awareness, decision making and

relationship management. I argue, drawing on the work of Hager (2004) that improvisation training develops team-based trust and effective communication to support positive nurse-patient connections which deliver favourable patient outcomes.

Dedication

Dear Nurse Educators,

I dedicate this thesis to you for your role in leading the way as truth-seekers and agents of change in this 'Brave New World'.

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Introduction

The performers' naked, white-clad bodies moved together, forming an upside-down animal-like machine, travelling in the same trajectory across the expanse. Ripples disappeared in the dancers' wake, leaving invisible markings where they had been swimming, moving and exploring ancestral rocks at Serpentine Falls in Western Australia.

Dark Morning Dance Theatre was a performance group I founded twenty-five years ago, born from an Independent Study Contract in Theatre and Asian Studies at Murdoch University. This six-week cultural investigation was a physical theatre study exploring the movement of trained and untrained bodies. Utilising practice-led research, I explored experiential learning, to see whether performers commencing at different training points could arrive at equal skill levels of performance, after participating in a program of theatre interventions. The question I considered was: 'What would the effects be of starting at different levels of physical training?' I invited participants with different backgrounds: a theatre practitioner, a doctor with yoga training, a migrant new to Australia's culture and dance practices, a qualified black belt in Tai Kwon Do, and a professional dance graduate. I ran labs for six weeks: we worked in the studio and on site-specific spaces, swimming and crawling on rocks at Serpentine Falls and observing lizards and magpies in parks whilst participating in affective and image-based movement interventions. The dance forms of Butoh and Body Weather were our inspiration. It was exciting to see that the performers were in the same headspace and performance level as each other by the end of the lab and rehearsal work.

This sparked my interest in creative pedagogy, and I went on to trial different experiential learning opportunities for learners from experiencing Japanese to special

education subjects and academic subjects (English and Maths) through theatre improvisation exercises. For example, students ran across the oval in different lines to learn multiplication at Kensington Secondary, an education support school. It was the first time some of these teenagers were able to show themselves that they could learn maths in a fun yet effective way. I introduced the use of digital maths programs that read the questions out loud with visual support. This garnered excellent results. For instance, one student with severe dyslexia and dyspraxia said, after the Maths game gave him ten virtual stars, “I didn’t know I was good at maths!”

With previous positive education experiences as a theatre scholar, counsellor and passionate educator I wanted to embark on this thesis when I became aware that there was a problem with nurse education. I felt that the skills of theatrical improvisation may have a valuable role to play in that domain. I was seeking practical, creative and innovative approaches to teaching and learning that address today’s complex issues in health care to complement current traditional nursing education. Theatrical improvisation, a new learning modality in health care, seeks to fill a theory to practice gap in human factors nursing training to add to established communications training processes. In the health care field, this new learning modality is referred to as medical improvisation (Watson, 2011). Established training typically commences with tertiary theoretical education and leads into simulation training (role-play), clinical placements and in-situ training. Due to the remaining learning to practice gap, I propose the addition of theatrical improvisation exercise ‘drills’ to supplement existing nurse education and training.

In this thesis, I draw on the key theoretical work of David Kolb, Alice Kolb and Howard Gardner and the practical work of Rudolph Laban, Augusto Boal, Jacob Moreno and

Viola Spolin. This research is undertaken from a theatre in education perspective, investigating emerging innovations in digital education and training. I have chosen to focus on inventive approaches to the ludic education of nurses because nursing is pivotal to healthcare, being the main point of contact with patients. Nurses, in comparison to other healthcare professionals, spend the most time assessing and managing patients (Tengelin & Dahlborg-Lyckhage, 2017). I have engaged with nurse educators to ensure the model's validity and utility for that cohort, as the subject is outside my discipline area. As outlined in the abstract, the thesis comprises a theoretical and practical component. The practical component is to be read as an in-development prototype for an e-toolkit resource built in Moodle, a Learning Management System (LMS). It offers nurse educators a suggested framework to follow when facilitating a professional learning workshop with nurses. The *Improv-e-toolkit* is a digital resource intended to be a supportive teaching tool that I envisage will be used in future hospital training programs.

In Chapter One, I consider the origins and practices of improvisation and how those practices engender daily performance skills and reflect the human factor skills required for an effective workplace with good outcomes. The chapter then moves into a review of the literature which includes the key theorists of theatrical improvisation and a discussion of how the idea of improvisation has evolved and why I think the approach is useful to be deployed outside of the theatre space. Chapter Two investigates theatre as a learning tool and the potential for its application in the field of nursing. Chapter Three examines the educational technology futures of eLearning, eXtended Reality, pervasive games and Serious Games through a discussion of three case studies in nursing contexts. Chapter Four describes the creative process employed to develop this component of the exegesis. It contributes a

prototype; the *Improv-e-toolkit*¹ containing interactive improvisational exercises designed for nurse educators to utilise in andragogical contexts.²

The exegesis comprises a critical analysis and evaluation of key works by theatre improvisation theorists, human factors skills for nurse learning, pedagogies of integration and emerging digital technologies in andragogy. The theatre improvisation principles, explored in the chapters of the dissertation and the exercises in the *Improv-e-toolkit*, utilise a ludic learning space to enrich the human factor skills required by nursing graduates and early career nursing clinicians in order to manifest positive nurse patient connections. The dissertation aims to support developing these skills in an enjoyable way, particularly important for fast-paced overburdened workplaces in pandemic conditions (Harendza, 2020).

¹ Note: The *Improv-e-toolkit* is purposefully hyphenated to play on the word 'improve' in *Improv-e-toolkit*.

² Andragogy is a theory about adult learning. It is important to be aware of the adult learner's centrality in learning; for example, how activities, exercises and interventions are organised with consideration of the learning needs, interests and knowledge that adults bring. The focus is on life scenarios and situations to ensure learning is 'life-centred' whilst offering opportunities to be self-directing (Knowles et al., 2005 p. 40). Knowles argues this concept of adult learning has been supported by eminent psychologists and educators such as Carl Rogers, Abraham Maslow, Carl Jung and Erik Erikson. In contrast, pedagogy is an education method in which the learner is dependent on the teacher for guidance, evaluation, and acquisition of knowledge. (Knowles et al., 2005; Pappas, 2021).

Chapter 1: Literature Review

In this chapter, I discuss the literature that frames my research project. I explore the research that underpins the argument that applied improvisation, a subset of theatrical improvisation, has the potential to enhance the nurse-patient connection. This project considers the concepts of play and spontaneity and how they can be used through theatrical improvisation to develop or enhance nurse human factor skills for a more effective workplace with better outcomes for patients. I establish the significance of the general field of theatre improvisation through an investigation of key theories and practices. I identify the research supporting the value of theatre improvisation techniques as a teaching tool in a non-theatrical context to contribute to the andragogy of nurse practice and pre-registration³ education. I commence with a description of key concepts that underpin my research. In addition, I explore the history of improvisation, theatrical improvisation and applied improvisation and follow up with an investigation of relevant literature from applied improvisation pioneers in this emerging medical teaching field to explore the thesis question: *How can theatrical improvisation improve the nurse-patient connection?*

Improvisation has existed for centuries, and it has no single origin; in the third century BCE, Atellan Farce, a touring European acting troupe, improvised everyday life scenes or satirised historical or mythical stories (Fotis, 2010). In defining the emergence of modern theatrical improvisation, I make use of the overarching uses of improvisation as set out by Piekut and Lewis (2016). Their findings align with my cross-disciplinary exploration of applied improvisation in new contexts; writing from a critical study perspective, their work

³ The Master of Nursing Practice (Pre-Registration) is a professionally accredited course. A qualification that enables registration as a Registered Nurse (Division 1) in Australia. It is approved by the Nursing and Midwifery Board of Australia.

“seeks to examine improvisation’s effects, interrogate its discourse, interpret narratives and histories related to it, discover implications of those narrative histories and uncover its ideologies” (Piekut & Lewis, 2016, p. 3). The practice of theatrical improvisation consists of “... designed experiential activities, including physical and verbal tasks, memory exercises, storytelling, and improvised scenes” (Fu, 2019). According to Amy Seham (cited in Piekut & Lewis, 2016), improvisation can be a subversion of the ‘mainstream’ through politically motivated scripts to the “comic and commercial” models (p. 354), such as the Big HOO-HAA.⁴ Both forms contribute to transcendence in developed countries, from the potential clutches of censorship; both psychological and bureaucratic (Seham, cited in Piekut & Lewis, 2016). Theatre improvisation specialists emerged in the 20th century, aiming to formalise and theorise the field: influential figures, both comic and experimental, include Neva Boyd (1919), Moreno (1941), Boal (1995), Spolin (1963), Paul Sills (Szuster, 2019), Gary Schwartz, David Shepard, Keith Johnstone, Del Close, Charna Halpern, Jonathan Fox, Alan Alda, Jerzy Grotowski, Jacques Lecoq and Konstantin Stanislavski. In this study, I concentrate on three, in particular: Moreno, Boal and Spolin because it is their ideas on improvisation that have been the foundation for applied improvisational specialists to springboard from. This means that they are the most influential in the theatrical improvisation field and are best placed to underpin this thesis.

According to Frost and Yarrow (2015), one of the roots of improvisation is its role as an alternative political expression utilised by performers living in authoritarian political, social or religious circumstances, such as dictatorships or highly censored theatrical contexts. It is also linked with and informed by the ‘body mind’, psychodramatic and improvisational

⁴ The Big HOO-HAA is an Improv Comedy performance troupe in Perth, Western Australia, operating since 2002. The performers improvise sketches based on audience suggestions.

dance practices: most notably; psychodrama,⁵ drama therapy,⁶ psychotherapy,⁷ Butoh,⁸ Body Weather aka Shintai Kisho しんたい きしょ,⁹ German expressionist dance, German Tanztheatre,¹⁰ Neo-Expressionist Dance,¹¹ Laban Movement Analysis,¹² The Duncan Dance Technique,¹³ Modern Dance,¹⁴ Feldenkrais, Alexander technique, yoga, meditation, and martial arts such as tai chi, aikido and qigong (Frost & Yarrow, 2015). All of these experiential practices have an existential and spiritual aspect that seems to be lacking in the historical accounts of scholars such as Schinko-Fischli (2018) in their historical recounts of improvisation. In the development of my practice, I combined a number of these methods to develop an experiential yet spiritual learning and performance framework that I labelled *Intuitive Movement* in 2003 (see appendix B). This framework was based on evidence that improvisation is explicitly influenced by its spiritual history.

Theatrical improvisation is seen as the cross-section of invention and performance and is often defined as acting appropriately, yet creatively, in response to the unexpected

⁵ Jacob Moreno's theory of spontaneity-creativity Moreno, J. L. (1941). Foundations of sociometry: An introduction. *Sociometry*, 15-35.

⁶ Robert Landy's model of drama therapy education Butler, J. D. (2017, 2017/04//). Re-examining Landy's fourpart model of drama therapy education [Essay]. *Drama Therapy Review*, 3, 75+. <https://link-gale-com.libproxy.murdoch.edu.au/apps/doc/A490821739/AONE?u=murdoch&sid=summon&xid=48d80e45> .

⁷ Milton Erikson's utilisation process which means that all weaknesses can be strengths Close, H. T. (1998). *Metaphor in psychotherapy: Clinical applications of stories and allegories*. Impact Publ.

⁸ Hijikata Tatsumi's Japanese Butoh (Nakajima, 2019),

⁹ Min Tanaka's Body Weather aka Shintai Kisho しんたい きしょ Fuller, Z. (2014). Seeds of an anti-hierarchic ideal: summer training at Body Weather Farm. *Theatre, Dance and Performance Training*, 5(2), 197-203. <https://doi.org/10.1080/19443927.2014.910542> .

¹⁰ Pina Bausch Price, D. W. (1990). The Politics of the Body: Pina Bausch's "Tanztheater". *Theatre Journal*, 42(3), 322. <https://doi.org/10.2307/3208078> .

¹¹ Mary Wigman's Expressionist Dance (Howe, 1987).

¹² Rudolph Laban's somatic movement efforts: body, effort, space and shape (Tsachor & Shafir, 2017; Prinsloo et. al., 2019) and his theory of Space Harmony that studies a series of movement patterns of harmony and balance (Khorami, 2020).

¹³ Isadora Duncan Daly, A. (1994). Isadora Duncan's Dance Theory. *Dance Research Journal*, 26(2), 24. <https://doi.org/10.2307/1477914> .

¹⁴ Martha Graham, Merce Cunningham, Ruth St. Denis, Twyla Tharp Hering, D. (1977). Making Modern Dance [Prime Movers: The Makers of Modern Dance in America, Joseph H. Mazo; Lester Horton: Modern Dance Pioneer, Larry Warren; Soaring: The Diary and Letters of a Denishawn Dancer in the Far East, 1925-1926, Jane Sherman]. *Dance Chronicle*, 1(2), 156-163. <http://www.jstor.org/stable/1567431> .

without prior thought (Gerber, 2007). This practice embodies the core principles of applied improvisation exercises: letting go of fear, taking risks, active listening and accepting and building on ideas (Spolin, 1963). The exercises and principles of applied improvisation support learners to capture complex concepts with their imagination and to utilise them in multiple contexts (Hoffmann-Longtin et al., 2018). For improvisation to be successful it requires the paradox of bound creativity; this means there are technical, cultural and social structures that scaffold the intuitive nature of improvisation, allowing it to be free, yet supported within a framework (Bertinetto & Bertram, 2020). In terms of this project, the principles of theatre improvisation form the foundation for successful interpersonal human factors.

Improvisus is the Latin root of improvisation, meaning “the unforeseen;” thus, improvisation can be defined as the art of suitably responding to the unexpected or surprise elements in life (Montuori, 2003 p. 240). The ability to react to unexpected elements with expert level human factor skills, for example by engaging in active listening, empathy and being aware of one’s situation and surroundings, is fundamental to the successful operation of a workplace. Theatrical improvisation has been used as a learning tool in non-theatrical settings in pedagogical and formal training contexts since the turn of the century, to cultivate connections, incite interprofessional skills and enhance group synchrony through practical improvisation exercises, usually performed in social settings of pairs and groups (Biasutti, 2017). As an illustration, improvisation pioneer, Spolin acknowledges the impact Boyd, the sociologist, had on her education as a young student in the United States and her subsequent career in theatre improvisation. From 1924 to 1927, Boyd employed games, storytelling and dance to engage learners such as Spolin for self-discovery and personal development (Spolin, 1963, p. xvii).

Spolin (1963) taught her theatre games in the late 1930s to actors or ‘players’ and states from her experiences, “With intuitive awareness comes a feeling of certainty” (p. xiii). As the first systematic developer of improvisational theatre exercises, Spolin’s writings have had a major impact on the global theatre-in-education community for the past thirty years.¹⁵ Significantly, Spolin’s initial training was intended as a theatre in education tool rather than a training tool for actors, an orientation that was due to Boyd’s socio-cultural influence in her early years. Furthermore, Spolin’s decision to use the word ‘players’ rather than ‘actors’ in her writings is symbolic of her insight into the larger significance of improvisational play as a lifelong learning strategy.

Spolin, Boal and Moreno,¹⁶ have had a significant influence in shaping the theatrical improvisation world and influencing the concept of creative pedagogy, which considers ways of playing to learn. These practitioners utilise theatrical improvisation by inviting creativity and critical thinking into contexts that are outside the theatre, a practice commonly referred to as applied improvisation or AI. Spolin (1963) is considered the teacher who most fully developed the practice of improvisation in drama; Boal (1995) adapted it into a whole system of interactive theatre education; and Moreno (1941) was the foundational theorist of drama therapy and psychodrama.

“Anyone can improvise. We all do it every day – none of us goes through our day-to-day life with a script to tell us what to do” (Halpern et al., 1994, p. 9). Theatrical improvisation lacks

¹⁵ Particularly *Improvisation for the theatre; a handbook of teaching and directing techniques* Spolin, V. (1963). *Improvisation for the theater: a handbook of teaching and directing techniques* (3rd ed.). Northwestern University Press. and *Theatre games for the classroom* Spolin, V. (1986). *Theater games for the classroom: A teacher's handbook*. Northwestern University Press.

¹⁶ Other major Theatre and Dance Improvisation experts that have influenced my work include: Rudolph Laban, Robert Landy, Jerzy Grotowski, Stanislavski, Min Tanaka, Tatsumi Hijikata and Johnstone.

scripted dialogue, realistic props, costumes and sets. Rather, the actor (or in this context, nurse) thinks on their feet, utilising a specific structure on which to base their response. As Spolin (1963) writes, “The intuitive can only respond in immediacy – right now. It comes bearing its gifts in the moment of spontaneity, the moment when we are freed to relate and act, involving ourselves in the moving, changing world around us” (p.4). It is important to note that this type of improvisation is utilised to develop skills that can be consciously and unconsciously drawn upon when required. It is different to improvisation used due to a lack of preparation; it is improvisation used as a human practice, the view that improvisation is part of our everyday rational practices rather than just an artistic pursuit, according to Bertinetto and Bertram (2020) it can be both. Theatrical improvisation practice comprises iterative drills that provide a type of preparation for the unexpected, “You have to be prepared to be unprepared” (Hamilton, 2010).

Improvisation is an important conceptual intervention that can bring ‘play’ into hitherto unplayful medical contexts. Medical improvisation can be defined as applied improvisation for a medical context. It is an emerging teaching and training modality, a name given to improvisation applied in the health care field by Professor Watson in 2002 (K. Watson, personal communication, November 11, 2021). The term was first used in a 2011 publication (Watson, 2011). Medical improvisation adapts improvisational principles, techniques and games from the theatre to achieve medical objectives and anticipated patient-centred outcomes (Benner, 2012; Hoffmann-Longtin et al., 2018; Thompson & Stetzler, 2019). Alongside this new movement in learning is a new breed of improvisation theorists who are medical clinicians working in medical humanities (Watson, 2011). Some of these clinicians also trained as actors in theatrical improvisation. Throughout the thesis, I will refer to these theorists as ‘medical improvisation theorists’.

Medical improvisation theorists drew upon the early research in the aviation industry to inform their approach to human factors training. Adams illustrates that during World War One, the British Royal Flying Corps recorded that, of every one hundred aviators that lost their life whilst in the cockpit, two died at enemy hands, eight died due to mechanical aircraft failures, and ninety died due to their own individual deficiencies. (U.S Army Technical Manual, 1941 cited in Adams, 2006) Those people working in high pressure situations need a specially designed kind of training.

Since World War One, the field of human factor skills development, which encompasses ‘organisational accidents’ (Adams, 2006) or ‘human problems’ (Edwards, 1988) has expanded from the aviation industry fields to military and medical, now embracing “psychology, engineering, ergonomics, anthropometry and psychophysiology” (Edwards, 1988, p. 4). The term ergonomics, in this context, means ‘the science of work’, it was coined by Professor K.F.H. Murrell in 1950 (Edwards, 1988). It is beyond the scope of this thesis to elaborate on the broader aspects of human factors outside of individual and team such as organisational human factors. The overarching basis of human factors is the idea of “human behavioural, cognitive and biological characteristics” applied to “job tasks, and systems to enhance safe, effective, and satisfying use by individuals, groups and organisations” (Edwards, 1988, p. 7). The enhancement of these human factor skills in the training of nurses is central to my project.

The UK Health and Safety Executive (cited by Reedy et al., 2017) define human factor skills as the human and individual characteristics which influence an individual’s behaviour at work, ‘the science of work’. It encompasses the study of team and

organizational human factors and the impact of these characteristics upon people's health and safety-related behaviour. Examples of human factors important to the practice of health care are situational awareness, communication, teamwork, leadership, decision-making, self-care and care and compassion for patients and colleagues (Gluyas & Morrison, 2013; Reedy et al., 2017 and Stomski et al., 2018). Globally, health care has adopted a human factors framework in the search for ways to enhance education and embrace better patient safety practices. In advanced technological societies, nearly fifty per cent of medical errors are due to the failure of individual, team and organisational human factors (Australian Commission for Safety and Quality in Health Care 2019; Stomski et al., 2018; Dunn, 2007 and Glavin & Maran, 2003). Given that educators have an obligation to meet a complex safety situation in health care, Culyer et al., (2018) argue that theatre improvisation can address this issue by satisfying a learning to practice gap, thereby helping to mitigate adverse events.

Repeated reports by the Western Australian (WA) Department of Health (DOH) state that over fifty per cent of medical errors in hospitals are due to human factor deficiencies at an organisational, team and individual level (Niall, 2011). More recent reports (WHO, 2019) reflect that this global issue still needs to be addressed, with research in the US, Japan and the UK showing that the human factors deficiency is influenced by a learning to practice gap, as well as a work environment with several obstacles, including low staff to patient ratios (Marshall et al., 2003). Theatrical improvisation is viewed by medical improvisation theorists (Watson & Fu, 2016) as a tool that provides an opportunity to cultivate these human factors. Watson and Fu view improvisational games as an additional tool that will complement existing theatre educational tools such as role play.

The significance of this cannot be ignored; “one in ten patients suffers an adverse event”, (cited by Stomski, 2018) including serious and fatal events (Aljadhey, 2013; Institute of Medicine, 2000; Wilson et al., 1995; Wilson & Van Der Weyden, 2005). Watson and Fu (2016) agree that medical improvisation/theatre improvisation interventions (alongside scenario planning and role-play) are the solution to the education practice gap. The Australian Commission on Safety and Quality in Health Care made a call regarding the Communicating for Safety Standard 6¹⁷ which requires an improvement on communications including human factors training to reduce the education practice gap.

With safety concerns coming to the fore, innovative approaches to interpersonal skills training must be adopted to address human factor deficiencies, such as ludic learning environments.

Kolb & Kolb (2010) invented the concept of a ‘ludic learning space’:

... wherein learners achieve deep learning through the integration of intellectual, physical, moral and spiritual values ... in a free and safe space that provides the opportunity for individuals to play with their potential and ultimately commit themselves to learn, develop and grow. (p2)

The term ‘ludic learning’ is the inspiration and title for my thesis; playing to learn! *Ludere* is a French word meaning ‘playful’(Chandler & Munday, 2011). Alice and David Kolb (Kolb & Kolb, 2010) purport that using the *ludere* or playfulness can “potentially create a unique ludic

¹⁷ <https://www.safetyandquality.gov.au/sites/default/files/migrated/Communicating-for-Safety.pdf>

learning space conducive to deep learning” (p.26). My work aligns with Kolb and Kolbs’; in that, I propose to explore the relationship between play and learning in ludic learning settings.

Lev Vygotsky, an educational psychologist, developed concepts of play and imagination, supported by his central concept of the ‘Zone of Proximal Development’ (ZPD) (1987). Vygotsky defined the ZPD as “the distance between development as determined by independent problem solving and adult guidance or collaboration with knowledgeable peers” (Vygotsky, 1978, p. 86). The ZPD is demonstrated in small group work in theatre, supporting the instructional strategy of cooperative learning.¹⁸ The ZPD is a foundational tenet for Vygotsky (1987): “what the child is able to do in collaboration today he will be able to do independently tomorrow” (p. 211). What this means is that one can work solo, but in collaboration one can perform more tasks (Kozulin & Ebrary, 2003). From a practical learning perspective, theatre improvisation games aim to be within a player’s ZPD, supporting Vygotsky’s theory in-play. A type of scaffolding that is supported by Vygotsky’s ZPD is Spolin’s concept of side-coaching for ‘players’ of theatre improvisation games. Here the facilitator or director - the “joker” in Boal’s terminology (1970) - acts in a role like a coach for an organised sports game. Side-coach is a role that requires finesse and sensitivity to ensure leadership is exercised as a fellow ‘player’, rather than as an overbearing authority figure. The director-actor relationship is shared in this space, with the needs of the overall scenario or situation being ‘held’ by the director’s voice: “You walked through a table! Contact! See it with your feet!” (Spolin, 1963, p.29). Actors are expected to listen to the voice commands but not to directly respond to the side-coach, allowing them to maintain their character and spur their improvised scene further. As a result, side-coaching provides a

¹⁸ Cooperative Learning involves “positive interdependence; face-to-face interaction; individual accountability; small-group and interpersonal skills; and group self-evaluation” (Doolittle, 1997 p. 83).

valuable scaffolding tool that creates awareness for the individual ‘player’ and the group as a whole. Spolin (1963) understood that employing the role of the ‘player’ in educational contexts enhances our human factors, our learning and well-being.

In *Theatre of the Oppressed*, Boal describes the phenomenon of playing to learn, an approach which he adapted for overt political ends (Boal et al., 1979). Boal was a prolific theatre director and theorist who was active from the 1970s. His performers expressed their political views through ‘theatre of agitation’, also known as agitprop theatre. A notable occasion saw the performers attend a rally during the Cuban crisis where they commenced a serious performance from in and amongst the protestors. Before they realised it, the protesters were inside a performance as ‘players’ too (Boal, 1970). Boal was most famous for his ‘Image Theatre’, in which players participate in a live storyboarding technique wherein silence they sculpt other players’ bodies into shapes to create an image, like a photograph (Boal, 1995). Boal’s Forum Theatre offers a framework to uncover socially constructed power, knowledge, roles and emotions that explore participants (non-actors) worldviews and interpersonal communications by rehearsing discussions and action generated by non-actors to produce ideas of change relating to individual and group (team) behaviour (Sommerfeldt, 2015). In nursing, behaviours are repeated and become “expressions of restored behaviour that is ‘symbolic and reflective’ reinforcing meta-messages within a health care system” (Sommerfeldt, 2015, p. 2). Forum Theatre is a vehicle for nurses to see their roles from new perspectives, to illustrate that, as Sommerfeldt (2015) puts it:

The performative aspect of health care teams contributes to cultural rituals comprising language (jargon), masks (nametags, white coats, uniforms), and performances on cue

that elicit conditioned responses (hierarchy and reinforced positions often including subservience) (p. 2)

In Boal's words, "We must all do theatre – to find out who we are, and to discover who we could become" (2006), and the iterative processes of Forum Theatre allow the 'performative eye' to comprehend the complex and performative nature of health care work (Sommerfeldt, 2015).

I argue that people can change their thinking whilst playing. It is one of humankind's greatest achievements; play, makes the impossible seem possible. As humans, we can imagine we are bigger, better, faster, kinder - even taller. Vygotsky was able to explain this precept through his ZPD theory (1967), arguing that in play one can act "beyond his average age, above his daily behaviour ... as though he were a head taller" (p. 103). In children's play intrinsic rules are collaboratively structured by the participants, which extends the diversity and acuity of their play, whether it be playing 'shops', 'cooking' or 'home life' based themes, and what finally emerges through play is purpose and genuine interest (McInerney, 2014). With this type of self-developed motivation, learners can imaginatively soar, supported in their direction by a community (McInerney, 2014). Kolb and Kolb (2010) argue that the concept of play is enabled when rules or guidelines are collaboratively and organically evolved within the group. This process works not only for children but for adults, they too can enjoy the freedom of play. The essence of Kolb and Kolb's argument is described by Erikson as being the insight that "the playing adult needs to step sideward into another reality in order to rediscover play" (p. 194 cited in Kolb & Kolb).

Kolb's learning cycle (1984) sets out two modes of learning; concrete experience and abstract conceptualisation, which are followed by two further modes; reflective observation and active experimentation (Kolb & Kolb, 2010). They describe the concrete experiences of a free play softball league which is of mixed age and mixed ability, which meets voluntarily each week. The participants support each other in their community, which allows players to grow as individuals and together as a group. Through the metaphor of softball, Kolb and Kolb (2010) depict experiential learning as being a learning spiral. Upon reflection of their concrete experience, the process of thinking is informed by the process of action (softball) and this creates a new experience. Each time it is employed the learner gains a richer, deeper learning experience. This learning spiral can also be witnessed in applied improvisation contexts.

In this thesis, I endorse what Kolb and Kolb (2010) labelled a ludic learning space. As an improvisational practitioner, I argue that the space that 'players' (Spolin, 1963) establish themselves in a workshop setting can determine the level of safety; further, the amount of risk that players are willing to take will affect the success of their learning journey and the layers of deep learning achieved (Kolb & Kolb, 2010).

The deep learning experience in play is thus dependent on the space the players operate in. From a Vygotskian perspective, the concept of play meshes with Kolb and Kolb (2010): Vygotsky explains that it is reliant on the imagination of adults, arguing that even young children and animals lack imagination. He implies adults can arrive at this abstract conceptualisation (Kolb, 1984) due to a sophisticated consciousness that originally arises from action (Vygotsky, 1967). In other words, they learn by doing.

Another influential theory of interpersonal relation systems is Moreno's 'philosophy of the moment' (Moreno, 1941). Moreno, the inventor of psychodrama (Riva et. al., 2020) aimed to "foster creativity, spontaneity, self-expression, and community spirit" in-the-moment (Blatner, 1996, p. xii). Moreno wanted his psychotherapeutic methods to add more to people's home, school and work life, arguing that creativity and spontaneity are the very basis of spiritual development (Moreno cited in Blatner, 1996, p. ix). Moreno encouraged the transfer of the idea of psychodrama into other fields, such as social work and organisational theory (von Ameln & Becker-Ebel, 2020, p. vii). I argue that Moreno (1941) supports the playing to learn concept through his spontaneity training (p. 210) in an andragogical context, adding a further dimension of spirituality, incorporating imagination and intuition (Blatner, 1996). In Blatner's opinion, Moreno reminded adults that they too can 'grow through play', offering pathways to develop human factors (Blatner, 1996). For example, through Moreno's living newspaper concept, a form that he borrowed from Russian and German modernist agitprop, the daily news was dramatised and brought to life in the theatre (Moreno, 1941). Improvisation as a form of 'trained' play takes a great deal of skill and persistent hard work to get to the level of an improvisational dancer, physical performer or jazz player (Bresnahan, 2015). These professionals have learnt to grow through play (Blatner, 1996). Through this iterative process, these performing artists have developed new perspectives which open new possibilities. By preparing in this fashion, it means they are ready for the unexpected whilst simultaneously living their truth (Fox, 2018).

From Theatre Improvisation to Medical Improvisation to Nursing Education – Closing the Human Factors Education Gap

Recent discussions have considered how medical improvisation, as an emerging ludic learning modality in health care, might contribute to nursing preparation for clinical practice. Watson (2011), a medical improvisation theorist, used the term “serious play” to describe the idea of nurses learning serious content in a ludic manner. These exercises are in a medical context; therefore, the content is serious. However, the learning method - theatrical improvisation - presents a rare opportunity for student nurses to participate in what Kolb and Kolb (2010) termed a ludic learning space.

Medical improvisation clinical pioneers, Watson and Fu (2016), Fessell et al., (2020) and Thew (2019) discuss the potential for theatrical improvisation to fill the learning to practice gap in clinical training, offering ludic ways to practice human factors building blocks, particularly communication, before utilising/learning them in a traditional role-play and/or simulation. Thew (2019) noticed that nurses invest an eagerness and exuberance into these improvisational classes, a joy that is not often seen in a medical learning context. It is this joy that nurses display that is also their core motivation to come to work, this and a sense of purpose. As such, it makes sense to incorporate an aspect of fun into their learning (Thew, 2019). Based on formal and informal research, nurse educators are open to new forms of learning and engaging with ludic learning concepts (K. Harper; J. Sterrett; K. Harban, personal communication(s), November, 2021). Researchers, such as Gluyas and Morrison (2014) have surveyed the applied improvisation literature in a medical context and concluded that ludic improvisational exercises could be a serious training option for nurses. Theatrical improvisation may be the exact intervention needed to meet the practice-education gap. This will help to create highly flexible professional nursing clinicians who can develop positive critical thinking skills to cope in the uncertain conditions that are rife in a medical context (Benner, 2012).

Nursing clinicians require unique cognitive capabilities to multitask, problem-solve and prioritise urgent needs in a demanding environment. Research shows that theatrical improvisation can enhance our human factor skills, such as communication, by unblocking personal resistances, allowing nurses to develop important interpersonal human factors using their verbal and physical ‘imagination’, by exploring their voice and body (Hobson et al., 2019; Kaplan-Liss et al., 2018; Takamura & Imafuku, 2021 and Terregino et al., 2019). In using theatrical improvisation, nurses may enhance human factors to develop their capacity to generate meaning and connections in unpredictable, fast-paced environments (Frost & Yarrow, 2015).

A Virtual Theatre Coach – the *Improv-e-toolkit*

Simulation exercises in medical training provide an opportunity for a “dress rehearsal”, with work in real medical scenarios with real patients being akin to the “performance”. I believe that the use of theatrical improvisation in an e-toolkit (such as the one developed for this dissertation) represents an important contribution to enhancing successful clinical learning, practice and research. The *Improv-e-toolkit* was designed for, and in collaboration with, nurse educators. It contains virtual coaching guidelines to facilitate a theatre improvisation intervention. These virtual coaching guidelines are an adaptation of side-coaching used by directors in theatre contexts (Spolin, 1963). The *Improv-e-toolkit* includes a section titled *Build Your Clinical Scenarios*. It contains two sample scenarios that nurse educators can add to with their own scenarios or case studies to build a shared digital space for nurse learners to ‘choose their own adventure’ from the ‘bank’ of scenarios. These scenarios can be used as bonus additional support alongside the e-toolkit’s main tool, the *Catalogue of Improv Exercises*. The *Catalogue Improv Exercises* is linked to debriefing

suggestions, with suggested follow-up feedback questions for the education of graduate nursing students and the iterative training of professional nurses. The *Improv-e-toolkit* I have developed supports a learning and management teaching system for clinical nurse educators in the form of a hybrid delivery model, blending direct (hands-on) and digital (hands-on with a ‘smart board’) interactive options. It facilitates theatrical improvisation interventions for the education and training of nursing students and early career nurses. The *Improv-e-toolkit* will be discussed in detail in Chapter Four.

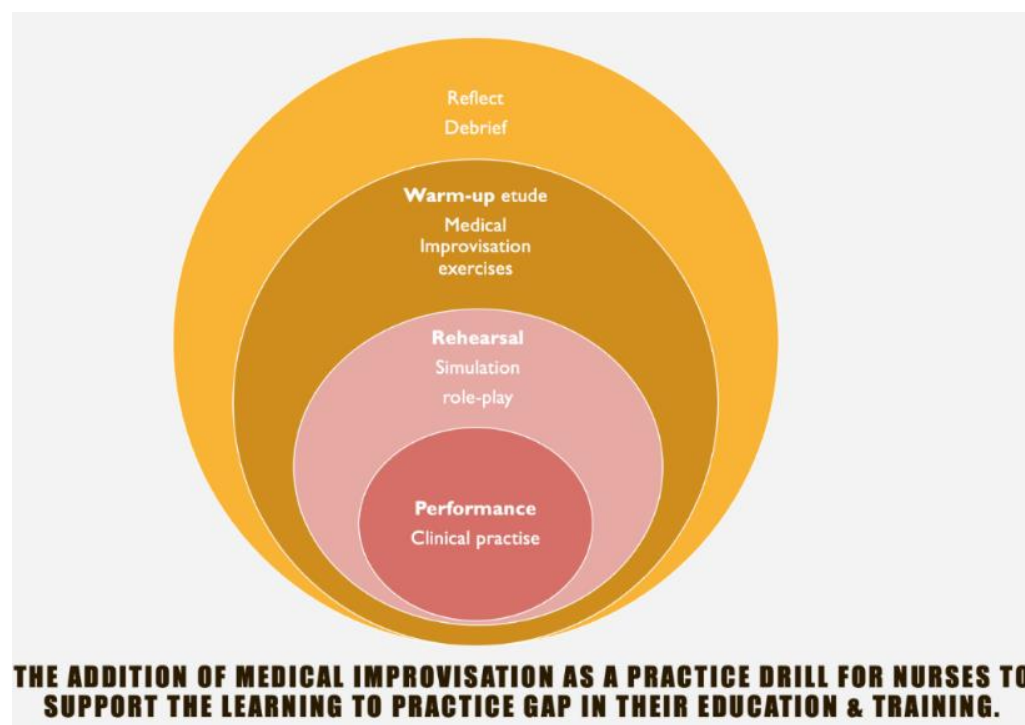
The literature discussed identifies a need to synthesise improvisation exercises and catalogue them in a digital format, with accompanying detailed facilitation instructions (Fu, 2019). My research aims to fill the learning to practice gap with the *Improv-e-toolkit* for clinicians, containing a digital catalogue of improvisation exercises with an accompanying ‘virtual theatre coach’ in the form of side-coaching suggestions. I hope the e-resource will be useful for future qualitative research undertaken by researchers, educators, clinicians and policymakers (Finfgeld, 2003).

As mentioned, applied improvisation has been proven as an effective training tool in aviation (Daly et al., 2009), corporate (Farrer, 2004) sectors and more recently in healthcare. This training tool will assist in filling the learning to practice gap by offering iterative training as a warm-up, post debrief and/or reflective practice. Simulation and role-play (one form of improvisation) have previously been introduced to the educative process, however, there is still notable learning to practice gap for nurses that could be addressed with a complementary iterative pedagogical tool (Wilson & Van Der Weyden, 2005). Clinical nurse educators require more support to enrich nursing clinicians’ human factors until they become second nature. Improvisation practice drills will enable healthcare professionals such as

nurses to connect with their audiences (patients and colleagues). They will act as an “improvement tool”, which is what the Australian Council for Safety and Quality in Health Care suggests is needed to improve patient care outcomes (cited by Wilson & Van Der Weyden, 2005). The following figure demonstrates how theatrical improvisation can best fit as a complement to existing education and training to enhance the nurse-patient encounter. For example, applied improvisation can be used for warming up the body-mind before entering simulation suite training; then used again for simulating an end-of-life conversation with a patient, and then again as a debrief afterwards with a nurse educator or emergency department supervisor.

Figure 1.1

How Theatrical Improvisation Fits into Nurse Practice and Pre-registration Education.



Note. Diagram created by Kostusik, R., to demonstrate the correlation between theatrical improvisation model and existing nurse training (2021).

Conclusion: The Nurse Patient Connection

Studies such as those conducted at the World Health Organisation by Flin et. al. (2009), and Yule et. al. (2008), argue that graduate clinicians are losing their confidence in human factors during post clinical placements, particularly in their handling of patient safety skills. This suggests a learning to experience gap that can be addressed in their training. Globally, graduates are not receiving enough training in their formal education, resulting in resistance to transferring the human factor skills from education to practice that are required for nurse-patient encounters; for example, the skills of situational awareness, communication, and cooperation (Stomski et al., 2018). Theatrical improvisation can offer an unscripted, iterative experiential learning process that can then be built on with simulation, scripted role-play and in-situ learning (Valdes et al., 2021) to reduce the learning to practice gap. It can function as a tool for revision, debriefing and reflection. This dissertation contributes to filling this learning to practice gap by developing an e-toolkit containing theatrical improvisation exercises that propose unique, experiential and visual teaching and learning modality. The e-toolkit contains a curated catalogue of existing theatrical improvisation exercises and opportunities to build a library of resources and clinical scenarios, as an addition to the resources available to the medical, education and research community. Theatrical improvisation can play a vital role as an improvement tool to enhance the human factor skills of clinicians, in turn improving the nurse-patient encounter.

In sum, my view is supported by the significant scoping review of the role of theatrical improvisation in a medical context by Gao et al., (2019). Like Gao and others mentioned previously, I welcome the argument that theatrical improvisation has the potential to enhance human factors for clinicians. I recognise that it alone will not enhance human factors;

however, I maintain that it is a vital tool in the process. It offers an opportunity to hone human factor skills using non-medical, non-scripted scenarios in a learning environment that supports risk-taking through experiential learning. The introduction of theatrical improvisation drills to the learning process meets a training and experience gap noted by several authors (e.g., Endsley, 2015; Flin et al., 2009; Gluyas & Morrison, 2014; Harris & Rethans, 2018; Benner, 2012 and Stomski et al., 2018). Gao et al., (2019) emphasise the need for further identification of theatrical improvisation in health care curricula to accompany outcome measures. As mentioned earlier, this research project aims to investigate theatrical improvisation theories to provide learning that is supported by a virtual theatrical improvisation coach in an e-resource, the *Improv-e-toolkit*.

As discussed, the theatrical improvisation principles explored in the dissertation and the exercises catalogued in the e-toolkit utilise a ludic learning space to enrich the malleable human factors required by nursing graduates and practicing clinicians. The literature analysed in this chapter supports continued successful human performance skills development in complex dynamic clinical environments. This success will rely on the proficient development of the human factors required for personal, conceptual, cognitive and situational awareness (O'Brien & O'Hare, 2007). The concept of theatrical improvisation, with its focus on opportunities for critical thinking and collaboration, has the potential to enable not only clinicians (nurses) but any professional to gain the opportunity to transform personal communication and professional practice (Higgins & Nesbitt, 2021). I envisage the emerging teaching field of medical improvisation to be one of a suite of tools to assist in responding to 'wicked'¹⁹ patient safety problems in an uncertain, rapidly changing world.

¹⁹ Rittel and Webber coined the term 'wicked problems' in 1973 "In stark contrast to tame problems, wicked problems are those that cannot be solved using the standard linear methods of problem solving. In fact, wicked problems are characterised by the following: Wicked problems have incomplete, contradictory, and changing

Chapter 2: Theatrical Improvisation as a Learning Tool – A New Strategy in Nurse Education

Education is to train for crisis, to reach intuition and self (Spolin, 1963 p. xv)

This chapter considers nurse learning strategies to facilitate the transfer of knowledge from learning human factor skills to putting this knowledge into practice. I draw on theorists such as Spolin (1963) to illustrate how theatrical improvisation has successfully been used as a learning and training tool for education. I commence with a description of human factor skills. This is followed by examples of medical improvisation in-action case studies to establish the successful intervention of theatrical improvisation in clinical contexts. The chapter will explore Kolb's (1984) experiential learning theory and the learning intelligence theory of Howard Gardner (1983) and show how their contributions inform the emerging health care teaching modality, theatrical improvisation. Kolb and Gardner's theories allow a closer look at evidence-based integrative teaching (Culyer et al., 2018), used to enhance human factors in the workplace, specifically in health care institutions such as hospitals to enhance the nurse-patient connection.

It is important to emphasise that Spolin's improvisation model uses theatrical improvisation games as an educational and training tool for 'serious play' (Statler et al., 2011). These games employ an intricately structured style of play that is used in social settings for work-related goals and the development of what we now call human factors skills. Spolin's methods have been used to train actors, corporate personnel (Clark & Mangham, 2004), teachers (Toivanen et. al., 2011), engineers, pilots, humanitarian workers,

requirements and complex interdependencies that are often unique to the local setting of the problem" (Periyakoil, 2007 p. 658).

nurses and military recruits (Holdhus et al., 2016 et. al., 2016). This model aims to assist players/workers to develop their intuition, spontaneity, and ability to play. This is important for the betterment of human factors' performance: the model builds active listening, empathy, compassion, and awareness of self, others, and surroundings.

The World Health Organisation (WHO, 2019) portrays human factor skills as the elements that make it easier to be compassionate and to do work that cultivates a compassionate care culture. This means that compassion has a more focused definition than care: it is the ability of nurses to show sensitivity and willingness to help enhance a patient's wellbeing by solving their immediate issue (Perez-Bret et al., 2016 et. al.,) This definition is supported by Adamson and Dewar (2015) and Younas and Maddigan (2019), who say that nurse care stories can support nurses to understand patient needs by reflecting on narratives they have constructed from their experiences. Reedy et al., (2017) in their article, "Development of the Human Factor Skills for Healthcare Instrument; a valid and reliable tool for assessing interprofessional learning across healthcare practice settings", state that,

The core human factors skills that underpin clinical working were identified from the literature as teamwork, leadership, communication, situational awareness, decision-making and care (including self-care, care and compassion for patients and care and compassion for colleagues). (p.136)

Baillie notes what she calls "The 6Cs" as being central to the human factors of a medical worker: "care, compassion, courage, communication, competence and commitment"; these represent nursing values that reflect the human factors competencies required by nurses to cultivate compassionate care (Baillie, 2017). Cummings and Bennett (2021) argue that these

values were necessary to improve the culture of compassionate care, thereby reducing the learning to practice gap.

Even before Covid-19, the health care industry was under pressure to meet the educative requirements of design and implementation in compounded healthcare conditions; as Culyer et. al., (2018) write, “Nursing education has an intrinsic obligation to meet the challenges of a complex health care environment in contemporary times” (p.178). Recent events have further underlined the need for educators to be able to pivot quickly to meet these needs and actively seek ways to implement enhanced educative interventions; my role in writing this thesis is to advocate for more effective learning environments.

For the past two decades, there has been consistent, yet slow, global action to improve patient safety in healthcare. The US publication “To err is human” (IOM, 2000) is the first known report in the medical industry to address patient safety. The Western Australian Health Department first addressed this issue with a report titled “First Do No Harm” (AG, 2007). Both express the realisation that human factors in healthcare, particularly nurse education and training, needs more focus. Recent studies of health-related coronial inquest findings in Western Australia recognize that deficiencies in human factors such as communication and situational awareness in hospital settings continue to have an impact on patient safety globally; the studies which are listed below argue that as many as fifty per cent of hospital deaths could be preventable. The Australian Commission on Safety and Quality in Health Care (2019), the World Health Organisation (2019) and the Organisation for Economic Co-operation and Development (Maeda & Socha-Dietrich, 2021) recommend more focus on human factors development training, such as communication, to build a competent and empathetic workforce (Stelfox et al, 2006).

Throughout the 1960s, the educational movement led by Paulo Friere, Malcolm Knowles and their contemporaries, such as Kolb, established dramatic play and improvisation as effective experiential learning methods for the development of tacit knowledge (Nicholson, 2015). A learner-centred pedagogy emerged that focused on tacit knowledge, which is the knowledge that is consciously inaccessible and complementary to critical thinking and reflection (Price, 2021) “we can know more than we can tell” (Polanyi, 1967 p.4). Friere argued knowledge is a process of inquiry that poses problems for learners to reflect upon for themselves, and in the interests of their community, rather than the banking model of knowledge in which “... students are lectured to and treated as vessels to be filled with knowledge” (as cited in Bhattacharya, 2020 p.403). Friere was a revolutionary thinker whom our educational institutions have not yet caught up with – as evidenced by the “teaching to test” (Chomsky cited in Bhattacharya, 2020 p. 404) mentality which still dominates the Australian primary, secondary and tertiary curriculum. I argue that the focus on traditional rote learning methods for testing that Friere rallied against is still affecting the transfer of knowledge, thus contributing to the learning gap. Friere’s ideas in the book *Pedagogy of the Oppressed* (1986) marry well with Boal’s *Theatre of the Oppressed* (1974); both conceptually support empowerment and liberation through education.

Boal was inspired directly by his peer Friere (Otty, 1995). Boal’s Forum Theatre is a philosophical manifestation of Friere’s ideas of emancipating the workers from “the economic elite’s interests and needs” (Bhattacharya, 2020). Forum Theatre has been used in health care education as a pedagogical tool to successfully develop communication styles for health professionals, increasing “their competence and confidence in patient-care” (Jacob et al., 2019, p. 2). Forum Theatre brings real scenarios to life, on the stage, and in this context, it

can “highlight the gaps in communication in real-world practice and stimulate debate on ways to overcome these deficiencies” (Jacob et al., 2019, p. 2). A pharmacy student that participated in a Forum Theatre workshop intervention was thrilled at the opportunity to reflect in the live scenarios:

The sections whereby the actors from Role Play UK would act out a scene and we had to stop them and suggest where things can be improved. This made it very easy to identify myself with the situation and it was very effective for self-reflection as the situations were such accurate depictions of complex, yet common situations. (Jacob et al., 2019, p. 6)

I argue that deep and critical knowledge is learnt by *doing*, through a process of reflection, interpretation, construction, and experience and this is supported in the work of Knowles, Holton and Swanson (2005). The work of McLeod et al., (2006) also demonstrates that this experiential approach is productive. Improvisation can be used for skill building in nurse training and education to reduce human factors errors that have led to preventable deaths. To address this concern from a training perspective, I explore experiential approaches to learning that draw on theatrical improvisation exercises to assist nurse educators to form a framework that supports empathic, compassionate and caring nursing practice, aimed at enhancing the nurse-patient connection.

Kolb’s experiential learning cycle provides a reflective framework for participating in improvisational interventions, using improvisational theatre exercises. As discussed in Chapter One with the softball analogy, the learning spiral (Kolb & Kolb, 2010) is achieved by iterating Kolb and Kolb’s ‘ludic learning space’ (2010) through the experiential processes

of feeling (concrete experience), watching (reflective observation), thinking (concept formation), and doing (active experimentation) to develop human factors knowledge such as compassion and communication (Schultz et al., 2016). Kolb's experiential learning theory suggests a holistic approach that "combines experience, perception, cognition and behaviour" (Kolb, 1984, p. 21). His approach integrates the characteristics of Lewin, Dewey and Piaget's models of learning to create what he calls the experiential learning cycle (Kolb, 1984).

Figure 2.1

Spolin's Mirroring Exercise - In a Group Using an 'Imagined Object'



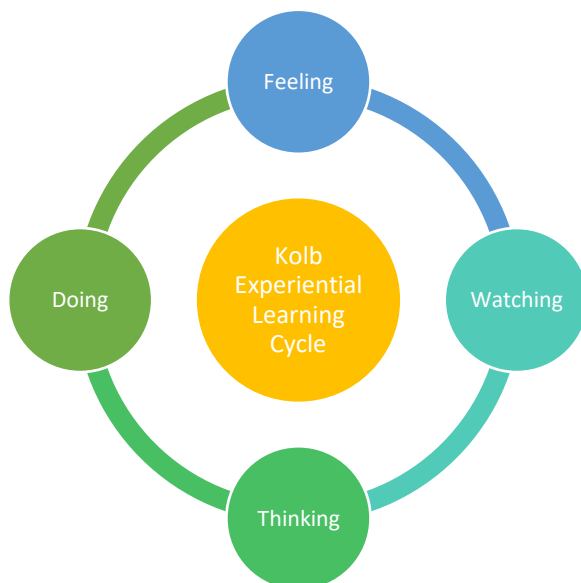
Note. From Spolin Games Online [video, 03:45 mins], (2020). <https://spolingamesonline.org/object-moves-the-players/> Figure image used with permission.

To illustrate Kolb's experiential learning cycle (1984), I will describe an example: the learner (player) participates in a theatre improvisation exercise that mirrors movement, called *Mirroring* (Spolin, 1963). This exercise can be achieved in a pair, a group of three or a group of five. To begin with, in a pair, person A is the initiator and person B is the follower with the aid of side-coaching (explained in Chapter One): "B initiate, A reflect! ... Reflect only what you see! ... Keep the mirror between you! Reflect fully – head to toe!" (Spolin, 1963 p. 61). The Mirror exercise offers the opportunity to adopt the four parts of Kolb's experiential learning cycle and simplify it into four words: doing, watching, thinking and feeling:

1. *Feeling*, participate in a concrete experience in a Theatre Improv exercise with a partner.
2. *Watching*, the learners make observations together with their partners on their shared experience and then voluntarily share any pertinent observations with the rest of the group on behalf of their partner.
3. *Thinking*, they devise abstract concepts that can be facilitated by the nurse educator via Socratic²⁰ style questioning to stimulate a question-led discussion, enabling learners to construct and retain the knowledge discovered through participation in this process.
4. *Doing*, they will carry this learning to new situations for active experimentation (Boggs et. al., 2007).

Figure 2.2

The Experiential Learning Cycle



²⁰ Socratic style questioning is “Any question that has a specific, already-determined answer is not Socratic. Socratic questions are those that help students explore and critique their own thinking and assumptions to reflect on their learning. Socratic questions allow for multiple answers that in turn may lead to further questions” (Dinkins & Cangelosi, 2019, p. 2).

Note. Adapted from Kolb, D. (1984). *Experiential Learning: Experience as the Source of Learning and Development* (Vol. 1).

The process of nurses engaging in improvisational exercises as an iterative activity, consciously reflecting on this experience, supports Kolb's notion that such work enables the development of critical thinking skills. By familiarising nurses with this reflective cycle, it may be possible to facilitate a deeper understanding of the learning processes required in their training. This process contributes to the longevity and positive application of the nurses' learning. The development of critical thinking skills in a space where information is collected, separated, synthesised and evaluated for understanding is conducive to life-long learning²¹ habits (Price, 2021).

I believe Kolb's experiential learning cycle provides evidence-based teaching, by checking for understanding in developing abstract conceptualisation (Boggs et. al., 2007) through Socratic style post debrief questions to actively engage learners (Parmelee et. al., 2020 cited in Siracusa, 2021). Deep learning occurs after a process of reflection and later applications made by the learner (Jacob et. al., 2019 p. 1). This paves the way for the learner to engage in spiral learning, a process where they repeatedly iterate the cycle for enhanced learning outcomes and transference of knowledge (Diamond et al., 2008 p. 120).

²¹ "Lifelong learning in nursing is defined as a dynamic process, which encompasses both personal and professional life ... reflection, questioning, enjoying learning, understanding the dynamic nature of knowledge, and engaging in learning by actively seeking learning opportunities" (Davis et al., 2014, p. 441 #609)

Figure 2.3

The Learning Spiral



Note. Adapted from Diamond, N., Koernig, S. K., & Iqbal, Z. (2008). Uniting Active and Deep Learning to Teach Problem-Solving Skills. *Journal of Marketing Education*, 30(2), 116-129. <https://doi.org/10.1177/0273475308317707>

I see my role in this research project as one of support for nurse educators in fostering the educational and social capabilities of learners in changing political, social and economic factors. Health care educators have a responsibility to ensure their students meet these changing demands with relevant, quality education (Immonen et al., 2021). One way to facilitate this knowledge is through creating awareness that all learners have different strengths, or as Gardner posits, different types of intelligences (Gardner, 2011).

Gardner's Multiple Intelligence theory (1983) focuses on the learner's ability to process information (Poirier & Ally, 2020). For example, combining the visual-spatial and bodily-kinaesthetic intelligences increases the learner's skill at moving in the spatial world with physical and intuitive accuracy (Gardner, 2017). These types of tacit intelligence are required by nurses for enhanced communication and situational awareness, both of which are human cognitive capacities. As Turner states, "Embodiment can be a transitory, temporary,

and partial experience or it can necessitate a psychophysical transformation that generates a level of cognitive understanding and bodily knowing derived from the intense experience that constitutes embodied knowledge” (Turner, 2015 p. 59). Due to the focus on one’s body and one’s actions in the environment, these human factors can be developed with tacit knowledge and be mastered with iterative theatrical improvisation exercises (Gardner, 2011). Through developing a nurse’s awareness of the unique ways that learners learn, and the multiple intelligences they hold, the nurse gains insight into their colleagues’ and patients’ communication styles. Such an approach encourages nursing students in learning how to embrace this awareness through improvisational theatre and in translating this awareness into a harmonious daily work environment.

Nurse clinicians require unique cognitive capabilities to multitask, problem-solve and prioritise urgent needs in a demanding environment. Cai et al., (2019), Hobson et. al., (2019) and Kaplan-Liss (2018), support the view that theatrical improvisation can enhance human factors, such as communication, by unblocking personal resistances and thereby allowing nurses to develop interpersonal human factors through ‘verbal and physical imaginative play’ (Takamura & Imafuku, 2021 and Terregino et al., 2019). In doing improvisation, nurses develop their capacity to generate meaning and connections in unpredictable fast-paced environments (Frost & Yarrow, 2015). Theatrical improvisation techniques can meet this demand by offering a unique way to enhance the same skill set that is mobilised in role-playing in simulated environments. It is a complementary and alternative learning modality for transferable skills such as situational awareness and diverse decision-making, which will help invest in nurse learners that are knowledgeable doers and critical thinkers (Price, 2021).

A training consideration is the recent urgent repurposing of physical nurse education and training simulation sites for Covid-19 vaccination/testing sites. The repurposing of these sites has meant that nurses have had less opportunity to practice simulated in-situ scenarios (Wald & Monteverde, 2021). Theatrical improvisation favours active integrative learning strategies that could fill the widening learning to doing gap caused by the pandemic. Integrative pedagogies such as medical improvisation can now claim a front-row seat in education and training, as one advantage of post-pandemic times is new training methods finally coming to the fore (Benner 2012; Nielson et al., 2007).

Three medical improvisation case studies have been selected as the method of inquiry to illustrate how the principles and techniques of theatrical improvisation manifest themselves in a workshop intervention. These cases include qualitative data from participants. Each case study analysis will commence with a brief description of the who, where, when, what, how and why these case studies were carried out and how this approach frames the future of nurse education and training. This will be followed by a discussion of the results, which includes anecdotal comments from participants and the follow-up processes employed by the educators.

Case Study 1

Professor Evonne Kaplan-Liss is a medical doctor, actor and principal researcher of a project conducted at the Texas Christian University of North Texas Health Science Centre School of Medicine in the United States from 2012 to 2016 (Kaplan-Liss et. al., 2018). Kaplan-Liss et. al., (2018) offered an improvisation module as a part of the Communicating Science elective to medical, nursing and dental students. The Alan Alda Centre for

Communicating Science (Alda was trained by Spolin) was outsourced to facilitate the improvisation module. It was originally taught as a pilot from 2012 to 2013 and received overwhelmingly positive responses from participating students: “100% said they recommend the course to fellow students, saw the relevance of the course content to their careers, and desired more of the course content in their school’s curriculum” (Kaplan-Liss et. al., 2018 p. 440). As a result, from 2014 to 2016, ten hours of improvisational exercises including role-playing, storytelling and adapted versions of Spolin’s theatrical improvisation exercises became a permanent part of the university’s preclinical curriculum.

The purpose of the improvisation elective was to enhance communication and empathy skills for student doctors, nurses and dental students. This innovative and unprecedented approach was taken after the Association of American Medical Colleges identified that empathy is an “essential learning objective for medical education because it can influence patient satisfaction, clinical outcomes, and professional satisfaction” (Report I of the Medical School Objectives Project by the Association of American Medical Colleges, cited in Kaplan-Liss et al., 2018). The course consisted of six weekly three-hour sessions based upon Spolin’s theatrical improvisation exercises, interactive lectures, discussions, role-playing and on-camera interviews. The course was run through seven different sessions, as follows:

1. Improvisation for health care professionals to connect with their audience
2. Distilling your message through storytelling techniques
3. Connecting with the community through role-play
4. On-camera interviews to practice the skills they have learnt in previous sessions
5. Engaging key audiences through improvisational exercises, role-play and storytelling

6. Roleplaying patient interactions to practice skills learnt in earlier sessions
7. Evaluations and time for student feedback (Kaplan-Liss et. al., 2018 p. 441)

Several improvisational techniques including *Mirror* and *Yes, And*, were utilised to help participants “connect more directly, personally, and responsively with others” (Kaplan-Liss et. al., 2018 p. 441).

Participants were encouraged to learn how to communicate using questioning, plain language, and simple analogies, such as ‘the heart is like a pump’ when explaining to a patient how their heart works. Empathetic listening was also emphasised, with attention given to words and emotions evoked. This was done through an improvisation exercise, helping them to shift their focus from themselves to their patient. An example exercise to assist participants to master these skills is *Yes, And*. It is one of the basic tenets of improvisation and a popular exercise because it can be applied in everyday life. This exercise relies on the principle that one accepts ideas as gifts and then builds on the idea further. Another popular exercise is *The Mirror*, described earlier. This non-verbal exercise was chosen for the course to assist learners to develop an awareness of their body language even before they greet and speak to patients. Connections were quickly built through this abstract moving exercise. This learning was then utilised and transferred to medical conversations. These interventions were offered as an elective for four years from 2012 to 2016; one hundred and fourteen students from medicine, nursing and dentistry participated. The developers stressed that “Communication skills must be taught throughout the educational program, into residency, and beyond for students to fully develop this skillset” (Kaplan-Liss et al. 2018, p. 442). Kaplan-Liss et al., acknowledge that these skills need to be reiterated throughout their work life, as demonstrated in the spiral learning progression from surface learning to deep learning

and transfer of knowledge, giving the learner all the ingredients required to fulfil lifelong learning principles.

Student 1 - You learn how to engage with other people. You learn how to be in a two-way communication. Exercises like *Yes, And* in which you have to learn how to move the conversation towards productive direction while being receptive of the other person's ideas really cultivates health communication skills. Students also become very aware of what they communicate and what the other persona wants (see Kaplan-Liss, 2018 Supplemental Digital Appendix 2)

Student 2 - The course was different to our clinical simulations because we practice with trained patients (actors) who know exactly what to say and how to react to our statements and they never seem confused or question why we are asking unrelated questions to their chief complaints. In the improv sessions I quickly realised that not only do I have to ask the right questions but also, I have to explain to the patients why I am asking those seemingly unrelated questions (see Kaplan-Liss et. al., 2018 Supplemental Digital Appendix 2)

The above example of simulated role-play is highly prescriptive with gap standardised simulated patients (SPs); however, this type of role-playing can offer different levels of improvisational and scripted engagement (Gallimore et al., 2008). For additional insight into the function of role-playing as an improvisational tool, rather than a scripted tool, I will describe my acting role as a Sim Lab Interactor to demonstrate that simulations can benefit from complementary improvisational exercises (Hoffman et al, 2008). Learners can benefit

by offering them the opportunity to participate in a simulated scenario and solidify this learning with an additional learning strategy, improvisational exercises.

As a Sim Lab interactor, I simulate different roles through an avatar and my voice, including patient, student, and parent. As actors, we study the psychological, family, and cultural profiles of set characters. We master three levels of behaviour, called 'push back'. This means that if we are level one, we are consciously engaging in confidence building and are very compliant, which reflects the level engaged in the Communication Science course. There are two further levels of engagement when working as an interactor: the second level is moderately compliant, and the third level is highly challenging and potentially condescending behaviour is required of the interactor. No responses are scripted or standardised but completely improvised. Level three is the level suitable to challenge nurses working in a highly stressful emergency department in customer service. The level three simulation challenge allows nurses to practice reactions and scenarios. This can then be reinforced through theatrical improvisation exercises and games. Despite these cognitively sophisticated levels of 'push back', Hoffman argues that standardised patient interviews can be costly, sometimes artificial, are embedded in highly stressful testing situations and feedback can become overly specified regarding observed interactions. One implication of Hoffman, Utley and Ciccarone's argument is that a 'real' interactive framework is effectively produced using weekly improvisational exercises that coach the tenets of human factors such as "portraying varied social status; improving and directing attention; telling stories, and working as a team" (Hoffman et al., 2008).

Case Study 2

This case study was conducted by Higgins and Nesbitt, both Doctors of Nursing practice in the school of nursing at the Old Dominion University in Virginia, United States of America. Fifty-eight family nurse practitioner students from this school participated in a two-hour workshop led by three members of Push Comedy Theatre. One of the facilitators was experienced in teaching medical objectives due to their experience training actors to be standardized patients for medical school students. A two-hour workshop offered theatre improvisation exercises adapted for a medical context to enhance communication skills and teach students how to be creative and take risks in preparation for future patient interactions (Higgins & Nesbitt, 2021). Four theatrical improvisation exercises were chosen in their first semester of clinical rotations to assist with their “routine and unexpected conversations” with patients (Higgins & Nesbitt, 2021, p. 117). Skills taught included listening and observational and direct moment responsiveness. The exercises they participated in were *Zoom*, *Name Seven Things*, *One-Word Story* and *Yes, And*. The workshop commenced with *Zoom*, a large group activity and concluded with a partner exercise to increase the comfort levels of participating students. Theatrical improvisational courses like this are usually offered as an elective so it was interesting to see such positive results from a mandatory course. The details of the exercises themselves can be viewed in the creative component of the exegesis, the e-toolkit where they are placed in an interactive catalogue. Evaluations indicated most students, fifty-nine per cent, gained positive take-aways from the improvisational learning experience and planned to utilize the skills gained in their future work and their personal lives. Here is an illustration of a student response: “I felt as though this was very helpful in getting one to move beyond their comfort zone. I can see the correlation with improv and difficult conversations” (Higgins & Nesbitt, 2021 p. 117). Despite limited literature written about the

use of theatrical improvisation exercises in nurse training, Higgins and Nesbitt (2021) argue that it is an innovative and fun way to prepare students for challenges, such as communicative conflict and giving bad news. The innovative learning pedagogy of the two case studies described above positively frames the future of nurse education and training.

Case Study 3

This 2019 project had a large team consisting of doctors, professors in the medical field and a professional actor. Fei Cai (MD) and Merima Ruhotina (MD) are Resident Physicians in the Department of Obstetrics and Gynaecology Hospital of Rhode Island/Alpert Medical School of Brown University. Melissa Bowler (BA) is a professional actor and co-founder of Providence Improv Guild. Elizabeth Howard (CNM, PhD) is Division Director of the hospital /university. Gary Frishman (MD) is a professor of the Obstetrics and Gynecology Department along with Kyle Wohlrab (MD) who is an associate professor of the same department. Their project explored whether empathy could be developed and sustained by their obstetrics and gynaecology (OB-GYN) residents through participation in a one-hour improvisation intervention. Empathy surveys (Fisher's exact test, Student's test and Wilcoxon rank sum test)²² were distributed two weeks before the workshop intervention and then one month, three months and six months later.

The OB-GYN residents participated in four improvisational theatre exercises. These included *So This Morning Right? a Forum Theatre* (Boal et al., 1979) based game that entails a 'call and response' interaction between one player and others who act as an audience. It

²² Please note, it is beyond the scope of this thesis to describe the details of these empathy measuring tools. For more information, however, see Cai et. al., 2019.

commences with the player stating, “So this morning, right?” the audience responds with “Right!”. An everyday task is then described by the player, for example, “I brushed my hair this morning” and the audience claps and cheers. This is followed by a debrief to reflect on their observations during the game. The purpose is to develop empathy skills by demonstrating how easy it is to develop rapport and a “compassionate connection” (p. 597) in a conversation about small everyday things (see Cai et. al., 2019 supplementary material).

The theatrical improvisation game *Yes, And*, has been described earlier and embeds the improvisation principles of accepting an offer and building on it. *Scene Painting* is a type of sociocultural role-playing game (Moreno, 1943) in which the players decide on a location and characters. Players use this game to consider how stereotypes affect decision making. The debrief was a reflection on cultural biases that emerged through the game, and how despite these biases not being obvious, these assumptions do affect our decisions. The final game was *Late For Work*, another improvisational role-play game. A player takes on the role of an employee who is late for work. In front of them is another player, who takes the role of the boss. Meanwhile, other players stand behind the boss and act out visual cues to give the late employee ideas on their excuse for being late. This game offers the opportunity to function in a stressful situation. The debrief consisted of a discussion about powerplay with body language and how “position in a room can affect the patient’s perception of power” (see Cai et. al., 2019 p. 600 supplementary material). The project results were discovered through empathy surveys, which revealed that there was a minor improvement in empathy. However, six months post-intervention, the empathy rating declined and disappeared, which suggested the need for iterated refreshers of the improvisational skills (Cai et. al., 2019). This is excellent feedback for nurse training as it confirms my conviction that these skills must be regularly refreshed to be mastered and maintained.

Conclusion: Breaking the Cycle of Inactivity

As discussed, this project focuses on nurses in the healthcare training sector and nurse graduates in tertiary nursing programs. Recent studies argue that graduate nurses are losing their confidence in human factors during post clinical placements, particularly in their handling of patient safety skills, which supports an urgent need for this training (Crichton et al, 2013). Theatrical improvisation can provide nurses with additional skills. As mentioned at the outset of this chapter, it has been over two decades since the US “To err is human” 1999 report (IOM, 2000). Subsequent reports across the globe state that patient safety is affected through the lack of formal human factors training for graduates and early career nurses (Australian Commission on Safety and Quality in Health Care, 2017). The cycle of inactivity has meant that action on patient safety still needs to be taken; academics (Yule et al, 2006) point out that there is an education gap in this area, and this is certainly contributing to human factors miscalculations. This inaction is resulting in resistance to transferring the human factor skills required for nurse-patient connections; for example, situational awareness, communication, and cooperation (Stomski et al., 2018).

As argued, theatrical improvisation can function as an important complementary training tool for revision, debriefing and reflection, making it a potentially effective addition to the current suite of educational strategies available to prepare and empower nursing students and early career nurses for clinical practice. This approach will have direct practical applications for health outcomes. It will prepare nurses to be safe practitioners and advocates, as outlined in the Australian Commission's “Communicating for Safety” Standard (Seaton et al., 2019). Nurse Educators and Staff Development Nurses have a crucial role in adopting this educative process to meet the demands of nurses’ human factor individual, team and

organisational training needs in the Western Australia health care system (Culyer et al., 2018).

This chapter argues that theatrical improvisation exercises can be deployed as pedagogical tools in a non-theatrical context, thereby contributing effectively to human factors skills in andragogical environments. The core principles of improvisation cultivate connections with people in the workplace. These principles of presence, co-creation, letting go of fear, taking risks, active listening, accepting ideas and building on them (Spolin, 1963) can be developed through theatre improvisation exercises. These exercises will enable nurses to form foundational and intuitive skills that are a workplace prerequisite for successful and effective humanistic connections. These principles align well with nursing human factors competencies of communicating, managing workload, anticipating, using assertiveness and situational awareness (Flowerdew et al., 2013). In the next chapter, I discuss hybrid digital models of learning, and how they influenced the creative component of this thesis, the *Improv-e-toolkit*, which factors theatrical improvisation into nurse learning through contemporary technologies.

Chapter 3: Reimagined Learning Futures in Andragogical Contexts

In this chapter I consider future learning pedagogies through the lens of emerging digital technologies to highlight the role of theatrical improvisation for nurse education and training in andragogical settings. As discussed in previous chapters, the value of improvisational theatre as a tool is that it enables the embodying of experiential learning, which reflects a “contemporary pedagogical theory of learning” (Smyrniou et. al., 2016, p.1). Recent studies like Smyrniou et al., (2016) support the idea that the body is the learning tool of the future, and that theatrical improvisation is an ideal vehicle for this learning. In John Dewey’s words, “The lesson for progressive education is that it requires in an urgent degree, a degree more pressing than was incumbent upon former innovators; a philosophy of education based on a philosophy of experience” (Dewey cited in Kolb & Kolb, 2017, p. 7). Dewey’s *Philosophy of Experience* (1939) recognises that experience is the key component of effective learning, based on “the integration of action and reflection and experience and concept” (Kolb & Kolb, 2017, p. 14). Improvisational theatre theorists such as Spolin and Boal integrated reflection with experience, making the subject central to both the educator and the learner (Kolb & Kolb, 2017). Palmer (1998 cited in Kolb & Kolb, 2017) suggested a model with the subject as the centre in a “subject-centred classroom”, where both educators and learners are placed in a level position where they learn from, and with, each other in a dissolution of traditional boundaries. The ‘subject-centred’ model is important to my project considering the interactive improvisational exercises that players partake in with the dissolution of boundaries between player and educator.

Spolin and Boal paved the way for cross-disciplinary applications, such as those conducted by medical improvisation theorists Watson and Fu (2016), Kaplan-Liss et. al., (2018), Higgins and Nesbitt (2021) and Cai et al., (2019), who have demonstrated the

effectiveness of improvisational theatre as an experiential learning platform in the medical industry. These contemporary approaches to learning honour andragogical contexts where the adult learner is central to the embodied learning experience. The World Health Organisation (WHO, 2019) in their 2019 Congress, announced that a collaborative, strategic approach to healthcare education and training was necessary to address the concerns of patient safety. The WHO (2019) emphasised the importance of focusing on human factors – particularly communication – as the best way to improve the approach to learning within the health care field, intending to build a compassionate workforce that enhances patient safety in hospitals globally.

The application of digital technologies in learning has become indispensable for implementing patient safety interventions in the 21st century. Digital technologies and the learning models associated with them, such as pedagogical digital resources, game-based learning, flipped classrooms, mixed reality, and blended learning, can be utilised to support the practical discipline of nursing (Davidson & Candy, 2016). Developing educational technologies is a priority for governments as they seek to improve andragogical education and training settings for nurses. Under US federal education law, the Every Student Succeed Act, or ESSA (Bertinetto & Bertram), of 2015 states that digital learning is “any instructional practise that effectively uses technology to strengthen a student’s learning experience and encompasses a wide spectrum of tools and practices” (Zhang et al., 2020). ESSA states that digital learning includes interactive resources, digital content, software, simulations, learning environments that promote collaboration and communication and hybrid or blended learning models (Centre for Digital Education, 2017, p.10). Digital learning is increasingly popular in nursing, particularly since Covid-19 when learning was largely relegated to the online world (Bdair, 2021). In the discipline of nursing, online learning comes in many forms, including

virtual reality, augmented reality, virtual patients and even gaming and gamification (Choi et al., 2021). I examine the following terms in digital learning from a nursing education and or training perspective: eLearning, extended reality (XR), pervasive games and serious games. I then relate these terms to the creative component of my project, the *Improv-e-toolkit*. To conclude, I explain the e-toolkit prototype I have designed and developed in Moodle, a Learning Management System (LMS).

eLearning in Nursing

Recent research confirms the quickly evolving nature of virtual learning environments (VLE) (Guy, 2008). Challenges include

... how technology use can be blended with and complement traditional in-class education, and how to blend contemporary youth media practices with established as a wired – and wireless – generation enters university and then the workplace. (p. 4)

In current nurse education and training the use of eLearning platforms is a response to two factors: Covid-19 and the introduction of mandatory competency-based learning and the requirement for twenty hours of annual professional learning (Nursing and Midwifery Board of Australia, 2016 cited in Mak & White, 2021). eLearning is traditionally defined as “educational content that is delivered asynchronously, using information and communication technologies, without the need for the centralised face-to-face learning” (Koch, 2014 cited in Mak & White, 2021, p. 1472). As a recent innovative approach, in 2020 a real-life interactive case study was incorporated into an Australian eLearning program for nurses which expanded

on the traditional definition above through the embedding of an interactive element. The content was intended to train nurses in recognising and escalating care for deteriorating patients (Mak & White, 2021). This training was designed to fulfil the National Safety and Quality in Health Service Standards (2012) and to stimulate nurse learners' interest and reduce the temptation to 'click and flick', which is mindless scrolling to hasten the completion of course content (Mak & White, 2021). This example is pertinent to the *Improve-toolkit* concept because it too offers interactive activities that support intrinsic lifelong learning principles.

eXtended Reality in Nursing

eXtended Reality (XR) incorporates virtual reality (VR), augmented reality (AR) and mixed reality (MR). Ioannou et al., (2021) write that current research on XR is limited; XR is a generic term for immersive technologies such as virtual reality, augmented reality, mixed reality, immersive gaming and immersive escape rooms, which blend physical and digital worlds (Ioannou et. al., 2021). VR is a 3D environment enabled by computer technology, usually with a headset and haptic sensors that substitute sensory inputs, such as auditory, visual, tactile, and olfactory prompts, with digital ones (Choi et. al., 2021). This UK (2019) project was conducted by the School of Health and Society, the Thinklab and the School of Computer Sciences in the UK used immersive, interactive VR technologies to assist nurses in the development of human factor skills, including confidence, via the 'Octave' VR facility (pictured below, Rushton et. al., 2020 p. 284). 'Octave' presents scenario-based experiences, utilising wall and floor images augmented with a multidimensional sound projection that simulates realistic urban distractions, such as moving traffic, streets and houses. Nurses'

movements are tracked in this space via shutter glasses (Rushton et. al., 2020), commonly known as virtual reality goggles.

Figure 3.1

The Octave Virtual Environment Facility and the Immersive Simulation Room



Note: From Rushton, M. A., Drumm, I. A., Campion, S. P., & O'Hare, J. J. (2020). The use of immersive and virtual reality technologies to enable nursing students to experience scenario-based, basic life support training—exploring the impact on confidence and skills. *CIN: Computers, Informatics, Nursing*, 38(6), 281-293. Figure image used with permission.

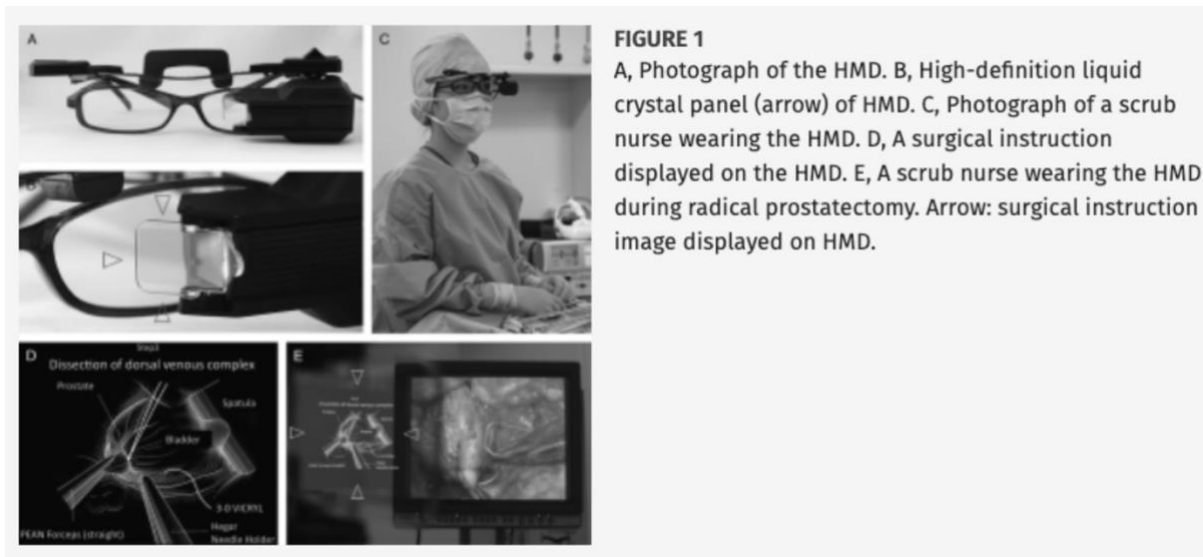
This UK study has significance for my project because it demonstrates how the blending of the physical and digital worlds can be beneficial to nurse practice and learning, which in turn translates into possible applications for the *Improv-e-toolkit*. For example, the simulated screen could be an option represented by a tile. When the player or educator taps on the tile, it would take them to a simulated screen that emulates the scenario they have chosen to work on that day. There is great potential for future applications of digital technologies in this context, provided the learner's needs are central to planning.

Augmented Reality in Nursing

Augmented Reality is the “enhancement of reality with virtual content” (Milgram & Kishino, 1994 cited in Wüller, 2019, p. 1). This type of technology is already used in different medical contexts; for example, the intraoperative use of a see-through head mounted display (HMD) by scrub nurses to facilitate their situational awareness, giving them a personalised view of the operation procedure, as shown in Fig. 3.2 (Yoshida et. al., 2015). Another innovation is the HMD AiRScouter, a Japanese design created by Brother Industries. It consists of a high-definition liquid crystal that allows the nurse to see a transparent image in front of their eye, offering instructions on required operating tools and procedures.

Figure 3.2

See-through Head Mounted Display for Scrub Nurses to View Surgical Instructions.



Note. From Yoshida, S., Sasaki, A., Sato, C., Yamazaki, M., Takayasu, J., Tanaka, N., Okabayashi, N., Hirano, H., Saito, K., Fujii, Y., & Kihara, K. (2015). A Novel Approach to Surgical Instructions for Scrub Nurses by Using See-Through-Type Head-Mounted Display. *CIN: Computers, Informatics, Nursing*, 33(8), 335-338. <https://doi.org/10.1097/cin.000000000000153> Figure image used with permission.

HMD technology could be a valuable addition to my project and would be particularly helpful for nurse learners to develop their situational awareness skills. One can imagine a nurse educator wearing a streamlined version of this HMD, with the side-coaching information streaming across in front of one of their eyes. This would allow the nurse educator to walk around the workshop space whilst facilitating a theatre improvisation intervention.

Pervasive Games in Nursing

Pervasive games mix elements from the real world into the virtual gaming world. The term was formalised by Markus Montola, Jaakko Stenros, and Annika Waern in their 2009 text, *Pervasive Games: Theory and Design*. Pervasive play and games are also known as location-based games or mixed reality games (Leorke, 2020 p. 260). These types of games can offer meaningful connections to spaces such as cities, towns, and alternative environments. An example of a pervasive game is *Second Life*. It is a game set in a virtual world where you control a virtual version of yourself (an avatar) and lead a virtual life completely online. It is an interactive massive multiplayer online experience (MMOE) (Salmon, 2009). Due to its ability to mimic real-life, *Second Life* has been considered useful in various 'real world' fields, including the treatment of psychological disorders (Heinrichs et. al., 2013 p. 9), and for social research purposes in the field of nursing for nurse scholars.

A 2014 study conducted by McElhinney et al., illustrates *Second Life* being used in a health care training environment. The patient interview study conducted in *Second Life* offers us an example of a site where nursing scholars can take a pervasive game approach to qualitative interview-based research into ways to “deliver health information, advice and

support” (McElhinney et al., 2014 p. 1267). A virtual interview space was created where the researcher and patient (player) could interact comfortably. Players adopted an avatar and personalised it to represent themselves in the virtual world (McElhinney et al., 2014 p. 1268). This space offered them the freedom to use a different name to their real-world name; thereby adding to the imaginative possibilities of role-playing.

Figure 3.3

Undertaking Qualitative Health Research in Social Virtual Worlds



Note. McElhinney, E., Cheater, F. M., & Kidd, L. (2014). Undertaking qualitative health research in social virtual worlds. *Journal of Advanced Nursing*, 70(6), 1267-1275. <https://doi.org/10.1111/jan.12281> Figure image used with permission.

Second Life in general offers a rich space for ludic exploration. Players participate virtually in “socialising, shopping, role play, dancing, attending group meetings, conferences and accessing health information” (McElhinney et. al., 2014 p. 1268). They engage in chat with each other when in proximity and can talk individually or in large groups. This chat can be heard by other avatars within proximity. A virtual space was created in the McElhinney et al., study to conduct interviews with patients who were represented as avatars. This anonymity

allowed patients that participated in this study to be more open and honest, thus giving them the freedom to be the kind of ‘non-perfect’ patients more commonly encountered in a hospital environment, as opposed to the ‘scripted’ patients encountered in traditional role-play nurse training. Emoticons were used to express emotions and text-based communication was used for private avatar-to-avatar discussion. This provided the option to directly communicate with the avatar who represented the nurse researcher, thus increasing inclusivity. Multimodal communication and spatial cognition create the illusion of presence and immersion and give a “psychological feeling” of being situated in a virtual world (McElhinney et. al., 2014 p. 1268). *Second Life* can offer possibilities for further in-game research. Nurses interested in conducting research in this type of 3D environment would need to spend time becoming familiar with the culture and technology in virtual worlds before conducting research with patients to ensure they come across as ‘tech-knowledgeable’; thus, making them more approachable and patients more comfortable to share personal information within the virtual world.

This *Second Life* study, the example of a pervasive game, highlights the relevance of this concept to my research. This type of game has the potential to greatly enhance collaboration between learners, researchers and educators and would expand access to the virtual tools that can enable such collaboration. For example, a nurse uses the virtual tool of an ‘avatar’ to interview a patient ‘avatar’ to investigate options for the patients’ health and wellbeing. Another space that pervasive games could be used to enhance nurse learning is the learner-centric flipped classroom, the learner views videos or reads articles pre-class. When they return, they discuss the articles in small groups with set questions (Wells-Beede, 2020). Pervasive games could take a role in the flipped classroom by introducing options for nurses to go on virtual ‘field trips’ to other countries to develop cultural awareness, for example. It

gives a whole new meaning to the term ‘flipped’ classroom. By immersing learners in virtual spaces, it offers them a direct learning experience. Nurse educators are increasingly challenged to innovate in the clinical classroom to ensure that the space between didactic teaching and clinical practice is addressed. As Wells-Beede (2020) makes clear, educators are charged with the responsibility of preparing a nurse who can safely work in a complex health care system, and the flipped classroom in the context of a pervasive game affords this opportunity. The *Improv-e-toolkit* aspires to support nurse educators in their teaching with a repository of relevant shared learning resources, such as videos and articles, related to theatre as a learning tool. From these shared resources nurse educators could design learning pathways within the *Improv-e-toolkit* for learners to pre-read an article or watch a video (at home) before attending a face-to-face theatre improvisation, thus adopting the flipped classroom methodology.

Serious Games in Nursing

Serious Games (SG) are games created for serious purposes, for example for education rather than entertainment, ‘edutainment’ (Staccini & Fournier, 2019). SGs can traverse application areas such as the military, government, education, corporate and healthcare (Susi et al., 2007, p. 1). SGs are considered as technological and computerized objects that implement contexts and related objects (playground, avatars) based on scenarios (Staccini & Fournier, 2019, p. 41). The commercial gaming industry has laid the foundations for the future development of SGs in the health care sector: professional developers are now more affordable and successful gaming platforms exist. However, the technical capabilities of hospital training rooms are a factor to consider; for example, some multiplayer games require a computer capable of rendering 3D graphics in real-time and costly graphics cards to support

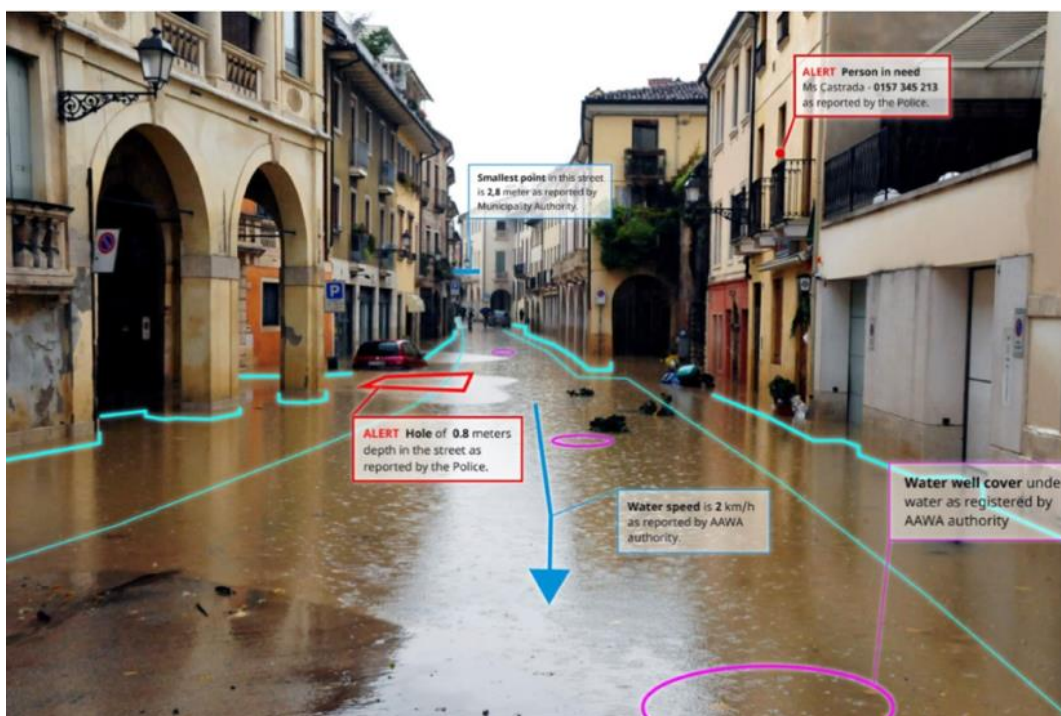
the running of the system. This can be a barrier due to their current commercial cost. Despite this caveat, as Staccini and Fournier argue, the time is right for the health care industry to reap the benefits of SGs and forge a new direction in learning (Staccini & Fournier, 2019). To illustrate SGs in-action, I briefly describe two case studies that focused on first responders training; one is for traffic incident first responders and the second for medical first responders. The first case study demonstrates virtual traffic incident management that was achieved through 500 internet connected PCs with headsets and keyboards. Participants engaged in real-time communication in the stressful situation of a virtual highway through their avatars (Heinrichs et al., 2013). The second case study focused on creating an online interactive virtual environment for team-based training through a multiplayer SG. The ‘proof of concept’ platform offered two scenarios; one was pre-hospital triage and the other in-hospital management. Real time medical skills were required so that players could interact with high volumes of patients entering the SG. Thirty-one per cent of the medical responders commented the game was “as good as” the real environment (p. 9). It allowed them to practice real world skills in a virtual world (Heinrichs et al., 2013). I am inspired by and intrigued with the question posed by Heinrichs et al., (2013): “How can we use existing multiplayer immersive technologies to deliver change in healthcare?” (p. 1). I am passionate about the opportunities afforded by immersive technologies and seek to expand on the prototype I have created for this dissertation (*Improv-e-toolkit*) to design interactive human factors-based Serious Gaming for nurses.

Imagine if nurses could have the following experience in their initial clinical practice: the nurse wears sensor-based glasses in a busy emergency department, the glasses can derive information from various resources, databases and location specific sensors to enable immersive learning in the real world. This information brings the human factor of situation

awareness in a stress-based scenario to a new level (Symeonidis et. al., 2021). This idea is currently under development in a European pilot program for disaster management in a flooding scenario.

Figure 3.4

Draft of Possible Information Provision to First Responder Via AR in a Flooding Scenario.



Note. From Symeonidis, S., Diplaris, S., Heise, N., Pistola, T., Tsanousa, A., Tzanetis, G., Batziou, E., Stentoumis, C., Kalisperakis, I., Freitag, S., Shekhawat, Y., Paradiso, R., Pacelli, M., Codina, J., Mille, S., Marimon, M., Ferri, M., Norbiato, D., Monego, M., Karakostas, A., & Vrochidis, S. (2021). xR4DRAMA: Enhancing situation awareness using immersive (XR) technologies. Figure image used with permission.

This pilot study hints towards exciting experiential learning opportunities for nurse learners. In the context of innovative pedagogy, the use of improvisational tools could be a completely online experience. Imagine nurses in different time zones interacting with their personalised avatars in a multiplayer context; the games in the *Improv-e-toolkit* could come to life on personal computers offering training that complements the practical discipline of nursing.

Conclusion: Nurse Learning Through the Lens of Digital Technologies

This chapter has explored the potential of future nurse learning pedagogies through the lens of digital technologies that are emerging in nurse education and training. These technologies include eLearning, eXtended Reality (XR), pervasive games and Serious Games. eLearning increases access to learning materials via the internet and reduces the need to hold face-to-face classes. XR encapsulates VR, MR and AR, it blends physical and digital worlds such as heightening senses including the use of glasses that act as a miniature computer screen in front of the user's eyes. Pervasive games are often location-based games that mimic real life for example a virtual city in which the player can immerse themselves. SGs are known as 'edutainment' due to their focus on educating via entertainment. The economic aspects of SGs are important to consider, as graphics cards are costly items that hospitals would need to commit to investing in if they are serious about SGs for health care staff. To ensure that a game runs well the graphics need to render it efficiently and to do this it is important to have a top-quality graphics card with high processing speeds. Another factor to consider in a multiplayer game is internet speeds for networking to function well between computers and quality sound playback and devices such as keyboards and a mouse. My model the *Improv-e-toolkit* prototype adds to this field by offering users the potential to engage and collaborate in the development of innovative learning pedagogies. These contemporary examples highlight the requirements for digital gaming and the positive role that theatrical improvisation can play in future nurse learning in andragogical settings.

Chapter 4 The Creative Component: The *Improv-e-toolkit*

The creative, yet practical component of this exegesis, is the prototype for the *Improv-e-toolkit*. It proposes a ‘social and intellectual digital space’ to be inhabited by nurse educators. It offers a framework to support nurse educators’ intellectual agility, skills, and attitudes²³ to collaborate, learn and teach medical humanities, explicitly human factors’ skills through the lens of theatrical improvisation.²⁴ The *Improv-e-toolkit* digital prototype has dual functions. It is intended as a framework to build a shared repository for the collection of nurse training human factors knowledge. The other function is a repository containing interactive elements to support a nurse educator to facilitate a theatrical improvisation intervention, through the use of the virtual theatre improvisation catalogue of exercises. The prototype has been developed in Moodle, a Learning Management System for ease of access to nurse educators. *The Improv-e-toolkit* is ‘improv-centric’, meaning it is concerned with theatrical improvisation as a learning tool.

The *Improv-e-toolkit* prototype concept has been developed in two project stages. The first stage is this written thesis which supports the philosophy of ‘improv-centric’ experiential learning and offers a digitally accessible prototype of the content as part of the creative component of this project. In its current form in Moodle, it can be accessed by nurse educators and used as a planning and interactive teaching tool for theatrical interventions (improvisation workshops) and the post-intervention debrief. In addition, this tool can be

²³ Intellectual agility, skills and attitudes are the human capital aspect of Intellectual Capital. Transforming knowledge into something useful (Gogan & Draghici, 2013). Knowledge is a vital resource and if shared with care and responsibility it can be a powerful connector between nurse educators by building their wealth of medical humanities knowledge collaboratively in the *Improv-e-toolkit*.

²⁴ It has become important to add humanities to medical curricula to embed moral and ethical principles grounded in social and cultural contexts. By including the arts in the curriculum health care professionals in education and training can better understand sensitivity, empathy, and the human condition from a medical humanities perspective (Liao & Wang, 2016).

used as a repository for accessing any ‘improv-centric’ resources nurse educators or students may require for their training.

The second stage is yet to occur and builds on the primary stage of this project; it will employ a design thinking²⁵ approach to embark on pilot projects, ideally with nurse educators across public, private and tertiary nurse education. In this second stage, nurse educators will access and trial the use of the *Improv-e-toolkit* for the first time. The prototype toolkit will be iterated and tested with nurse learners alongside nurse educators to gain their feedback, trial ideas and test innovations. It will be an ongoing collaborative process with nurse educators across different sectors, encompassing tertiary institutions, and public and private hospitals. Their variable input will inform the medical content and learning processes embedded in the *Improv-e-toolkit*. Another function of the *Improv-e-toolkit* is to act as a connection between these usually independent sectors (public, private and tertiary) to enable the sharing of experiences regarding how improvisational theatre can work as a learning tool in their discipline.

As part of my Master’s degree training, I engaged in a mock ‘design thinking my project’ [Click link to view mock design thinking project plan](#). In adopting a design thinking approach, I engaged in a mock exercise, seen in Figure 4.1, called ‘shared brain writing’, a lateral thinking brainstorming technique. I sought indirect sources from nurse forums and social media nurse groups to uncover their current complex workplace views and issues, with the goal in mind of gathering their insights to contribute towards the mock design thinking

²⁵ Design thinking is an approach to designing innovations that involves the user, their personality, their needs and their stories. It has recently become popular for its benefits in initiating digital transformation (Lewrick et al., 2018, p .7). For further reading Lewrick, M., Link, P., & Leifer, L. (2018). *The Design Thinking Playbook : Mindful Digital Transformation of Teams, Products, Services, Businesses and Ecosystems*. John Wiley & Sons, Incorporated.

project. The project was aimed at improving patient outcomes and enhancing the nurse patient connection through human factors training.

[Click here or scan QR code to view mock shared brain writing. Kostusik, 2021](#)



Figure 4.1

Shared Brain Writing Mock-up design thinking project.

SHARED BRAIN WRITING

Your ideas as a nurse, patient or carer.

Imagine you are a patient, carer, nurse or healthcare manager. You have been asked to contribute to a design thinking project. The intention is to improve & enhance the hospital experience for patients & enhance nurses' ability to combat adverse events.

- Each box represents a new idea.
- Do not use your own name. to de-identify sign off with: Nurse, patient or carer.

Engaging training for non technical skill development
By nurse educator

Idea

Double the number of staff development nurses in Emergency Dept.

Idea

Idea

Good supervisor support for nurses, listen & act on feedback.
Nursing student first year

Idea

Idea

articulate winter/surge bed management strategy published and avail to staff & patients / community.

Idea

A creative space for nurses, patients and carers to interact

Idea

Idea

Supernumerary resus team -min. 4 nurses also avail to assist floor staff with category 2 patients & patients with behavioural problems.

Additional numbers of specifically trained pediatric security staff for Perth Childrens Hosp

rejuvenating space for nurses to have breaks.
Nurse

Implement staff allocation of 1 nurse per 3 patients

Idea

Short stay surgical unit closes 2,30 Saturdays, keep open 24/7 on weekend and staffed appropriately.

Ensure nursing staff are not overstretched.
Nurse

Idea

Idea

Idea

Idea

How can we improve patient outcomes?

Idea

Idea

Idea

Idea

Shift coordinators/ triage nurses not included in patient load

Options for positive feedback from patient

Idea

Fast track recruitment with max turnaround time 4wks

Idea

Idea

Idea

Provide an easy way to give feedback before discharging from hospital incl how hospital environment feels

Idea

Idea

Idea

Idea

Idea

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Idea

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Idea

Idea

A CONNECT4CREATIVES PROJECT BY RACHAEL KOSTUSIK

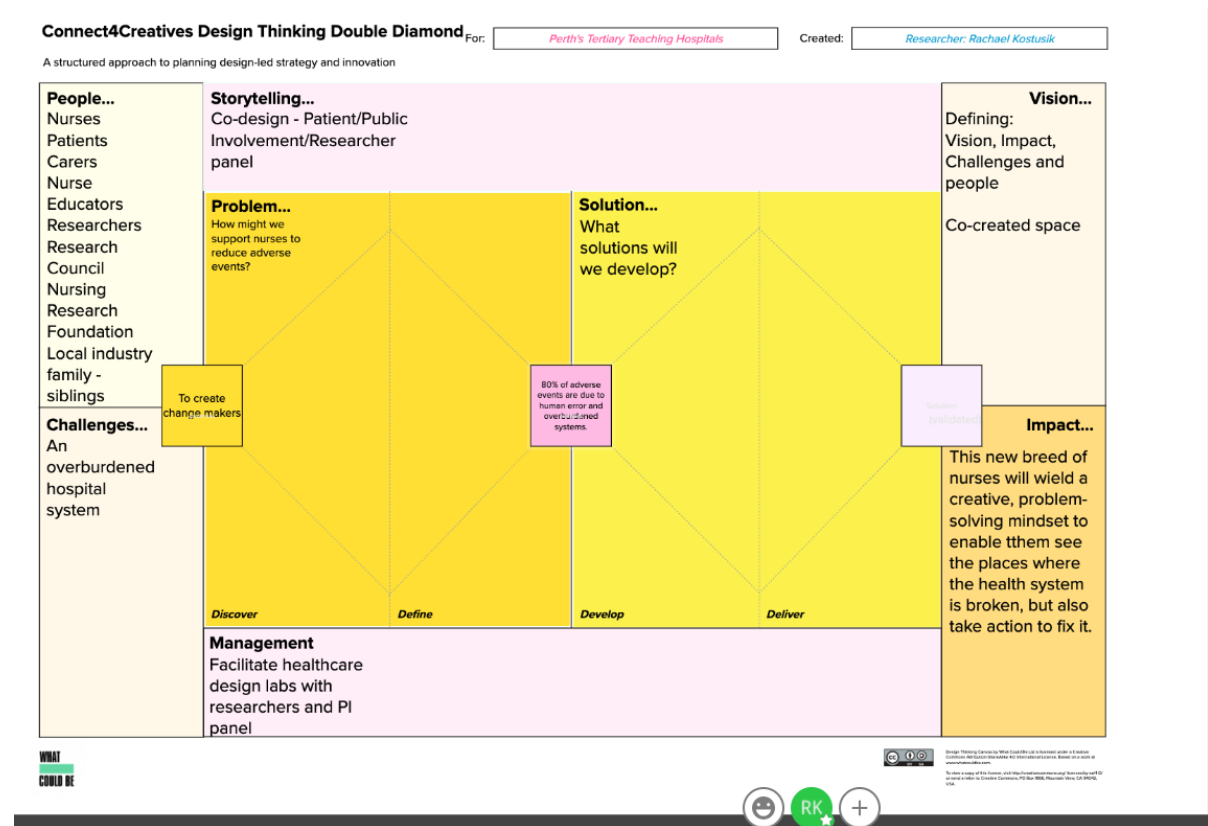
Note. Created as a mock exercise by Kostusik, R. 2021

In order to envisage a co-designed mock project, I utilised a design thinking strategy, the Double Diamond²⁶, to visually track how to develop potential responses and solutions to health care issues that impact patients, services and the nurse-patient connection. I considered a major mock project that explored the interstices between patients, public involvement and a mock medical humanities research panel to consider the nature of training and education required to develop those skills. Another design thinking strategy I utilised to inform this process was the Stanford Five Stage Model, [Click here to view design thinking in five stages by Kostusik, 2021](#). Both strategies, the Double Diamond and the Stanford Five Stage Model allowed me to identify key concerns and challenges relating to health care complexity. Potential responses to these concerns were considered and the idea for the *Improv-e-toolkit* started to form. These design thinking ideas will be translated into real information with ‘real people’ when I embark on the second stage of the project. These mock design thinking ideas will be translated into real information with ‘real people’ when I embark on the second stage of the project.

²⁶ Design thinking is adopted to develop innovative solutions to complex problems as a creative human-centred process. This is usually explored through collaborative models. For example, the Double Diamond model, it follows four phases to discover, define, develop, and deliver solutions to the public sector. (Hawryszkiewicz & Alqahtani, 2020).

Figure 4.2

Design Thinking ‘Double Diamond’ Mock-up For a Co-created Design with Imagined Patients and Researchers.



Note. Created by Kostusik, R, using the Double Diamond strategy for a mock project that is based on co-design between mock patients, mock researchers and mock general Public Involvement (2021).

In March 2021 I investigated the nurse educator’s (J.Lymbery) pedagogical approaches used in the Murdoch University Nursing program through enrolling as a student of the nursing units in the LMS, to discover if it would be useful and practical to embed the skills of theatrical improvisation in the Murdoch University Nursing undergraduate program. It was suggested that I teach the nursing cohort of three hundred graduating students improvisation skills in their final ‘transition-to-work’ communications program. However, we encountered scheduling issues across two campuses, which meant that I would not be able to teach the face-to-face program. I instead suggested a train the trainer program to introduce

the nurse educators to the pedagogies of theatrical improvisation; however, scheduling a time for five people (four nurse educators) to meet before the looming semester classes commenced proved challenging. I wanted to create a model that would enable nurse educators and their learners to access the educational (and playful) world of theatrical improvisation. I believed that the answer lay in a digital application. Such an application would assist nurse educators to teach improvisation workshops themselves, with no scheduling or training required. The idea of the virtual theatre coach in the toolkit is a do-it-yourself concept for non-theatre specialist nurse educators to independently utilise the expertise of a theatre improvisation specialist through this e-tool prototype. This is when the idea solidified, and the *Improv-e-toolkit* concept emerged.

My project seeks to be the point of difference from typical face-to-face improvisation workshops by extending existing resources for training. In my proposed experiential learning context utilising the *Improv-e-toolkit*, the nurse educator is best placed to facilitate a theatre training intervention, due to their extensive medical knowledge and experience in debriefing, feedback and nursing reflective practices. It offers nurse educators the opportunity to teach with creative means through theatrical improvisation. My *Improv-e-toolkit* approach is supported by medical scholars such as Kaplan-Liss et. al., (2018); their research explains that locating appropriately trained staff within the organisation can be a challenge as there is often a lack of financial resources to hire external providers, such as theatre professionals to train staff (Kaplan-Liss et al., 2018). Another potential issue is that staff themselves need to be interested in this type of training. The *Improv-e-toolkit* meets these challenges, enabling the nurse educator to be supported by a virtual theatre side-coaching guide that is embedded in the digital platform as a catalogue with a digital flip card marked 'turn' to reveal side-coaching suggestions. It is designed to free nurse educators from grappling with the

scheduling issues involved in hiring external or internal training professionals and liberates their time from participating in train the trainer programs. Nurse educators would be able to utilise the e-tools within the *Improv-e-toolkit* whilst teaching in real-time. Nurse educators have a deep understanding of relevant learning goals, which enables them to facilitate learning activities effectively based on their own experience and technical knowledge, which is a key tenet to successful teaching and learning in an andragogical learning space. By designing a blended, subject-centred (Kolb & Kolb, 2017), teacher-led and learner-centred model, this experiential learning approach intends to enable educators in the nursing field to independently teach a guided theatrical improvisation intervention coupled with their subject expertise, in order to achieve deeper tacit knowledge.

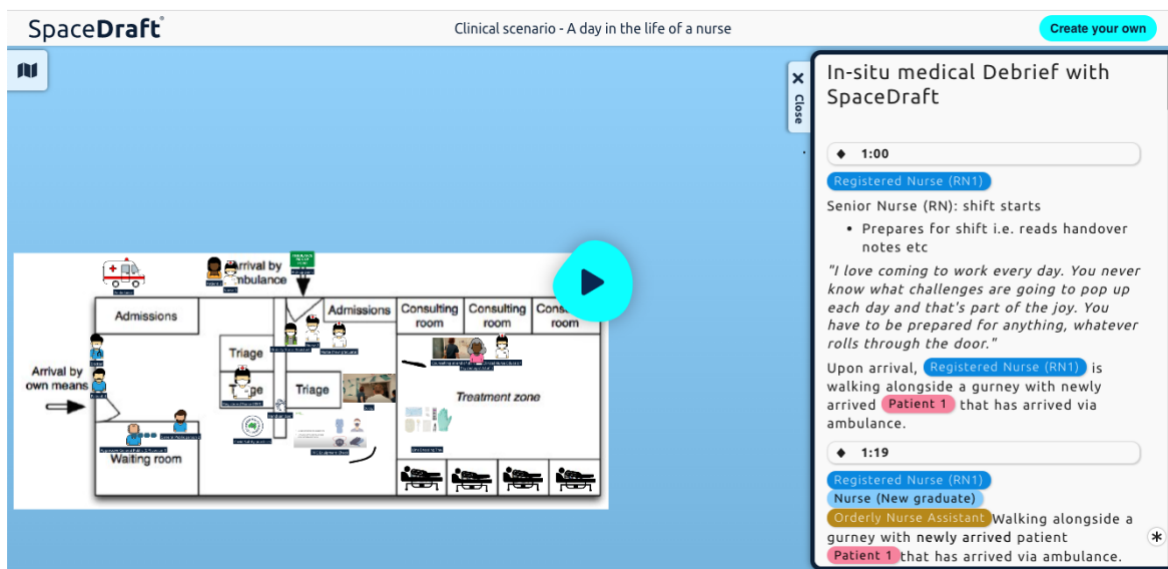
This project is distinguished by its blended delivery; it differs from the dominant dichotomous learning model that separates face-to-face classrooms from online learning. This project merges teacher-led digital content with face-to-face learner-centred activities: I refer to this as a hybrid model. This has the added advantage of being useful when face-to-face classes are unexpectedly cancelled (due to Covid or other reasons), as the *Improv-e-toolkit* also has the propensity to support home online learning in its current LMS platform. As a part of my hybrid model, I include targeted interactive theatrical improvisation exercises, a mini-podcast lecture detailing the value of theatre andragogy, guided side-coaching for clinical educators, suggested models for reflective practice and debriefing techniques, plus e-resources for nurses' ongoing professional learning specific to human factors development and/or theatrical improvisation. All these tools aim to develop and refresh core human factor skills and competencies for nurses. I outline these components in more detail later in Chapter Four.

The Journey Towards an Effective Prototyping Tool

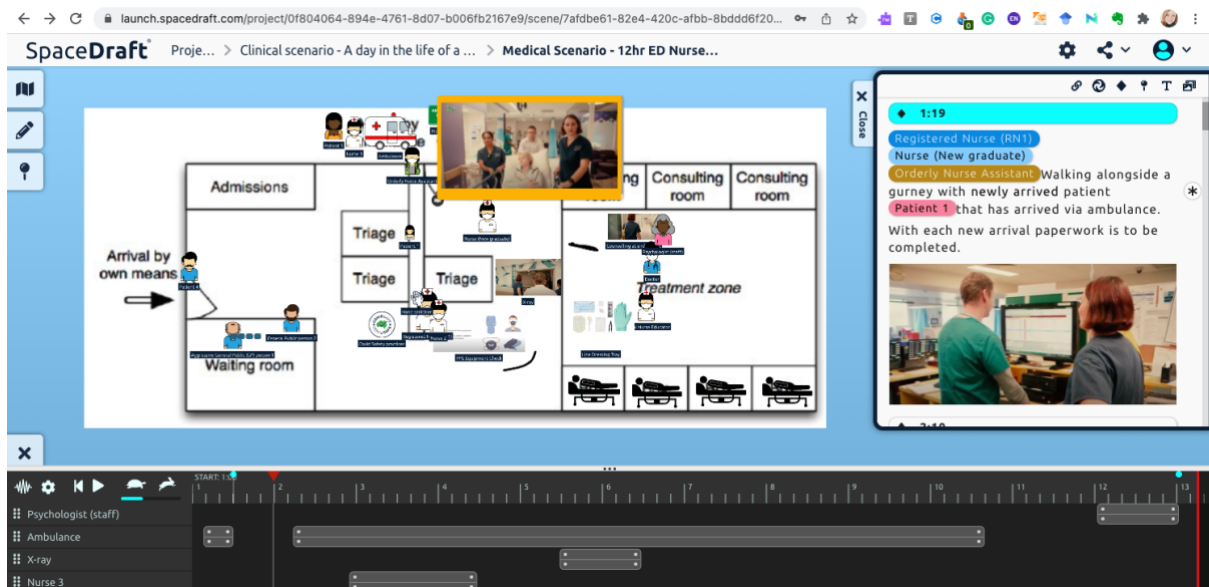
At the suggestion of a colleague, I engaged with SpaceDraft, a software company based in Western Australia, who were extremely supportive and offered me a free pre-license and training to trial their cloud-based software before the product had been launched publicly. I signed a Non-Disclosure Agreement, which meant I could not collaborate with colleagues in its development as it was ‘top secret’. This cloud-based software became an important tool for me to test and design clinical scenarios and improvisational exercises. Please see the screenshot below of a SpaceDraft that I created from scratch. This SpaceDraft example has been embedded into the Moodle LMS.²⁷

Figure 4.3

An in-situ clinical scenario – A day in the life of a nurse.



²⁷ Refer to Moodle; *Improv-e-toolkit* 'Choose Your Own Adventure' tile.



Note. Created by Kostusik, R., with a 3D storytelling tool called SpaceDraft. The figure shows to different views of the same SpaceDraft. This SpaceDraft can be viewed live in the toolkit by clicking on the Clinical Scenarios tile and click on ‘A Day in the Life of a Nurse’ scenario (2021).

I also tested my ideas in *Raptivity*, another cloud-based software application; however, their help desk was in a different country, which became a barrier to development. I met with a biosecurity specialist working with XR who had designed and implemented a VR tool called *Quarantine Hero*. It was intended for workplace training and assessment for biosecurity and safety students with a hydrocarbon industry major; this inspired me to consider new directions in VR technology. With a wireframe of my plan, I discussed my idea with Murdoch’s Information Technology department, and it was suggested that the Learning Management System (LMS) would be a good option to develop my concept further in a Moodle sandbox²⁸. A base prototype has been produced in the LMS Moodle and I am considering what direction and form it could take with future technologies.

²⁸A ‘sandbox’ in Moodle represents the metaphor of an empty playground sand pit. It is a hands-on exploratory space to trial building and creating in an empty version of Moodle to experience its user-interface design capabilities. <https://moodle.com/news/try-moodle/>

I adopted the metaphor of a toolkit for the creative component because of the convenience it can offer nurse educators. They can pick it up just like a handheld tool, such as a tablet, and digitally choose which ‘e-tool’ is appropriate to achieve their planned learning outcomes. The *Improv-e-toolkit* enables nurse educators to independently ‘jump in’ and facilitate a workshop without the aforementioned barriers of scheduling actors or professional theatre practitioners in a train the trainer workshop program. The *Improv-e-toolkit* surmounts the issue of paying a theatre practitioner or hiring several theatre professionals to facilitate improvisational learning for a cohort. This responds to the pressures of time management, allowing educators to use this resource to step them through teaching an improvisational theatre exercise with a selection of medical case studies and learning outcomes for each lesson or training session. Ultimately, the e-resource will act as a complement to existing frameworks and learning tools used across hospitals and tertiary institutions. The breadth of use across tertiary institutions and hospitals will allow monitoring and measuring of the e-resource and its impact on an interprofessional workforce skillset through the education and training of nursing students and professional nursing clinicians (Wilson & Van Der Weyden, 2005).

The *Improv-e-toolkit*:

D-I-Y Virtual Interactive Planning and Teaching Tool for Nurse Educators

The curatorial premise of the *Improv-e-toolkit* is to provide a virtual planning tool for nurse educators to engage in a future design thinking pilot project for future Serious Game development. The virtual resource has been created in a cloud based LMS, Moodle, purely for prototyping convenience, given the logistical resources available to me at this stage of the

project. It will allow a nurse educator to access/store improvisational tools and associated resources via the dashboard for the cloud-based Moodle LMS. The dashboard has eight tiles in the player (learner/educator) interface to select from which are listed after Figure 3.7. Alongside this, on the left-hand side is a menu that players can navigate within the *Improv-e-toolkit*. The premise behind this dashboard is to provide a ludic learning space that players (learners/educators) can experiment with. By engaging with the learner and the educator in a ‘virtual space’, in a pilot project, the design can be experimented with, and potentially developed for a future virtual game that doubles as an improvisational teaching tool. This process will require a team of UX/UI designers and game developers and an estimated five years to develop.

The *Improv-e-toolkit* dashboard is organised into eight sections, each represented by a square tile, plus the collaborative functions (forum announcements, chat, blog and collaborate), an image gallery of improvisational principles and a bibliography specific to applied improvisation and human factors research.

Figure 4.4

Dashboard of the Moodle LMS Improv-e-toolkit Prototype: Comprised of Eight Main Sections Represented by Tiles



Note: Created in Moodle by Kostusik, R. 2021 The Improv-e-toolkit.

The following is a description of each main section represented by a tile and what its intended use is:

1. *What is Improv? An Orientation to Improv*

A three-minute lecture to listen to that describes how theatrical improvisation can assist nurse learning of human factors skills.

2. *Build Your Clinical Scenarios - Choose your own adventure*

A shared repository of clinical scenarios to explore. There is one example placed in this section, which is intended to be populated by nurse educators, sharing current and relevant scenarios across organisations and institutions.

3. *Catalogue Improv Exercises* containing debrief, feedback and human factors skills associated with each exercise. Debriefing and feedback has consistently been found to be the most important element in providing effective experiential learning. A commonly used definition of debriefing is a ‘facilitated or guided reflection in the cycle of experiential learning’ that occurs after a learning event (Jaye et al., 2015).

4. *Side-coaching Guide*

This is an information section that explains what side-coaching is, best practice for an improvisation intervention and the main principles/rules of improvisation.

5. *Reflective Praxis Models* typically used in nursing education.

Numerous reflective models and processes are listed in this section of the toolkit.

6. *Self-care Section - Improv refresher exercises*

These short exercises can be listened to. They are intended as a brain refresher, warm-up and for relaxation. This section includes exercises derived from Butoh/Body

Weather, Alexander Technique, Feldenkrais and Brain Gym for refreshing the brain and also ‘centring’ the mind and body.

7. *Improv Principles Gallery*

An image gallery of Improv-specific terms, principles of improvisation; rules to live and work by. This idea to use images over words took into consideration time management and knowledge retention strategies for nurses.

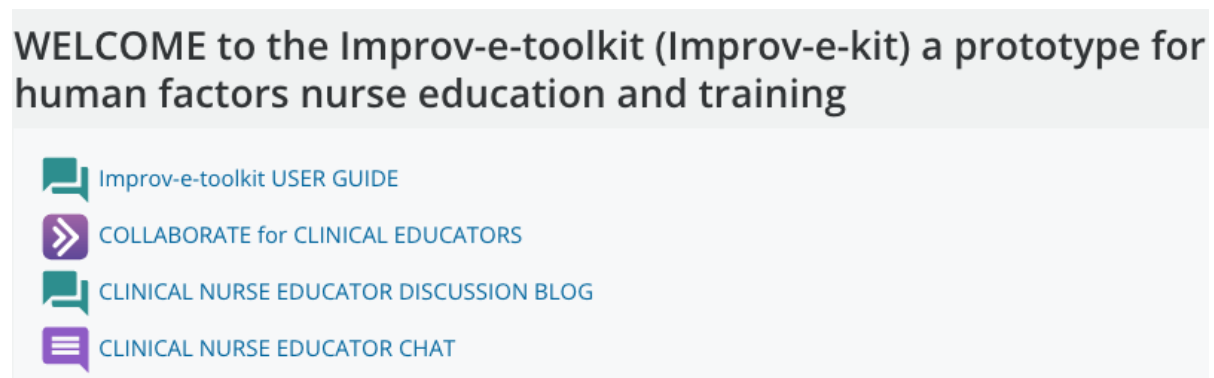
8. *Build Your Library - Shared Resources*

A repository for nurse educators to place improv related resources to share with other nurse educators. The content is focused on theatre-based or arts-based workshop interventions. Nurse educators can also list useful references relating to theatrical improvisation.

There are other sections in the Moodle that are accessible at the top of the dashboard, they are represented by icons. These include: a user-guide, blog and chat functions.

Figure 4.5

Improv-e-toolkit: A User-guide and Communicative Options for Nurse Educators to Collaborate Across Public and Private Hospitals and Institutions.



Note. Created in Moodle by Kostusik, R. 2021 *The Improv-e-toolkit.*

Another function that the *Improv-e-toolkit* provides is the *Collaborate for Clinical Educators* area. It works in a similar way to Skype, Zoom and Teams and needs to be installed and enabled for the collaborative module to operate. It is a place that nurse educators can set up a virtual meeting with other nurse educators or a virtual classroom with their students for an interactive learning and collaboration experience. This section also has a private chat function and video function in which you can see each other. The toolkit *Build Your Library* is a ‘virtual space’ that is intentionally uninhabited to be furnished by nurse educators. A medical humanities bibliography can also be found in this section which holds medical humanities; improvisation/arts or human factors-based research articles. The *Clinical Nurse Educator Discussion Blog* and *Clinical Nurse Educator Chat* can be accessed by securely logging into the *Improv-e-toolkit* and clicking on the icon to ask questions in a group or individually and to share resources relating to experiential learning through theatrical improvisation. If organisations can embrace an ‘open door’ policy from a design thinking perspective, nurse educators can learn from each other and be time efficient by sharing their specific experiences and effective debriefing questions that they developed when teaching an intervention utilising the *Improv-e-toolkit*. This sharing of intellectual information will be formally referenced with acknowledgements and copyright protocols in place.

The current Moodle LMS can be utilised as-it-is (*Improv-e-toolkit*) by nurse educators to access a catalogue of improvisational exercises with educator guidelines including instructions and side-coaching specifically designed for a medical context to target human factors development. Medical improvisation pioneer Belinda Fu asserts the need for such a resource in her 2019 publication, *Common Ground: Frameworks for Teaching Improvisational Ability in Medical Education*: “A catalogue of exercises specific to medical improv would be a welcome contribution to the field, particularly if accompanied by detailed

facilitation instructions” (Fu, 2019, p. 12). The *Improv-e-toolkit* proposes to fulfil and extend this brief to include side-coaching guidelines and collaborative tools to connect nurse educators. The facilitation instructions are purposefully succinct for busy nurse educators. Video content will support these experiential lessons and provide learners with an opportunity to experience concepts first-hand and, as such, give students a richer, more meaningful understanding of course concepts and of how they operate in the real world. The majority of improvisational exercises embedded in the *Improv-e-toolkit* under the tile heading *Catalogue Improv Exercises* have been trialled in a medical context and the results published in peer review journals by medical health care professionals. These articles can be located in the *Improv-e-toolkit* in the Build Your Library section of the toolkit in an annotated bibliography. I carried out a scoping review of all medical improvisation scholars that have conducted case studies and adapted exercises and I collated them to include most in the *Catalogue Improv Exercises*. There are hundreds of improvisational exercises that are shared in the ‘improv’ community. The usual practice in the theatre industry is to share this creative capital and credit the person from whom the exercise was borrowed. Most often the origin of the improvisational exercises can be traced back to the theatre improvisation pioneers, Spolin or Johnstone.

Nurse educators have two main experiential learning considerations to establish for the successful use of the *Improv-e-toolkit Catalogue Improv Exercises* for a workshop intervention:

1. Orientation: communicate to the learner what improvisation is and how it is useful, through a five-minute podcast episode lecture. See Figure 4.6. This is an important introduction for the experiential learner; it will scaffold their understanding of what

improvisational theatre is and how it can benefit them in their professional and personal lives. This aims to counteract any scepticism and allow the learner to reflect on how it could help them on a personal level.

Figure 4.6

Improv-e-toolkit: Improv Explained Lecture



Note. From Kostusik, R. 2021 *The Improv-e-toolkit*.

2. Safety culture: create a culture of safety where the learner feels safe to take risks. If the learner is well prepared and willing to take risks and make mistakes within this training, thus increasing the likelihood of embodying these learning strategies to ‘improv(e)’ their work life.

When engaging with nurse educators and nurse learners in Stage two of the project, I will request they share stories and situations in which they may have needed to use the prototype Improv-e-toolkit to determine their perspective from the eyes of the ‘user’ (Lewrick et al., 2018). The prototype for the instructional design of the *Improv-e-toolkit* will benefit from a future collaborative process with theatre makers, communications specialists and nurse educators to ensure its validity and utility.

Conclusion

This dissertation combines knowledge of health and safety requirements in human factor skills development with the benefits of experiential learning through theatrical improvisation. It has been incorporated into an e-resource the *Improv-e-toolkit* that is both online and face-to-face. This new theatre-based e-resource has been developed for future implementation into nursing education and professional learning. I argue that theatrical improvisation as a ludic digital learning tool and hybrid e-based face-to-face teaching strategy can promote critically engaged, active and reflective experiences for learners that are consistent with the objectives and aspirations of professional learning and tertiary education in nursing.

With increasing workplace pressures, added to by recent pandemic restrictions and lockdowns, nurse educators have a responsibility to understand their learners from new perspectives. Educators and instructional designers are forced to reconsider the face of teaching and learning. The enforced physical absence of university students from campus since 2019 has accelerated the move towards flexible learning, including the use of digital classrooms. I argue that this is a positive development, enabling more creativity and versatility in the ways we teach and learn. I am interested in exploring the intersection between virtual and face-to-face learning. It is time to reimagine the asynchronous system separating online learning from direct learning. Blended and hybrid learning models need careful consideration now to determine if we can flip a catastrophic learning situation into a positive result for tertiary and professional learning.

I have drawn on various theoretical, analytical, and critical materials to develop each chapter. Chapter One discusses the impact that theatre improvisation has had throughout history by an exploration of key theories, practices and narratives to “uncover its ideologies” (Piekut & Lewis, 2016, p. 3). The chapter investigated the value of theatre improvisation techniques as a ludic teaching tool to contribute to innovative andragogy for nurse education and training. This is accomplished through the interstices of Spolin, Boal and Moreno’s theoretical and practical applications in improvisation, through the lenses of Vygotsky’s ZPD (Vygotsky, 1967), Kolb and Kolb’s ‘ludic learning space’ (Kolb & Kolb, 2010), Kolb’s experiential learning cycle (Kolb, 1984) and Gardner’s theory of Multiple Intelligences (1983). The chapter reviews the literature that surveys medical improvisation theorists who have brought play into hitherto unplayful medical contexts to meet the learning to experience gap.

Chapter Two considers theatrical improvisation as an effective pedagogical tool for nurse learning that can contribute to human factors skills for application in health care settings. Such a tool can also contribute to knowledge transfer from education to practice. Theories of Kolb, Gardner, Friere and Boal are interwoven with Spolin’s practices and philosophies to highlight the workings of theatre pedagogy. The utility of theatrical improvisation is explored through an investigation of three recent theatre improvisation in-action case studies, each conducted by medical improvisation theorists, Kaplan-Liss et al., (2018), Higgins and Nesbitt (2021) and Cai et al., (2019). This discussion reinforces my argument that theatre improvisation is a useful tool in health care, specifically nurse education, explicitly in the teaching of human factor skills.

Chapter Three examines contemporary learning technologies: eLearning, eXtended reality (XR), pervasive games and Serious Games, with in-action examples that have been successfully portrayed in nurse learning settings. In my journey to develop an experiential learning framework that could be transposed into learning contexts with the needs of nurse educators and nurse learners in mind, these examples show that it is timely for the health care industry to reap the benefits of learning technologies such as Serious Games and forge a new direction in learning that involves ‘serious play’, a “ludic” approach to learning.

Chapter Four describes my journey to explore the nurse patient connection through the lens of theatrical improvisation for the enhancement of human factors such as communication, active listening and empathy. Theatrical improvisation has deep roots in enhancing psychological wellbeing and ludic learning spaces offer healthcare professionals an opportunity to foster deeper thinking and improve their mental wellbeing whilst training in a ludic space (Reid-Wisdom & Perera-Delcourt, 2020). This led me to create a digital experiential learning guide for nurse educators to facilitate a theatre improvisation intervention successfully and independently. This can be achieved with the support of the *Improv-e-toolkit* concept that has been placed in the Moodle LMS receptacle as an interactive e-resource.

This research has surveyed applied theatrical improvisation to augment human factors, for example, self-awareness (situational awareness), social awareness (empathy), and relationship management (interpersonal skills) in nursing education and training (Higgins & Nesbitt, 2021), to respond to the research that shows a deficiency in human factor skills in the education and training of nurses (Landrigan et al., 2010). I argue for the value of theatrical improvisation in clinical settings to foster the human factors of care, compassion and

communication. I also propose a model that embeds creative learning andragogy in tertiary education and medical training in Western Australia to address the Australian Commission on Safety and Quality in Health Care Standard 6 “Communicating for Safety” which I discussed as important because critical errors in communication can result in poor care outcomes (Seaton et al., 2019).

This exegesis explores the ludic nature of ‘serious games’ derived from theatrical improvisation. It offers a practical training option to bring medical improvisation to the fore as a useful tool that can enhance experiential learning and deepen critical learning skills to reduce the nurse learning to practice gap. This playful pedagogical thread has been woven between a written dissertation and a creative component, the *Improv-e-toolkit*, grounded in an exploration of the thesis question: *How can theatrical improvisation improve the nurse-patient connection?* Theatrical improvisation training developed with the art and science of human factors could positively influence the relationship between compassionate culture and staff wellbeing to enhance patient safety and deepen nurse patient encounters.

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Appendices

Appendix A personal communications

From Katie L Watson <k-watson@northwestern.edu>
Sent on 18/11/2021, 05:55
To RACHAEL Kostusik <r.kostusik@murdoch.edu.au>
Subject Re: quick question regarding my thesis on Medical Improv due in two weeks!

Hi Rachel,

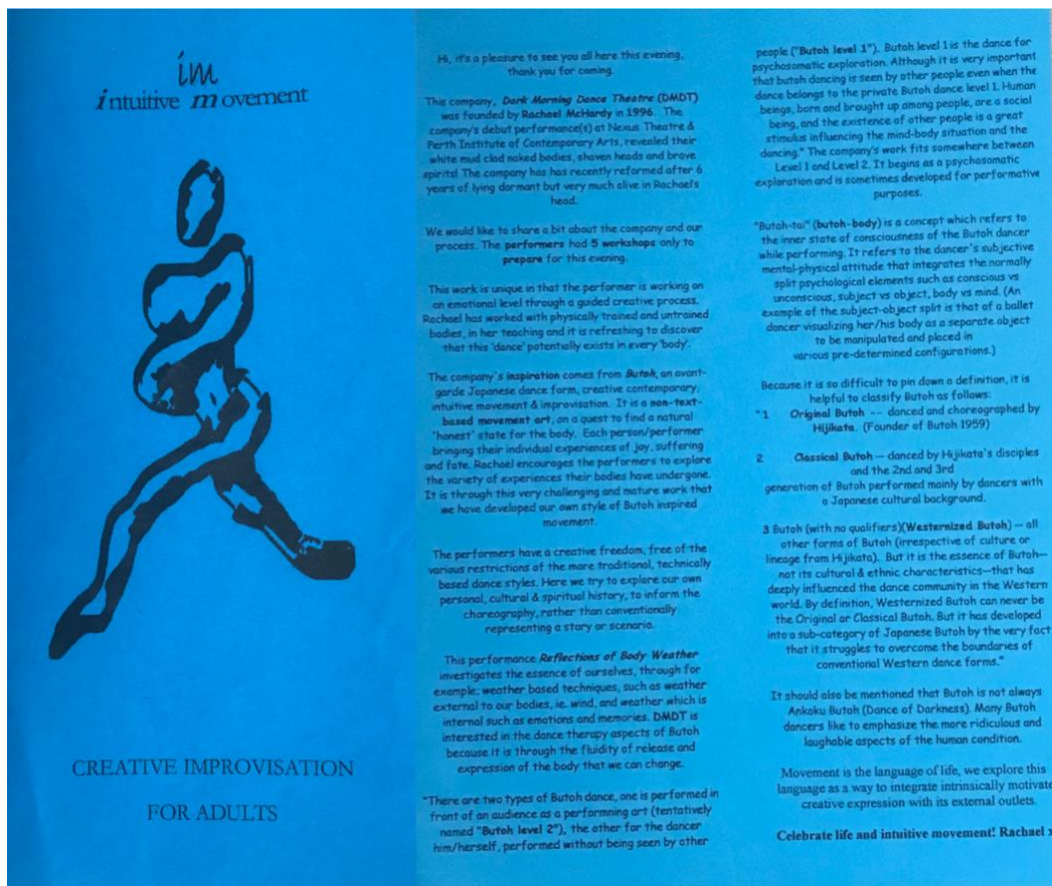
Yes I coined the term "medical improv." My first publication of the term was in 2011 (years before I met Belinda) so the citation there would be to that article - Watson, K. "Serious Play: Teaching Medical Skills With Improvisational Theater Techniques." *Academic Medicine*. 2011;86(10):1260-65.

Feel free to send me your written product when you're done! Good luck.

Best, Katie

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Appendix B



im
intuitive movement

Hi, it's a pleasure to see you all here this evening,
thank you for coming.

This company, *Dark Morning Dance Theatre* (DMDT) was founded by Rachael McHardy in 1996. The company's debut performance(s) at Nexus Theatre & Perth Institute of Contemporary Arts, revealed their white mud clad naked bodies, shaven heads and brave spirit! The company has recently reformed after 6 years of lying dormant but very much alive in Rachael's head.

We would like to share a bit about the company and our process. The performers had 5 workshops only to prepare for this evening.

This work is unique in that the performer is working on an emotional level through a guided creative process. Rachael has worked with physically trained and untrained bodies, in her teaching and it is refreshing to discover that this 'dance' potentially exists in every 'body'.

The company's inspiration comes from *Butoh*, an avant-garde Japanese dance form, creative contemporary, intuitive movement & improvisation. It is a non-text-based movement art, on a quest to find a natural 'honest' state for the body. Each person/performer bringing their individual experiences of joy, suffering and fate. Rachael encourages the performers to explore the variety of experiences their bodies have undergone. It is through this very challenging and mature work that we have developed our own style of Butoh inspired movement.

The performers have a creative freedom, free of the various restrictions of the more traditional, technically based dance styles. Here we try to explore our own personal, cultural & spiritual history, to inform the choreography, rather than conventionally representing a story or scenario.

This performance *Reflections of Body Weather* investigates the essence of ourselves, through for example, weather based techniques, such as weather external to our bodies, ie. wind, and weather which is internal such as emotions and memories. DMDT is interested in the dance therapy aspects of Butoh because it is through the fluidity of release and expression of the body that we can change.

There are two types of Butoh dance, one is performed in front of an audience as a performing art (tentatively named "Butoh level 2"), the other for the dancer him/herself, performed without being seen by other people ("Butoh level 1"). Butoh level 1 is the dance for psychosomatic exploration. Although it is very important that Butoh dancing is seen by other people even when the dance belongs to the private Butoh dance level 1, Human beings, born and brought up among people, are a social being, and the existence of other people is a great stimulus influencing the mind-body situation and the dancing.* The company's work fits somewhere between Level 1 and Level 2. It begins as a psychosomatic exploration and is sometimes developed for performative purposes.

"Butoh-ta" (butoh-body) is a concept which refers to the inner state of consciousness of the Butoh dancer while performing. It refers to the dancer's subjective mental-physical attitude that integrates the normally split psychological elements such as conscious vs unconscious, subject vs object, body vs mind. (An example of the subject-object split is that of a ballet dancer visualizing her/his body as a separate object to be manipulated and placed in various pre-determined configurations.)

Because it is so difficult to pin down a definition, it is helpful to classify Butoh as follows:

- 1 Original Butoh -- danced and choreographed by Hijikata. (Founder of Butoh 1959)
- 2 Classical Butoh -- danced by Hijikata's disciples and the 2nd and 3rd generation of Butoh performed mainly by dancers with a Japanese cultural background.
- 3 Butoh (with no qualifiers)(Westernized Butoh) -- all other forms of Butoh (irrespective of culture or lineage from Hijikata). But it is the essence of Butoh-- not its cultural & ethnic characteristics--that has deeply influenced the dance community in the Western world. By definition, Westernized Butoh can never be the Original or Classical Butoh. But it has developed into a sub-category of Japanese Butoh by the very fact that it struggles to overcome the boundaries of conventional Western dance forms."

It should also be mentioned that Butoh is not always Anaku Butoh (Dance of Darkness). Many Butoh dancers like to emphasize the more ridiculous and laughable aspects of the human condition.

Movement is the language of life, we explore this language as a way to integrate intrinsically motivate creative expression with its external outlets.

Celebrate life and intuitive movement! Rachael x

CREATIVE IMPROVISATION
FOR ADULTS