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An Interdisciplinary Investigation of Wellness among Collegiate Dancers: Exploring the Intersections of Fascia, Sense Perception, Nature Imagery, and Body Image

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An Interdisciplinary Investigation of Wellness among Collegiate Dancers: Exploring the  
Intersections of Fascia, Sense Perception, Nature Imagery, and Body Image

THESIS

Submitted in partial satisfaction of the requirements  
for the degree of

MASTER OF FINE ARTS

in Dance

by

Whitney Schmanski

Thesis Committee:  
Assistant Professor Kelli Sharp, Chair  
Assistant Professor Charlotte Griffin  
Associate Professor Chad Michael Hall

2022



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## **ABSTRACT OF THESIS**

An Interdisciplinary Investigation of Wellness among Collegiate Dancers: Exploring the Intersections of Fascia, Sense Perception, Nature Imagery, and Body Image

by

Whitney Schmanski

Master of Fine Arts in Dance

University of California, Irvine, 2022

Assistant Professor Kelli Sharp, Chair

This study explored a multimodal experiential workshop series that focused on enhancing positive body image in collegiate dancers. The purpose of the workshop was to introduce basic components of the fascial and somatosensory systems integral to movement and to demonstrate the unique intersection of multimodal imagery, movement, self-touch, self-myofascial release (SMFR), and experiential learning. Body image is an important construct for dancers as it influences a dancer's performance and general wellbeing. The workshop intended to provide an opportunity for enhanced attunement with the mind-body connection and an appreciative framework for the body's complex functionality. The intersections of positive body image, multimodal approaches to learning, the fascial system, the somatosensory system, and the general theme of networks as it relates to the body and nature served as the foundational pillars of the workshop series. The series included four sixty-minute sessions over a three-week period and used the modalities of imagery, self-touch, movement exploration, and SMFR techniques. The outcome measurements used were the Body Appreciation Scale-2 (BAS-2), the

Functionality Appreciation Scale (FAS), an Entry and Exit Survey developed by the lead researcher measuring state perceived level of connectedness, and verbal responses by participants. Aligned with the hypothesis of the study, positive body image increased among the sample group of four participants. The mean scores for the BAS-2 and FAS increased from 42.5 to 46.75 and 28.75 to 33.5 after the intervention, respectively. The Entry and Exit Survey scores consistently increased during the workshops and revealed a relationship between the engagement of participants and the different modalities used. Participants consistently reported that the workshops helped them incorporate more of an internal sensibility into their dance technique classes. This study provides a framework for integrating scientific concepts into multimodal learning designs for dancers. The intersection of anatomical structural awareness, mindful movement, and body image is an emerging field of study. This preliminary investigation provides a scaffold for future contributions to enhance the overall wellness within the field of dance. The lead researcher suggests further studies applying the framework of this study to larger sample sizes with stricter controls, which will allow for additional inferences to be drawn.

# INTRODUCTION

## Overview

This thesis presents the pedagogical development and implementation of an experiential educational workshop series for collegiate dancers in a pre-professional program. The workshop introduced interdisciplinary domains of the fascial and sensory networks of the human body as well as the important contributions they have in executing dance movement and addressing overall wellbeing. The key pillars addressed in this study include body image, the fascial system, the somatosensory system, exposure to nature imagery, and multimodal approaches to learning. Combining scientific and somatic approaches in teaching have been found to be accessible and applicable to a dancer's training through the engagement of their curiosity and agency within the art form. Additionally, the integration of multimodal experiential approaches have been found to nurture a dancer's understanding of their body and contributes to both the augmentation of an individual's performance and self-awareness (Geber, 2010).

The goal of the workshop series was to provide an appreciative framework for the body's complex functionality, offer a set a tools for collegiate dancers to attune to different levels of awareness of their bodies through embodiment-based approaches, and incorporate self-care modalities to aid in the physically and mentally demanding aspects of collegiate dance. Functional and aesthetic body idealism in Western dance training can negatively influence the body image of a dancer, which greatly affects their performance as they rely on their bodies to execute their artistic expressions. The main learning aim of this study was to explore ways to communicate and incorporate scientific information about the body to collegiate dancers and to translate that information into embodied and mindful movement practices. There is no one pedagogical approach that resonates with every student, and therefore the lead researcher

conveyed the subject matter content through multiple modalities to offer different entry points for understanding and embodying the concepts introduced. The working hypothesis was that introducing scientific concepts in a multimodal format would increase participants' body appreciation and perceived level of connectedness over the course of the workshop series.

The thesis research process proceeded in four steps, which also guided the organization of this document: 1) conduct background research on the main subject matter; 2) design, conduct, and analyze the workshop series incorporating the findings from the scholarly literature; 3) organize an experimental installation-based performance portraying the main concepts and interpretations of the project's themes; and 4) discuss the workshop's findings.

Section One of this thesis, "Background Research," provides essential information from scholarly literature on four main components: 1) body image, 2) multimodal approaches to learning, 3) the fascial system, and 4) the somatosensory system. These four main components are important in relation to the hypothesis of enhancing wellbeing due to the interdisciplinary relations. The background research also discusses topics from the lead researcher's personal experience with collegiate dance training and professional experience in the field of dance. Chapter One defines body image and discusses factors that contribute to body image of current collegiate dancers. It also discusses the aspects of positive body image, body appreciation, and body functionality appreciation that were incorporated into the workshop study. Chapter Two discusses the multimodal approaches to pedagogy that were implemented into the research methods and design of the workshop series. Chapters Three and Four introduce the fascial and somatosensory systems, their importance to executing dance movement, and the relevant themes that were incorporated into the workshop content.

Section Two, “Workshop Implementation,” includes an outline of the design and methods of the workshop series as well as the results of the outcome measures. Section Three, “Creative Body of Work,” provides an overview of the creative process and elements incorporated into the experimental installation-performance, which was based on the main themes of the research. Section Four, “Discussion and Conclusion,” provides an overview of the study’s findings and discusses the limitations of the study’s methodologies.



# CHAPTER ONE

## DANCE AND BODY IMAGE

Dance relies on the body's functions and appearance for artistic expression and, especially when training at a collegiate level, involves intense physical and mental demands that can greatly influence one's body image. There has been an increase in scholarly interest on the intersection of dance and body image, in which it has been found that dance can influence body image both positively and negatively (Langdon & Petracca, 2010). Body image research involves the evaluation of how individuals experience living in their bodies and the affiliations that has to their overall well-being. The construct of body image is multifaceted and involves the perceptions and behaviors that influence aspects of well-being such as self-esteem, socialization, self-compassion, and the overall experience of embodiment (Alleva, 2015). In the intersection of body image and dance research, the literature largely accounts for found negatively attributing factors of professional and collegiate dance training programs and environments. The negative components primarily emerge from an appearance related focus and merge into topics such as body shaming, disordered eating, and self-objectification. In its exploration of body image, this thesis takes into consideration aspects of dance training that can contribute to negative body image. The thesis further explores approaches, in the form of an experiential anatomical, scientific, and imagery-based workshop, to enhance body appreciation that can contribute to an overall more positive body image in dancers.

This body of work explores educational approaches to augment body appreciation in collegiate level dancers and is aimed to contribute to the literature in the fields of both dance and body image research. In this chapter, body image is first defined and followed by a discussion concentrating on negative factors of body idealism and training environments in dance; the

chapter concludes with a discussion of positive factors of dance on body image. The creation of the thesis workshop was largely inspired by the facets of body image in collegiate dancers discussed in this chapter.

### **Positive and Negative Body Image Defined**

The body image construct is a continuum that is often perceived with the polarizing terms of positive and negative body image. While there is an emerging discussion in the literature about a broader spectrum use of terms of body image (e.g. neutral body image), this chapter utilizes the terms positive and negative body image to better understand the influencing factors of body image of those training in dance and uses the terms of positive and negative for simplification and clarity.

Body image and psychological research has primarily focused on the construct of negative body image, defined as a “persistent report of dissatisfaction, concern, and distress that is related to an aspect of physical appearance” (Piran & Tylka, 2019). This definition of body image mainly focuses on the negative impacts of an individual’s well-being and refers only to physical appearance, though negative body image can also result from aspects of bodily function and not solely appearance. Positive body image terminology is defined in reaction to negative body image perspectives with the research increasing over the last fifteen years and offering new perceptions of how “individuals can positively inhabit their bodies as they engage with the world” (Piran & Tylka, 2019). The focus of positive body image extends beyond “appearance-related concerns, distress, and dissatisfaction” by tying in many well-being attributes such as self-compassion, appreciation for one’s bodily function, and attunement to the perceived quality of inhabiting the body (Piran & Tylka, 2019). For this body of work, positive body image is defined as,

“an overarching love and respect for the body that allows individuals to (a) appreciate the unique beauty of their body and the functions that it performs for them; (b) accept and even admire their body, including those aspects that are inconsistent with idealized images; (c) feel beautiful, comfortable, confident, and happy with their body, which is often reflected as an outer radiance, or a “glow;” (d) emphasize their body’s assets rather than dwell on their imperfections; (e) have a mindful connection with their body’s needs; and (f) interpret incoming information in a body-protective manner whereby most positive information is internalized and most negative information is rejected or reframed” (Nichole L. Wod-Barcalow, 2010).

This definition provides multiple perspectives for evaluating how one feels in their body, the recognition of one’s mental processes, and how they relate to their environment. The outlined components in this definition are pertinent to dancers as they must navigate external and internal pressures of training in dance that directly relate to their body function and appearance. It is also essential for dancers to develop a mindful connection to be able to discern and attend to their own needs in both pursuit of and maintaining well-being. For dancers, building both a physical and mental resilience is important to feeling and finding both comfort and confidence in their appearance and performance outputs even on non-optimal performance days.

The definition of positive body image exemplifies that there are multiple factors, a more holistic point of view, that contribute to the development of body image. This thesis predominantly focuses on the aspects of body appreciation and body functionality appreciation and their contributions to positively affecting body image. In the development of the thesis, workshop methods aimed to enhance body appreciation in a dancer are explored. To further elucidate why cultivating a more positive body image is desired, this chapter will continue into

the discussion of two focal points: 1) body idealism and 2) training environments that can influence negative body image within western dance training. After describing both functional and aesthetic ideals in dance training culture, traditional environmental aspects of the dance studio and the extended environment of social media prevalence within dance culture are discussed. The chapter concludes with highlighting the positive aspects of dance training on body image.

## **Negative Body Image Influences in Western Dance Training**

### ***Body Idealism***

Body idealism is embedded throughout dance style training and exists in the forms of idealistic constructs such as, but is not limited to, body shape, function, endurance, and expectation of consistent improvement. An "ideal" body image is "a phrase used to refer to the body size determined by one's cultural group to epitomize beauty and/or success in achievement of the optimum physical state as defined by that group" (Martin, 2010). In this thesis, the primary referred population of dancers are undergraduate collegiate dancers of conservatory-based training programs. In conservatory-based western dance training programs, western dance techniques such as ballet, modern, and jazz dance are often the primary focus in the curriculum and these techniques often hold specificities in defining both functional and aesthetic success within idealistic constructs.

Enrolling as a dance major in a collegiate and/or conservatory setting requires the commitment to attain and improve upon skills such as flexibility, strength, coordination, musicality, and artistic commitment consistently. These standards may or may not be outlined in course curricula, however, are prevalent in dance culture. The expectation of improvement

instills pressure in individuals both externally from professors or choreographers and internally from the high-achieving individuals themselves. A “standard”, for example, may be the expected ability to finish a full technique class that includes high endurance jumping sequences with a tired body, being able to learn detailed choreographic movement phrases quickly, or to execute and improve on a specific dance step within the few minutes that the teacher is providing constructive feedback. There are a multitude of executional ideals that a dancer may be striving for during a day of training and because of this, high achieving dancers may still experience feelings of inadequacy. Body dissatisfaction levels can arise when one’s personal body image perception is not in alignment with perceived ideals and can be a precursor for negative self-perception or self-worth (Martin, 2010). In addition to specific standards within a certain dance technique, college and university dance programs often hold the philosophy of generating versatile and nuanced dancers that “should be prepared to perform many types of dance” (*UCI Dance, Our Philosophy*, 2020). Within different dance techniques, there are diverse functional skills and ideals which differ from one technique to another. An individual may be more comfortable and skilled in one dance style and may experience discouragement when attempting to improve in a more unfamiliar style. Dancers will also commonly experience days of fatigue and non-optimal performance which can be challenging to navigate without a perspective and practice of self-compassion and self-care.

In addition to the expectation of improvement in multiple dance styles, dance techniques such as ballet and modern also have long withstanding embedded aesthetic ideals, both in body shape and the qualitative approach to movement. The idealistic aesthetics found in western dance are represented throughout the history of the style or technique, in professional dance companies, and throughout social networking media. The represented western dance aesthetic “ideal” is most

often a thin, athletic, and coordinated body that is versatile and can execute nuanced choreography. Though there is a cultural campaign within the broader dance community regarding representation of different body types and abilities, having a focus on supportive pedagogical language, and having more open conversations regarding dancers and body image, idealistic body types, abilities, and movement qualities remain prevalent even if they are unspoken. Professional dance companies often have specific aesthetics that they look for when hiring dancers and therefore, this is a further mold that a dancer may strive to fit into. There are often specific qualitative approaches that a director or choreographer is looking for that may not be in alignment with how the dancer innately wishes to approach the movement, however they may adapt for the purpose of acceptance. These idealistic constructs of function and aesthetic in western dance training are prevalent within the culture and the training environments themselves can augment the resonances of these ideals.

### ***Training Environments***

Dance training culture is highly characterized by the training environments and how those environments fit within the larger industry. The customary training environment of collegiate-level dancers are specified sprung-floor dance studios with mirrors, excluded from nature, and extends now to the digital world where there is a heavy use of social networking sites amongst collegiate and professional dancer populations.

**The Dance Studio.** Regarding the dance studio, two main contributing factors that can influence body image are discussed: the use of mirrors and the exclusion from natural environments.

The traditional mirrored dance studio is used to support individuals in learning movement and evaluating their own body movement within the dance form. Mirrors are used for teaching purposes but can influence body image through a heightened awareness of self and others (Radell et al., 2011). The amount of time dancers spend in front of a mirror is anomalous compared to most populations and can result in persistent hypercritical self-talk from the continuous analysis of the body. With the pressure to execute the standards and ideals previously mentioned, self-judgment, body-shaming, and functional dissatisfaction can be accentuated by using mirrors. The literature entails that the objective self-awareness can be accentuated by mirrors and can “contribute to the development of negative body image” (Radell et al., 2011). The mirror may also influence sense perception of dancers through a primary reliance on visual stimulus for feedback, versus attuning to differing sensations of the body including kinesthetic and internal sensory feedback loops that are discussed in chapter four. In the thesis workshop, participants are introduced to sense perception concepts that can help facilitate attunement with differing bodily perceptions rather than relying on a visual fixation with mirrors.

An important factor to the development of the thesis workshop is that while dance studios provide an intended safe atmosphere for training, they are usually removed from nature. Dancers may spend upwards of six-ten hours a day within an enclosed studio, sometimes with little sunlight. In recent studies regarding body image and nature exposure, it has been found that “nature exposure may help individuals to distance themselves physically and mentally from contexts that are heavily appearance-focused, facilitate holistic self-care attitudes, and direct attention toward greater appreciation of the body’s functions rather than appearance” (Swami et al., 2020). The research indicates that there are direct correlations between nature exposure and body appreciation by way of an increased mindful awareness. In the workshop, the observation

of nature is further used as a framework to engage dancers with the natural world outside of the walls of a mirrored dance studio. The direct observance and use of nature imagery is also used as a scaffold of the workshop to increase both external and internal environmental awareness when participants are outside of the studio. With an increase of mindfulness, dancers may be able to facilitate a healthier relation to their body, especially with the amount of time commonly spent in the dance studio.

**Social Networking Sites.** In addition to the physical environments of dance training, the digital environment and use of social networking sites (SNSs) have a considerable influence on current dance culture. The digital environment of SNS has allowed dancers constant access to content that current dance professionals and students post and that are immediately accessible around the world. The expansive use of SNS such as Instagram and TikTok extends the potential for a dancer to be exposed to idealized images and videos that can invite social comparison into “every part of one’s daily life” (Schmuck, 2019). General research dedicated to the “consequences of SNS use on people’s self-perceptions and well-being” has shown both positive and negative correlations (Schmuck, 2019). The main negative components are attributed to upward social comparison in which individuals compare themselves to the images and videos that are presented and perceive others as superior. Although communication on SNS can promote the feeling of being connected to a wider community, “a lack of acknowledgment for successes (in terms of likes) can just as easily deflate confidence and self-esteem” (Piran & Tylka, 2019). In addition to the social nature of SNS, idealistic constructs of dance are highly represented, especially as the professional dance industry continues to increasingly rely on SNS such as Instagram, for large scale communication, marketing, and hiring practices. A dancer’s presence on SNS is commonly evaluated in professional hiring processes and this places additional



pressure on how emerging professional dancers might present themselves digitally. The development of the thesis workshop takes the potential negatively influencing factors into consideration and offers perspectives and self-care practices that may increase mindfulness and focused attention to the sense perceptions of one's body versus solely the external appearance.

### ***Dance and Positive Body Image Influence***

Despite dance's negative reputation for perpetuating idealistic body constructs and training regimens, dance training offers many opportunities for positively impacting body image. The awareness and practice of highlighting these aspects could be beneficial to the fields of dance and body image. It is commonly known and promoted that general physical exercise and movement positively impacts mood as well as physical and emotional health (Karkou et al., 2017). In addition to movement, dance offers additional layers that contribute to cultivating a strong sense of individual "physical and psychological empowerment" with elements such as developing strength, flexibility, and mind-body attunement (Piran & Tylka, 2019). Dance also offers a space for creative self-expression that can result in positive emotions and sense of connectivity to others. At a pre-professional training level, there are strong connective bonds that can result from intense training with peers that may influence self-esteem and a sense of self purpose.

Collegiate dance majors are typically enrolled in dance major programs because of their love of dancing, however, within intense training regimens, joyfulness and ease of self-expression can fluctuate as dancers navigate idealisms of the body and the overall stresses of being a college student. Practices and tools given to dancers while training at a high level are valuable as they can help support the successes of students throughout training as well as help

guide them to succeed professionally. Dance leaders can promote appreciation of the body and body functionality within the ways they direct their classes, the language they use around body type and functionality, and the acknowledgment of the uniqueness of each student. The primary aim of this thesis project was to provide avenues for body appreciation and functionality appreciation for dancers by experimenting with scientific concepts and self-care tools that the dancers could adopt into their training practices and overall livelihood.

## **Conclusion**

This chapter defined and discussed both positive and negative body image's relevance and contributing factors to the body image and performance of collegiate dancers. Overall, this study focuses on body appreciation and functionality appreciation in relation to enhancing positive body image. For the experimental pedagogical aim of enhancing positive body image, the next chapter discusses how multimodal approaches were used to translate scholarly and scientific information to the targeted population.

## CHAPTER TWO

### MULTIMODAL APPROACH

To enhance the primary aim of increasing body appreciation within dancers, this research study uses a multimodal approach. A multimodal approach allows for applying a systems and networks perspective in introducing the workshop subject matter. This chapter begins by describing the benefits of multimodal learning and further explains the advantages of a networks and systems perspective for learning and understanding the workshop subject matter. Following that, the chapter discusses three multimodal approaches and themes that are central to the workshop design 1) imagery, 2) kinesthetic exploration, and 3) verbal dialogue.

#### **Multimodal Learning**

One of the aims of the workshop was for participants to engage with foundational scientific material through a research-informed interdisciplinary setting. For the pedagogical design of the workshop, certain elements were incorporated to support multimodal learning and engagement with the delivery of visual, kinetic, and verbal modes of information and content exploration. This project's multimodal intent is inspired by the Fleming VARK learning style survey, which encourages the use of visual, aural, reading, and kinetic modes in the process of learning (Prithishkumar, 2014). However, instead of catering instruction to the specific preferred learning styles of each individual participant, this project leverages the advantages of a multimodal approach. The collegiate dancer population simultaneously relies on visual, kinetic, and verbal learning styles within learning dance techniques, and these modes were incorporated into the workshop. Using modes of instruction that were familiar to the dancers were aimed to help to increase curiosity about the topics and stimulate diverse engagements with the subject matter. Visual elements were incorporated through visual presentation slides and visual imagery,

kinetic methods were applied through movement explorations, self-touch, and self-myofascial release modalities. Verbal modes were encouraged through participant reflection and dialogue with the lead researcher. The following section elaborates on this project's multimodal approach by describing the networks and systems framework used in the workshop and further elucidates the key concepts used in the pedagogical workshop design.

### **Networks and Systems Thinking**

This research relies on networks and systems thinking to observe patterns in nature, the body, and the general notion of connectivity. Systems refer to the connections and patterns between things, and networks provide representations of those connections visually and semiotically. Systems make up the world we live in, such as social and ecological networks as well as the bodies we inhabit, including biological, physiological, and neural networks. There are varying types of network models that can represent complex relationships between things, and in education, linear representations of connections are commonly used as they are more easily understood and categorized than representations that reveal multidimensional relationships (Lesondak, p. 1). However, in this project a multidimensional approach is used because a simpler linear approach is not sufficient for exploring the complex patterns found in the fascial and somatosensory networks of the body. Further, imagery and patterns in nature are used as entry points for understanding the complexities of the systems within the body that we cannot inherently see. Images of patterns found in nature reveal themes of multiplicity, dendritic/multi-branching forms, web-like structures composed of vectors and irregular polyhedrons, and microscopic fractals that are also found within the structural make-up of the fascial and somatosensory systems of the body. One of the main learning aims of incorporating a network and systems approach is to associate the noticed patterns of nature with the complex systems of

the body. Specifically, the workshop relied on three key concepts for a multimodal approach to networks and systems thinking: 1) the use of visual and mental imagery, 2) kinesthetic exploration through structured improvisation, and 3) verbal reflection through participant dialogue.

## **Key Concepts**

### ***Imagery***

Visual imagery was used in the thesis workshop to support systematic thinking and to provide visual representations for reference in the movement explorations. The workshop used photography, diagrams, and video to simultaneously introduce imagery of nature and concepts of the body to support the understanding of the complex network connectivity of the fascial and somatosensory systems. Mental imagery was also used in the workshop to facilitate the mental stimulation of concepts. As Vicky Fisher explains, asking participants to consciously recall certain imagery helps activate the perception of experiences across differing sensory modalities (Fisher, 2017). Overall, the use of images in the workshop was aimed to address perspectives of both internal and external environments, which stimulated the physical, affective (psychological), and cognitive engagement of the participants (Fisher, 2017).

### ***Kinesthetic Exploration***

Kinesthetic explorations were used as a mode for participants to explore the physiological concepts and apply them to their own physical sensitivity. The aim of this modality was less to comprehend the material introduced and more to direct the attention of participants to their sensations in relation to learning about the fascial and somatosensory systems. The use of kinesthetics was intended to offer a space for a loosely structured improvisation, which used

physical engagement to better help dancers understand how the workshop's content could be incorporated in technical dance movement. Though improvisation did not focus specifically on dance movements taught in technique classes, the concepts were intended to be applied to those courses. Somatic exploration is common within modern dance technique courses, and the combination of imagery and kinesthetics was intended to enrich physical exploration beyond the workshop into differing dance courses.

### ***Verbal Dialogue***

Verbal discussion and articulation is a modality that is less commonly used in dance training, in which usually tends to prioritize physical expression over verbal response. The integration of verbal participation was aimed to help participants engage with the workshop's themes more clearly as well as to provide the lead researcher a measure of their engagement, curiosity, and general understanding of the concepts introduced. In addition, by sharing experiences verbally, the workshop aimed to highlight the communal aspects of dance training by collaboratively listening to one another.

### **Conclusion**

This chapter outlined the modalities used for the design of the workshop series and the implications they were intended to have. Within a networks and systems framework, the use of visual and imagery, kinesthetic exploration, and verbal dialogue were aimed to address varying learning approaches for the target population of collegiate dancers. The use of differing modalities was to also support engagement with the material as well as to promote the stimulating aspects of movement and the relations to wellbeing. The next chapter provides an overview of the concepts of fascial system that were addressed in the workshop series and the important functional and sensory aspects it contributes to movement execution.

## CHAPTER THREE

### THE FASCIAL SYSTEM

The main points of this chapter are to discuss the unique anatomy and architecture of the fascial system, its evolution of research, and elucidation of the topics introduced in the workshop series. The accepted definitions of what constitutes human fascia (connective tissue) and the fascial system is ever evolving as technological advances help researchers identify aspects of the tissue and how it works as a system. The point of view in terms of anatomy has shifted from not recognizing the fascial system as an anatomical entity to it now being recognized as an important system that contributes a large role in both movement efficiency and sense perception. The research has provided new insight on how the fascial system is vital in relation to other systems of the body such as the nervous system and the musculoskeletal system. The growing awareness of fascia and fascia research has made it a prevalent topic in somatic practices and the fitness world. An overall hope is that this enthusiasm can extend further into dance technique training as the fascial system plays a large role in facilitating movement and sense perception in a dancer.

In this chapter, the following will be discussed: 1) Defining Functional Anatomy, 2) Defining Fascia, 3) Fascia and Technology, Key Concepts: 4) *Biotensegrity*, 5) *Fascia and Dance Movement*, and 6) *Overview of Self-Myofascial Release*. First provided are definitions of functional anatomy and fascia as they provide the frame of which this body of work is inspired by as well as how technological advances further support the definitions presented. Further, the key concepts of *biotensegrity*, *fascia and dance movement*, and *an overview of self- myofascial release* are components that are utilized in the thesis workshop.

## Functional Anatomy Defined

Anatomy is defined as “the evolving study of the body’s physical structure” (Schleip, 2022). In order for anatomists to study and comprehend the structure of the complex human body, they commonly subdivide it into sections, known as dissection (Schleip, 2022). The practice of systematically dividing is common in anatomical education, however, the literature indicates that there is an increase of researchers and educators that are approaching anatomical studies more holistically and systematically. Functional anatomy, the study of anatomy and its relation to bodily function, is a perspective that is accredited to the rise of fascia research. Before presenting a precise definition of fascia, this chapter discusses the historical importance of functional anatomy and its role in fascia research.

Throughout human anatomical literature, major anatomical atlases have described organs and muscles in detail, but “(the fasciae) are generally left to the imagination of the readers” (Stecco & Hammer, 2015). This has been primarily due to fascia being seen as merely an “opaque covering” to be removed to study more closely what is underneath: the muscles, joints, and organs (Stecco & Hammer, 2015). The routine of removing and discarding the fascia left it to be “conceptually ignored by medical educators, researchers, and writers” (Schleip, 2022). In the *Functional Atlas of the Human Fascial System*, importance is given to looking at how the systems of the body function together and that “understanding the fascial system, its composition, form and function, permits a more precise understanding of anatomy” (Stecco & Hammer, 2015). To further the notion of functional anatomy, “unlike standard topographic anatomy, functional anatomy should present the necessary information to incorporate the interrelationships between muscle, its internal fascial skeleton and the surrounding external fascial network into which it is integrated” (Stecco & Hammer, 2015). This type of holistic and



systematic thinking is newer within the historical timeline of fascial research and can be likened to evolutions in different fields of research. An example of a comparable research evolution is with outer space research:

“In the not so distant past, the world of fascia was, for the better part, neglected. If musculoskeletal research was comparable to moon exploration, then fascia research was not dissimilar to exploring the rest of the universe. Perhaps too focused on the moon, our predecessors failed to realize the importance of the poorly understood universe of this matrix expanding and connecting every cell in the human body” (Schleip, 2022).

This analogy to space exploration describes the immense amount of uncharted territory that is yet to be discovered of the internal “universe” of the body and that the scientific understanding of fascia may be a key component in revealing the interconnectivity of the systems of the body with emerging theories and discoveries.

### **Fascia Defined**

There are two main perspectives in defining fascia, one that describes fascia more locally, and the other, more globally. In 2015, The International Federation of Associations of Anatomists (IFAA) determined the definition of fascia for the *Terminologia Anatomica* as “a sheath, a sheet, or any number of other dissectible aggregations of connective tissue that forms beneath the skin to attach, enclose, and separate muscles and other internal organs” (David Lesondak, 2021). This definition primarily focuses on the local separational aspects of fascial tissue and its importance merely in relation to other structures such as the muscles and organs of the body. Looking more globally, the frame of reference for this body of work is the definition from “Defining the Fascial System”:

“The fascial system consists of the three-dimensional continuum of soft, collagen-

containing, loose and dense fibrous connective tissues that permeate the body... (the fascial system) interpenetrates and surrounds all organs, muscles, bones and nerve fibers, endowing the body with a functional structure, and providing an environment that enables all body systems to operate in an integrated manner” (Sue Adstrum, 2017).

This multimodal definition exemplifies the fascia functionally both as a fibrous tissue and as a system relating to other body systems. These types of definitions are described as “legitimate and potentially of value—especially as they segue into different, and sometimes dissimilar, downstream assumptions about fascia’s material properties, physiological roles in the body, involvement in mechanisms of injury and pathology, and relative clinical prominence” (Schleip, 2022). By incorporating a more functional and systemic perspective in researching fascia, there is further possibility of revealing connections to other prominent body systems that might not have been originally assumed with a mere topographical approach to anatomy. In this body of work, the “three-dimensional continuum” described in the definition is also referred to by terms such as “fascial network”, “fascial web”, and “fascial net” which relate to the network and systems thinking approach of this study (David Lesondak, 2021). The perspectives of fascia outlined have been aided by advancements in technology that support hypotheses such as the microscopic make-up, topographical fascia continuity, and fascia’s relations to other systems.

### **Fascia and Technology**

Technology has revealed new perspectives in the research of fascial tissue and the fascial system and in this section, two examples will be discussed. The first example provides viewpoints from the levels of microscopic, defined as “too small to be seen by the naked eye but large enough to be observed under a standard microscope”, and mesoscopic, defined as

“observable using the naked eye but requiring magnifications for better definition” (Guimberteau & Armstrong, 2015). The second example provides a macroscopic viewpoint of fascia, defined as that “it can be seen with the naked eye”, with the construction of a fascia-focused plastinate model of the human body.

Due to the accessibility of powerful microscopes, researchers such as Jean Claude Guimberteau have been able to look at different types of fascial tissue microscopically such as intra-tissular endoscopic videophotography of living tissue (see Appendix A) (Guimberteau, 2014; Guimberteau & Armstrong, 2015). This is a groundbreaking practice as most images of fascia prior have been of non-living tissue. The research of living tissue, in vivo, reveals new insights on tissue: continuity, mobility and adaptability, and architecture. Captured footage shows moving living tissue and determines that there is “a real entwining and interweaving of opalescent fibers” that “create links of total continuity”, revealing how the tissue is both structured and how it behaves. Further, Guimberteau’s book titled *Architecture of Human Living Fascia* presents discoveries such as web-like patterns with the irregular polyhedral nature of the fascial network and the spatial arrangement of the tissue that create a tensegrity [described below in *Biotensegrity*] structure. The microscopic research reveals a “new model of the structural framework of the human body and the basic architecture of living matter” (Guimberteau & Armstrong, 2015). The investigative practices such as endoscopic videophotography, captured with the aid of microscopes, provide an entry point into a microscopic understanding of the complex nature of the fascial system.

Providing a macroscopic view, The Fascial Net Plastination Project presented a three-dimensional fascial-focused representation of a human body in 2021. The model is a plastinate of non-living tissue with the given name FR:EIA and is on permanent exhibition at the BODY

WORLDS Museum in Berlin (see Appendix A) (*Fascia Research Society*, 2021). The complex project took three years to complete and is groundbreaking as there has been little representation of fascia or fascia focused anatomy in plastinate exhibits prior to FR:EIA (*Fascia Research Society*, 2021). The plastinate process involved creating a prototype to prove that the delicate tissue could be dissected and preserved properly for a more complete model. The FR:EIA model is not solely fascia, but includes, as pertaining to a functional anatomy approach, muscle and bone that the fascia is interrelated to. The research team decided to present a whole-body model, as opposed to separated sections of the body, to also show how important the fascial system is to the holistic human structural form.

The microscopic perspectives and the full body model of fascia, along with other discoveries supported by technology, are relevant to the creation of the thesis workshop as their insights and imagery are implemented and referenced.

### **Key Concepts**

For the creation of the thesis workshop, a few key principles were included and are elaborated on in this section: biotensegrity, fascia and dance movement, and an overview of self-myofascial release.

#### ***Biotensegrity***

The term tensegrity is often used as an analogy in describing and portraying how the complex nature of the fascial system and musculoskeletal system work together to form “a net of continuous tension” in the human body (Guimberteau & Armstrong, 2015). The designer, inventor, author, and systems theorist R. Buckminster Fuller coined the term tensegrity and is most notably known for the creation of the geodesic dome, a tensegrity structure (David Lesondak, 2021). The definition Fuller gave tensegrity is “any structure that employs contiguous tension members and

discontinuous compression members in a such a way that each member operates with maximum efficiency and economy” (David Lesondak, 2021). The key concepts Fuller outlined are that each part of a tensegrity structure is either under tension or compression and that each part is therefore dependent on all the other parts surrounding it to create force efficiency. The definition of biotensegrity, introduced by Dr. Stephen Levin, is “the application of tensegrity to biological organisms” (Guimberteau & Armstrong, 2015). Due to the fact that the body is not made up of the same materials as tensegrity models, the tensegrity model is merely an entry point in understanding the complexities of whole-body connectivity. There are many tensegrity models used in fascia education that can show how if one part of the structure moves, it affects the whole model. In fascial research, the literature reveals that the concept of biotensegrity applies to microscopic perspectives, at the cellular level, and macroscopic perspectives, with the functional connections between the fascial and musculoskeletal systems.

### ***Fascia and Dance Movement***

There is a highly nuanced and a reciprocal relationship between fascia and dance training; this section discusses the general benefits of dance movement and fascial adaptation. The fascial system benefits greatly from dance movement due to the multi-directional movement, range of motion, dynamics, internal awareness, and spatial awareness required in differing dance styles (Simmel, 2015). Dance challenges the fascial network in that, “dance offers a large repertoire of exercises to maintain and train the strength, elasticity, and shearing ability of the fascial tissue” (Simmel, 2015). When the body is put under the demands of movement strain, it “reacts to the loading patterns by remodeling the architecture of its collagenous fiber network, resulting in a change in length, strength, elasticity and an increasing ability to withstand shearing forces” as well as an “increase general myo-fascial mobility”

(Simmel, 2015). The beneficial components are addressed through muscle engagement which causes a shearing of the fascial tissue, an increase of elastic storage and recoil dynamics through movements such as bouncing or jumping, and challenges to proprioception by way of moving through space with coordination and in relation to other dancers. The complexity of dance offers a foundation for further scientific studies looking at a dancer's body expertise and how that research may help "to deepen the understanding of fascial structures and their 'trainability'" (Simmel, 2015). The human body adapts to movement and the more one trains, the greater the capacity there is for changes in the tissue. However, in addition to fascial adaptation, when training frequently, fascial tissue can endure inflammation, adhesions, and shortening of the tissue which can result in a decrease in muscular strength and endurance, an increase of pain, and non-optimal biomechanical performance. If not addressed, these elements can increase susceptibility to injury and changes to sensory input. The following section addresses an overview of self-myofascial release techniques to provide self-care and maintenance of the fascial network.

### ***Overview of Self-Myofascial Release***

Self-myofascial release (SMFR) techniques are techniques that are designed to provide relief to the body and stimulate the fascial tissue. Myo-fascia refers to the musculoskeletal fascia that envelopes muscles. A review on the growing scientific literature and studies of SMFR revealed that the research, with the inclusion of other fascia-related therapy modalities, are to be further researched for evidence-based results as well as a renaming of the term "release." The techniques can be administered through self-massage and can also be aided with tools that act as a stress transfer medium such as foam rollers or balls. Though additional evidence-based

information on the effects of SMFR is needed, there are clear positive outcomes from the stimulation of the tissue. In an experimental study on myofascial release at the cellular level, it was observed that fascial release modalities of compression and stretch promoted cellular movement towards “better health and vitality” (David Lesondak, 2021). Through compression, SMFR promotes blood and lymphatic flow and can provide relief of muscle soreness and fascial adhesions that are also referred to as trigger points (TrPs). The techniques, including foam rolling, can also decrease pain sensitivity, lower anxiety levels, decrease muscle fatigue, and stimulate proprioception as well as the parasympathetic nervous system.

In dance training and professional environments, it is common to observe dancers using fascia-related release modalities by administering self-touch and self-massage as well as using various types of rollers and balls. These modalities may have been learned and adapted into a dancer’s self-care routine introduced to them from observing other dancers or teachers within the culture of dance training or through the recommendation of a medical professional. For the thesis workshop, The MELT Method is used as it provides foam rolling sequence modalities (Hitzmann, 2013). In the following chapter, the effects of SMFR are further discussed in relation to the sensory aspects of the human body.

## **Conclusion**

This chapter defined and discussed the fascial system, including key concepts incorporated in the pedagogical design of the workshop series. Within a viewpoint of functional anatomy, fascia was highlighted as a large component of the structural integrity of the body and a host for movement. By being introduced to the complex nature and concepts of the fascial system, one may possibly enhance their appreciation for the system that body heavily relies on. The addition of self-care practices in relation to the fascial system also promote wellbeing due to

the mindful nature of such practices and the hypothesized physiological responses of the body. The following chapter defines and outlines the basic components of the peripheral nervous system and the relations, coupled with the fascial system, to the execution of movement and the contributions to overall wellbeing.



## **CHAPTER FOUR**

### **THE SOMATOSENSORY SYSTEM**

The somatosensory system is the “body sense” of the human nervous system and is the “touch” category of sense perception. The sophisticated system includes a network of neural structures that connect the body and brain by way of receiving and processing sensory input from the internal environment of the body as well as the external environment, both of which are constantly shifting (Soderquist, 2002). Dancers rely greatly on the somatosensory system to be able to accomplish complex movement, to have enhanced spatial awareness, and to be able to listen to their internal bodily sensory feedback and instincts for self-care practices.

Understanding the basic physiology and anatomy of fascia and the sensory system can have implications for improving proprioceptive and interoceptive awareness for dancers which can result in greater innate trust of the body for artistic expression.

The premise for including both the fascial and somatosensory system topics in the thesis workshop are to introduce their complex relational purposes that support both everyday body functioning and dance movement. To remain in the scope of the somatosensorial relations to dance movement, certain aspects of the somatosensory system and processes are purposefully left out (e.g., types and classifications of mechanoreceptors, elaboration of nociception) while others are highlighted (e.g., exteroception, proprioception, interoception) to focus on the general significances of the somatosensory sensory system and the fascial system with dance movement and self-care practices. The purpose of this chapter is to 1) provide a foundational physiological understanding of the somatosensory system, 2) to briefly elaborate differing sense perceptions that dancers can attune to, and 3) to introduce the roles that the fascial system contributes to

sense perception. The chapter concludes with a brief discussion of fascia and sense perception within dance training.

### **Basic Somatosensory Physiology**

The nervous system is a complex sensory network that incorporates many neural structures. The somatosensory aspects of the nervous system have specific structural pathways that transmit information from sense receptors, embedded on and beneath skin, to the brain via the pathways of the peripheral nervous system (PNS) and the central nervous system (CNS). The somatosensory pathways provide a feedback loop of touch stimuli into sensation which provides information for bodily perception, sensation, and motion (Lesondak, 2017). Sensory receptors are one of the main aspects of sense perception and respond to different stimuli such as temperature sense (thermoreceptors), pain perception (nociceptors), and mechanical stimulation (mechanoreceptors) that respond to pressure, vibration, and movement. Unlike other sense perceptions that have a single sense organ (e.g. smell, vision, and hearing), somatosensory information is multisensory and relies on the stimulation of receptors throughout the body including in the skin, joints, muscles, tendons, and ligaments (Soderquist, 2002; Wolfe, 2009). There are multiple somatosensory “nerve trunks” that extend into the limbs of the body, and when the receptors are stimulated, they send signals through the spinal cord to the somatosensory cortex of the brain (Soderquist, 2002). The feedback loop is made of two neuronal channels that carry sensory information throughout the body. Afferent neurons carry sensory information, called sensory neurons, to the brain and efferent neurons carry motor information, called motor neurons, from the brain to the peripheral nervous system to execute movement responses to stimuli. Understanding the basic network and feedback loop structure of the somatosensory

system sets the foundation for attuning to what in the workshop calls “lenses of perception,” which include exteroception, proprioception, and interoception.

## **Key Concepts**

### ***Proprioception***

Proprioception, also referred to as kinesthesia, is a vital sense perception as it allows for the ability to sense the orientation and position of one’s body in space as well as the strength, effort, and velocity of bodily movement (Schleip, 2022; Soderquist, 2002). Proprioception is a sense perception that is so innate that many people do not realize that they have it (Lesondak, 2017). Proprioception involves a sensory process that may be conscious or unconscious and is distinguished from exteroception, or a “sensation that results from stimuli located outside the body and is detected by exteroceptors,” and interoception, which relates to the internal state and sensations of the body such as visceral and metabolic processes and the movement of internal organs (Colman, 2015; Schleip, 2022). For dancers, proprioception is extremely important in aiding the execution of complex choreography both in terms of sensing biomechanical joints and muscular information as well as the ability to safely relate to the environment and other dancers that they are customarily dancing with. Dancers increase their proprioceptive awareness in dance training and can further support that awareness through attuning to and stimulating proprioception through modalities such as touch and self-myofascial release.

### ***Exteroception***

Exteroception “the awareness of the body relative to the external environment” with perception of stimuli originating “outside or at a distance from the body” (Hellier, 2016; Schleip, 2022). Exteroception is important for observance of the external environment and thus is important to the “noticing” aspects of the workshop. For the workshop, the sensory element of

vision is highlighted for achieving an exteroceptive lens that participants can attune to within movement and observance of imagery.

### ***Interoception***

Interoception is a multidimensional construct involving the conscious or unconscious processing of how one experiences differing processes within the body and the sensing of homeostatic needs (Tsakiris & Preester, 2019). Overall, more attention has been paid to exteroception and proprioception in the literature until the last two decades where research on interoception is expanding. Interoception, as with the fascial system, has definitions that are currently evolving and that entail distinctive meanings in different fields such as psychology and physiology. Interoceptive signals may involve internal feedback from the organs, tissues, and cells of the body as well as the inclusion of overall body state awareness and emotions. Unlike exteroception and proprioception, interoception includes emotions because it is processed in the insula region of the brain, which is associated with emotional and motivational components (Schleip, 2022). The literature on interoception discusses and theorizes the influences and connections between interoceptive information and cognitive and emotional processes and includes studies on how mindful movement practices affect interoceptive awareness (Piran & Tylka, 2019; Tsakiris & Preester, 2019). The connections between interoceptive processes, self-awareness, and emotional health are also gaining interest within translational applications such as fascial therapies due to recent discoveries about the close interlinking between the fascial and the somatosensory systems of the body (Schleip, 2022).

### ***Fascia and Sense Perception***

The fascial system is increasingly viewed and accepted as the body's largest sensory organ (Lesondak, 2017; Schleip, 2022). This is due to the body having a larger overall surface

area of fascia and the fascial net including a higher quantity of nerve endings (250 million) as compared to the vision or muscular systems (Schleip, 2022; Van Der Wal, 2009). The dense innervation of free nerve endings and mechanoreceptors fixed within the fascial tissue assist with interoception and proprioception.

### **Dance Training and Sense Perception**

Dance training includes an emphasis on both the outer shape and dynamics of movement, as well as the perceptions, awareness, and sensations of the dancer's inner body experience (Simmel, 2015). These aspects are supported by somatosensorial input and dancers can focus on them in training. Focusing on different perceptions of awareness such as exteroception, proprioception, and interoception may lead to more diverse performance capabilities and expressivity. As Schleip et al. observe, attuning to inner body awareness while performing movements "can trigger new proprioceptive sensations" (Schleip). Inner bodily awareness while executing complex movements can take time to train and is not always accentuated by dance teachers. Liane Simmel States,

"It is the ability to perceive, classify and react to one's individual inner body perspective that creates a sophisticated dancer. Often undermined, the proprioceptive awareness of a dancer is finely tuned as required to execute complex movement. Dance seems to be a special combination between strong athletic performance ability and high body perception and awareness" (Simmel, 2015).

This description describes dancers as highly adaptable athletes that are uniquely and constantly attuning to their body's sensations and desire for expressivity. For the workshop, the proprioceptive, exteroceptive, and interoceptive aspects are introduced separately, but it is also

encouraged to try to attune to all three while dancing for a “presence” or mind-body connection in performance.

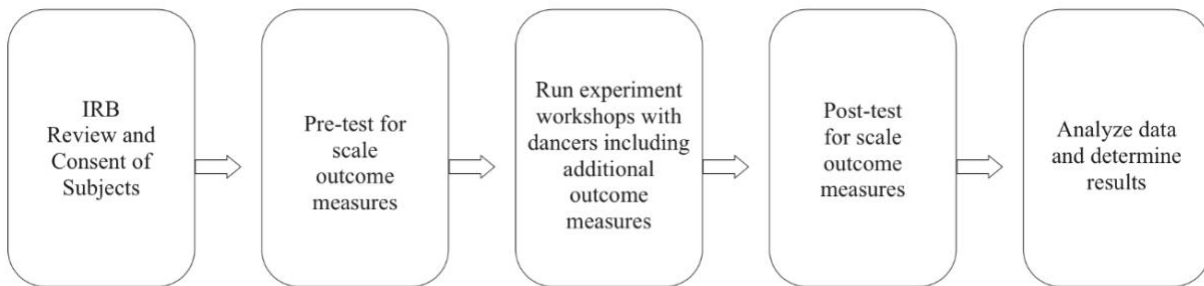
## **Conclusion**

This chapter introduced the somatosensory system as it relates to the sense perception of a dancer as well as the pedagogical frameworks used for the workshop series design. Sense perception is vital for wellbeing as it processes stimuli from both outer and internal environments and provides general signaling of the body’s state. By being introduced to the foundational concepts of the multimodal sensory system of touch, one may possibly increase their appreciation for the somatosensory system, especially in relation to movement execution and the ability to affect the system through self-care modalities. These elements are taken into consideration in the following chapter with the methods and design of the workshop series and how the research topics discussed thus far are incorporated.

**CHAPTER FIVE**  
**WORKSHOP METHODS AND DESIGN**

**Workshop Study Timeline**

The timeline of the workshop study included obtaining IRB approval (exemption) for the study, creating content for each workshop, determining the outcome measures for pre- and post-workshops, run the workshops, and data analysis.



**Figure 5.1:** Workshop study timeline.

**Study Overview**

***Hypothesis and Study Aims***

The study consisted of collegiate dancers participating in a multi-modal experiential workshop series exploring the topics of fascia, the somatosensory system, and the general theme of networks as they relate to the body and nature. The primary working hypothesis was that collegiate dancers will have enhanced positive body image by participating in a multimodal experiential workshop series exploring the topics of fascia, the somatosensory system, and the general theme of networks as they relate to the body and nature. The learning aims of the study were to present scientific information from scholarly literature with a multimodal delivery and explore the topics with the intent of increasing bodily awareness and appreciation. The lead

researcher drew from their own training and professional experiences in dance and somatic movement to design the workshop content and study methodology. The key components of the workshops were to 1) provide a multimodal expression of educational content, 2) provide participants time for kinesthetic and verbal exploration, and 3) measure body appreciation and general sense of connectedness of each participant.

### ***Structure and Development***

The structure and development of the workshops relied on findings from existing literature as well as personal experiences that the lead researcher had with dance education. The lead researcher was also the instructor for the workshops. Below, this chapter elucidates the study process and design of the workshop series.

### **Screening and Consent**

To test the feasibility of the workshop design, the workshop series was conducted with dance majors at the University of California, Irvine. Consent for this research study was granted from the. An IRB (see Appendix B) was submitted to the Institutional Review Board of University of California, Irvine and was found to be exempt from full review. All necessary documents such as the recruitment fliers were created and stored for future review if needed (see Appendix C,D). The recruitment process for participants was carried out as follows: emailing workshop study information to dance majors, posting fliers outside of dance studios at the Claire Trevor School of the Arts, and sharing the workshop information on the Instagram account of the UCI Dance Community Student Advising Committee. Emails were sent to the subjects with the study information sheet (see Appendix E) who mentioned interest via word of mouth or written communication with the lead researcher. In the workshop screening form (see Appendix F),



inclusion criteria was defined as each participant being at least eighteen years of age, an English speaker, and currently enrolled as a Dance Major at the University of California, Irvine, as well as having no injuries that prevented from them participating in daily dance courses. Each participant filled out a digital pre-screening form confirming that they met the study inclusion criteria, signed the audio and video release form (see Appendix G) for use of audio recording, and had availability in their schedule to participate.

### **Outcome Measures**

The evaluative methods chosen for the research study were both quantitative and qualitative. The quantitative measures consisted of the Body Appreciation Scale-2 (BAS-2), the Functionality Appreciation Scale (FAS), and an Entry and Exit Survey. The qualitative measures included verbal reflection of participants and observations of the lead researcher.

**Workshop Questionnaire.** The workshop questionnaire (see Appendix H) included the BAS-2 and FAS scales.

***Body Appreciation Scale-2 (BAS-2).*** The BAS-2 includes 13 items that are rated on a 5-point Likert scale with the higher values of the average score signifying greater body appreciation. According to the scale, *Body appreciation* is defined as “accepting, holding favorable opinions toward, and respecting the body, while also rejecting media-promoted appearance ideals as the only form of human beauty” (Tylka & Wood-Barcalow, 2015). The BAS-2 measures the valuing of the “body and orienting cognitive processing” to promote a positive view of the body. Body appreciation is a feature of positive psychological functioning and, therefore, it is hypothesized that BAS-2 results reflect measurements of well-

being. Participants filled out the BAS-2 prior to the workshops beginning as well as after the workshop series concluded.

***Functionality Appreciation Scale (FAS).*** The Functionality Appreciation Scale (FAS) includes 7 items that are rated on a 5-point Likert scale with a higher average score reflecting greater functionality appreciation. The Functionality Appreciation Scale (FAS) was constructed in relation to positive body image to focus on “appreciating what the body can do or is capable of doing” and to “offset appearance concerns” (Alleva, 2017). Within the development of the scale, *body functionality* is defined as “everything that the body can or is capable of doing,” including “functions related to physical capacities, internal processes, bodily senses or perceptions, creative endeavors, communication with others, and self-care” (Alleva, 2015). The FAS expanded upon the BAS-2 scale with assessment of body functionality specifically. Research concerning the enhancement of positive body image and well-being suggests that “gratitude and appreciation for one’s body may be more important than the degree of satisfaction with one’s body” (Alleva, 2017). Participants filled out the FAS prior to the workshops beginning as well as after the workshop series concluded.

**Entry and Exit Survey.** The Entry and Exit Survey (see Appendix I, J) was constructed by the lead researcher to address the “feelings of connectedness” that participants perceived themselves to have at six levels: 1) body, 2) inspiration, 3) environment, 4) curiosity, 5) appreciation, and 6) desires. This survey, distributed through Qualtrics software, was created with the evaluative themes of positive body image and embodiment in mind. The 6 items were rated according to an evaluative numerical value between 0-100. Participants filled out the Entry and Exit survey during the allotted time for each workshop.

**Verbal Reflection.** With prior consent, the verbal contributions of the participants were recorded and later transcribed by the lead researcher to evaluate their overall engagement and understanding of the workshop material as it relates to the study's learning aims. Verbal reflection in the workshop was vital to the experiment process as participants offered feedback on their experiences in the workshops. The verbal reflections were recorded by audio recordings using a voice memo phone application and were immediately transferred to the password encrypted cloud service where the study data was stored.

### **Data Collection and Analysis**

The primary outcomes of this experiment were analyzing and comparing pre- and post-test results of the body appreciation (BAS-2), functionality appreciation (FAS,) perceived level of connectedness (Entry and Exit Survey), and verbal reflections of the dancers. The data was analyzed to determine the effectiveness of the workshop design and implementation in relation to the learning aims of the research study.

### **Workshop Design Overview**

The workshop design consisted of a series of four workshops with an allotted 60 minutes of time, including the time to fill out the scales and surveys used for outcome measures. After consenting with the subjects and prior to the start of workshop one, a pre- and post- test evaluation was distributed electronically for the body appreciation (BAS-2) and body functionality appreciation (FAS) scales. The scales were compiled into one online Qualtrics survey and completed by the participants prior to the workshop intervention for pre-test data as well as after the completion of the last workshop for post-test data. To evaluate the perceived levels of connectedness to one's body and environment, the Entry and Exit Survey was distributed at the beginning and end of each of the four workshops. Each workshop contained a

visual presentation and workshops two through four included 1-2 movement explorations. The overall learning aims, timeline, and descriptions of the visual presentations and movement explorations of the workshop series are explained below.

## **Workshop One**

### *Learning Aims*

The learning aims of workshop one were to provide an introduction that set the tone of the workshop series, to create an opportunity for participant dialogue in relation to presenting the overall theme of systems and networks thinking, and to introduce the main components of the fascial system.

### *Timeline*

**Table 5.1:** Workshop One Design

<b>STEP</b>	<b>TIME</b>	<b>PLAN</b>
	:00-:05	Arrival
<b>1</b>	:05-:15	Workshop Questionnaire, BAS-2 + FAS
<b>2</b>	:15-:20	Entry Survey
<b>3</b>	:20-:50	<b>Visual Presentation One</b>
		A) Workshop Overview: slides 1-8
		B) Imagery of Nature: slides 9-32
		C) Introduction to Fascial System: slides 35-50
<b>4</b>	:50-:55	Participant verbal reflection
<b>5</b>	:55-1:00	Exit Survey

Workshop one consisted of presenting visual presentation one (see Appendix K), which included an overview of the workshop series, imagery of nature, and an introduction to the fascial system. The specific structure of the workshop was 1) completing the Workshop Questionnaire, 2) completing the Entry Survey, 3) Visual Presentation One, 4) participant verbal reflection, and 5) completing the Exit Survey.

## *Visual Presentation One*

### **A) Workshop Overview.**

Visual presentation one first presented the intention of the workshops as multi-modal, experiential, and collaborative. The discussion began by exploring the connotations of the workshop title, “NOTICING NATURAL NETWORKS,” by presenting the words individually and requesting participants to respond with what came to mind for them when they heard and saw those words. This was intended to create a shared foundational vocabulary, highlight the multiple meanings of the words, and establish the overall tone and framework of observing connections as well as network patterns.

### **B) Imagery of Nature.**

A series of nature photographs were presented to the participants with specific instructions to observe and notice patterns. The images were selected based on elements such as dendritic patterns, linearity, curvature, and multiplicity. The images were displayed one at a time for an average of five seconds each. After the first round of observation, the series of photos were repeated with the direction of offering a verbal response and feedback from the participants of what they noticed in their observations.

### **C) Introduction to the Fascial System.**

An overview of the fascial system by defining, presenting images of the structural make-up of the system, as well as presenting a physical web and tensegrity models for participants to observe and touch (see Appendix L). David Lesondak’s “Fascia Fundamentals” were reviewed for a foundational understanding of the multi-functional aspects of fascia. Images and a twenty second segment of Guimberteau’s work with endoscopic views of fascia were shown to provide a visual understanding of what fascial tissue looks like in a living body (see Appendix A).

Models of fascia continuity were presented with three examples: The Posterior Kinetic Chain, the Anatomy Trains meridian model, and an image of a deep front line dissection. The concept of biotensegrity was introduced first by defining tensegrity and presenting the participants a tensegrity model to touch. Visual Presentation One concluded by asking participants to keep an awareness of the patterns and connections related to the workshop in mind after the workshop ended.

## Workshop Two

### *Learning Aims*

The learning aims of workshop two were to revisit the fascial system content from workshop one, include a movement exploration with the fascial system content, introduce the somatosensory system, and to provide time for a sense perception driven movement exploration.

### *Timeline*

**Table 5.2:** Workshop Two Design

STEP	TIME	PLAN
	:00-:05	Arrival
<b>1</b>	:05-:10	Entry Survey
<b>2</b>	:10-:20	Review of fascial system content in Visual Presentation One: slides 36-50
<b>3</b>	:20-:25	<b>Movement Exploration 2.1: Fascial System:</b> fascial continuity, biotensegrity
<b>4</b>	:25-:30	Participant verbal reflection
<b>5</b>	:30-:45	<b>Visual Presentation Two: Somatosensory System and Sense Perception:</b> sense perception, somatosensory fundamentals: receptors and pathways, key concepts: exteroception, proprioception, interoception, innervation of fascia
		A: Introduction to the Somatosensory System: slides 2-7
		B: Exteroception, Proprioception, Interoception: slides 8-12
		C: Fascia and Sense Perception: slides 13-15
<b>6</b>	:45-:50	<b>Movement Exploration 2.2: Sense Perception:</b> touch perception, exteroception, proprioception, interoception
<b>7</b>	:50-:55	Participant verbal reflection
<b>8</b>	:55-1:00	Exit Survey

Workshop two consisted of 1) completing the Entry Survey, 2) reviewing the fascial system content from Visual Presentation One, 3) Movement Exploration 2.1: Fascial System, 4) participant verbal reflection, 5) Visual Presentation Two: Somatosensory System and Sense Perception (see Appendix M), 6) Movement Exploration 2.2: Sense Perception, 7) participant verbal reflection, and 8) completing the Exit Survey.

### ***Movement Exploration 2.1: Fascial System***

The first movement exploration focused on fascial connectivity and biotensegrity. To explore fascial connectivity, the participants started by lying supine and were directed to attune to their breath and connection to the floor. While remaining supine, the next aim was to explore small movements of the distal ends of the body, i.e., the fingers, toes, and head, while feeling the “echo” or continuation of sensation into other areas of the body with the acknowledgment that the fascial system supports that connectivity. The next exploration was to move different limbs in a larger range of motion while remaining connected to the floor. Next, the previous directions were given to participants while they were lying prone. The exploration continued into exploring the concept of biotensegrity by moving through unspecified quadrupedal positions and the tensegrity oppositional concepts of push and pull. Participants were guided next to an upright exploration through improvisational movement and walking at differing speeds with attention to fascial lines of connectivity and the push and pull aspects of biotensegrity that support movement.

### ***Visual Presentation Two: Somatosensory System and Sense Perception***

#### **A) Introduction to the Somatosensory System.**

Visual presentation two first defined and discussed the somatosensory system as the touch perception of the body. Examples of touch receptors were introduced as well as a simplified diagram of the somatosensory pathway. Supplemental graphic images highlighting the somatosensory cortex and a node structure synapse depiction were presented to provide a visual depiction of how sensory information is processed from synapses to the specific region in the brain.

### **B) Exteroception, Proprioception, Interoception.**

Next, the sense perception categories of exteroception, proprioception, and interoception were defined and discussed with the importance they have with dance movement. This was done by discussing the important aspects of awareness a dancer must have with internal body feedback, the ability to sense their movements in space, and their awareness of external environments.

### **C) Fascia and Sense Perception.**

The connections between the fascial and somatosensory system were then introduced by discussing the fascia's role in mechanoreception and embedment of nerves in fascial tissue by discussing the recent findings in the scientific literature.

### ***Movement Exploration 2.2: Sense Perception***

The second improvisatory movement exploration incorporated the primary concepts of exteroception, proprioception, and interoception. For the first step, participants sat on the studio floor and were guided to touch their legs gently and attune to the differing touch perceptions that they felt with in two methods 1) feeling what they could perceive with their leg and 2) what they could perceive with their hand that was touching the leg. Touch perception was further explored



with brushing, squeezing, and tapping actions with their hands to their legs. Next, while participants were lying supine, they were then directed to attune to the different lenses of perception in a series of layers: 1) internal bodily sensations, 2) their body's touch to the: floor, their clothing, and the air, and 3) external perception of the space around them. Next, participants were guided to explore the lenses of perception with an addition of small movements on the floor. Further, the participants were guided to find the lenses of perception in standing pedestrian and dance improvisatory movement.

### **Workshop Three**

#### ***Learning Aims***

The learning aims of workshop three were to revisit the somatosensory and sense perception material from workshop two, provide time for a movement exploration with those concepts in mind, present foundational material on self-myofascial release, to explore those concepts kinesthetically with a self-myofascial release sequence, and to culminate the workshop with a movement exploration incorporating the accumulated workshop topics and imagery.

#### ***Timeline***

**Table 5.3:** Workshop Three Design

STEP	TIME	PLAN
	:00-:05	Arrival
<b>1</b>	:05-:10	Entry Survey
<b>2</b>	:10-:15	Review of somatosensory content in Visual Presentation Two: slides 2-12
<b>3</b>	:15-:20	Repeat of <i>Movement Exploration 2.2: Somatosensory System</i> : sense perception, exteroception, proprioception, interoception
<b>4</b>	:20-:25	Participant verbal reflection
<b>5</b>	:25-:40	<b>Visual Presentation Three: Self-Myofascial Release</b>
		A) Introduction to Self-Myofascial Release: slides 2-14
<b>6</b>	:35-:40	<b>Self-Myofascial Release Sequence</b> A: Calf Shear Sequence B: Upper Body Rehydrate Sequence
<b>7</b>	:40-:4	<b>Movement Exploration 3.2: Somatosensory and Fascial System</b>
<b>8</b>	:50-:55	Participant verbal reflection
<b>9</b>	:55-1:00	Exit Survey

Workshop three consisted of 1) completing the Entry Survey, 2) reviewing the somatosensory system content from Visual Presentation Two, 3) Movement Exploration 3.1: Somatosensory System, 4) participant verbal reflection, 5) Visual Presentation Three: Self-Myofascial Release (see Appendix N) 6) Self-Myofascial Release Sequence, 7) Movement Exploration 3.2, 8) participant verbal reflection, and 9) completing the Exit Survey.

***Visual Presentation Three: Self-Myofascial Release***

After reviewing the somatosensory concepts of Visual Presentation Two, a “Fascia Recap” reviewed the three main components of fascia introduced in the workshop series: fascia models of structure and continuity (i.e. biotensegrity and myo-fascial meridians), fascia’s relation to muscle activity and force transmission, and the sensory components of fascia.

Discussion followed of what can occur with fascial tissue, the definition of self-myofascial release (SMFR), and the benefits of SMFR and foam rolling.

### ***Self-Myofascial Release Sequence***

The participants were then guided into a SMFR technique exploration including the “Calf Shearing” sequence and “Upper Body Rehydrate Sequence” of the MELT Method® using foam rollers (Hitzmann, 2013).

### ***Movement Exploration 3.2: Somatosensory and Fascial System***

The workshop concluded with a movement exploration with the relations of the fascia and somatosensory systems in mind as well as recalling imagery from the visual presentations and recalling felt sensations from previous movement explorations.

## **Workshop Four**

### ***Learning Aims***

The learning aims of the workshop were to provide a culminating workshop primarily exploring the concepts presented in the first three workshops kinesthetically. The information presented and discussed was reviewed as to provide an opportunity for a deeper understanding of the workshop series content and concepts.

### ***Timeline***

Workshop four consisted of 1) completing the Entry Survey, 2) Visual Presentation Four (see Appendix O), 3) repeat of Self-Myofascial Release Sequence, 4) Movement Exploration 4.1, 5) participant verbal reflection, 6) completion of Exit Survey, and 7) completion of the Workshop Questionnaire.

**Table 5.4:** Workshop Four Design

	TIME	PLAN
	:00-:05	Arrival
<b>1</b>	:05-:10	Entry Survey
<b>2</b>	:10-:15	<b>Visual Presentation Four</b>
		A) Somatosensory network imagery and review: slides 2-6
		B) Fascial network imagery and review: slides 8-16
<b>3</b>	:15-:20	Repeat of Self-Myofascial Release Sequence
<b>4</b>	:20-:35	<b>Movement Exploration 4.1</b> with Visual Presentation Four slides: 17-30
<b>5</b>	:35-:45	Participant verbal reflection
<b>6</b>	:45-:50	Exit Survey
<b>7</b>	:50-1:00	Workshop Questionnaire

### ***Visual Presentation Four***

Visual Presentation Four included a brief review of somatosensory, fascial network concepts, and imagery.

### ***Movement Exploration 4.1***

Prior to the final movement exploration, the Self-Myofascial Release Sequence was repeated. Movement exploration 4.1 included an improvisational sequence with images from Visual Presentation One displayed on the monitor. The movement exploration recalled directions from the previous movement explorations as well as a more open structure for the participants to explore what they desired.

### **Conclusion**

The design of the workshop series incorporated elements from the background research on positive body image, multimodal learning, the fascial system, and the somatosensory system. Specific learning aims were created for each workshop and included differing pedagogical modalities.

## **CHAPTER SIX**

### **WORKSHOP RESULTS**

#### **Demographics**

Screened and consented participants included four female undergraduate dance majors at the University of California, Irvine. The median age was 20 +/- 3 years of age and of the four participants, there was one Asian participant, two Caucasian participants, and one Hispanic participant. Of the participants, one was a first-year student, two were third year students, and one was a fifth-year student.

#### **Intervention Attendance**

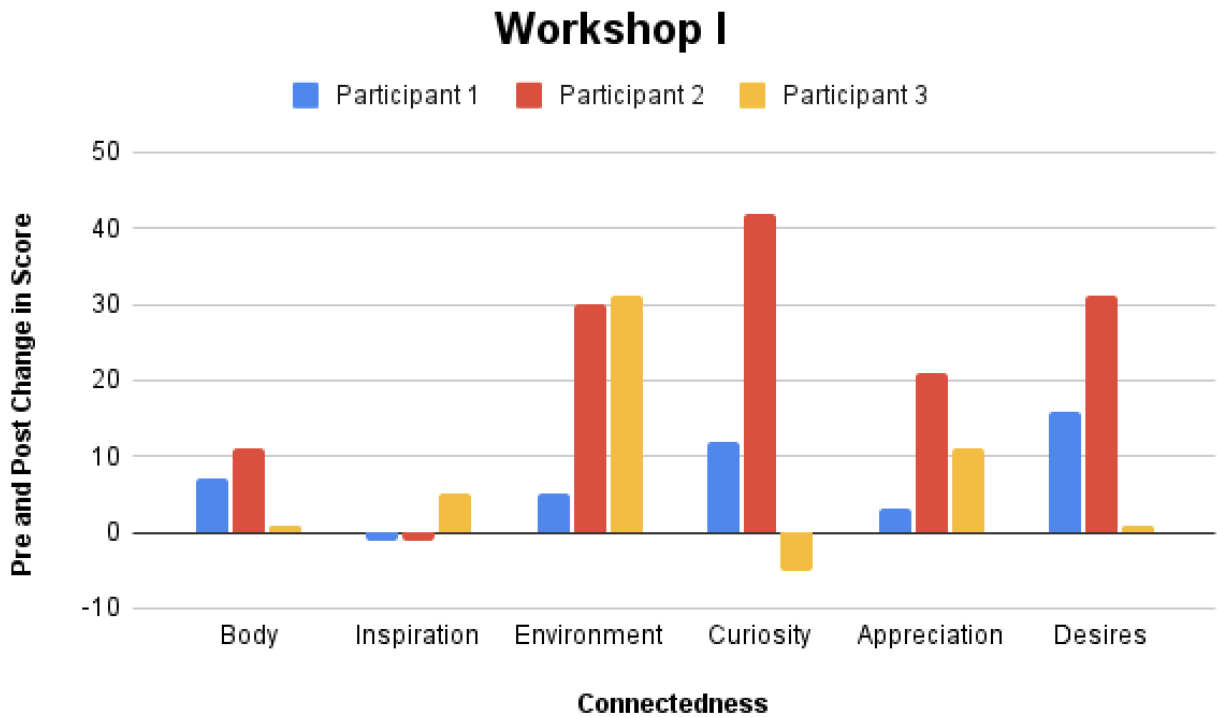
The experiment was held over a three-week span in the academic winter quarter of 2022. Workshop sessions one and two were held in Week 8 of Winter quarter and workshop sessions three and four were held in Week 10 of Winter quarter. Attendance of the workshops was impacted due to class course schedules and rehearsal commitments. Makeup sessions were offered to interested and available participants. Participant two attended makeup sessions for workshops two and three due to schedule conflicts. Participant four was not present for workshop one and did not participate in a makeup session for workshop one. The late arrival of participants also affected the time of the workshops. Participant four was fifteen minutes late to workshop four.

#### **Workshop One Results**

##### ***Entry and Exit Survey Response Changes***

Workshop one had three participants. There was a trend to have increased scores between entry and exit surveys with the majority of the scores increasing relation the perceived levels of

connectedness. Each question reflected varying levels of score changes, with a positive increase in score reflecting an increase of perceived level of connectedness on a scale of 0-100, 100 being the “most connected.” Question three, “feeling of connectedness to your environment” increased for each participant. Question two, “feeling of inspiration” decreased for participants one and two. The decrease that they felt less inspired post- workshop intervention. Participant two demonstrated the greatest positive change for their connectedness to their body, environment, curiosity, appreciation, and desires compared to the other participants.



**Figure 6.1:** Workshop One Entry and Exit Survey, Change in Score.

***Verbal Reflections***

In workshop one, participant verbal reflections primarily consisted of responses to terms and photographs presented in visual presentation one. In response to what the term “noticing” made them think of, participants responded with descriptions such as “sensing, feeling

something, observing something in a non-judgmental way, open eyes, and discovering.” Responses to the term “natural” included “organic, instinctive, and nature.” Responses to “networks” included “connectivity, web, patterns.” The overall themes of the responses to the presented photographs involved multiplicity, tangled-ness, micro and macro scaling, linearity, interconnectedness, and relatedness to the nervous system. Participants described that the photos reminded them of the nervous system, neurons, the brain, and the depiction they see mentally when they think of the term “network.”

### ***Instructor Findings***

The instructor found elements of workshop one to be both effective and not effective in accomplishing desired learning outcomes. The primary effective elements pertaining to the learning goals included the use of the monitor for the visual presentation, the incorporation of an introduction, and the use of dialogue. The monitor provided a clear visual aid and supported the multimodal goals of the workshop. The introduction allowed the instructor to present the goals of the verbal participation and expectations; the participants were engaged and listened attentively. The dialogue component was effective as it provided a framework for their thought contributions as well as for the instructor to gauge their curiosity, engagement, and understanding of the subject matter presented. The verbal reflections they presented reflected that they understood the workshop content as well as the overall themes presented by the lead researcher. The unsuccessful aspects were primarily having a limited amount of time and not conducting a movement exploration. The lack of time made the instructor feel rushed in the presentation of the material which did not fall in line with the aims of maintaining time to introduce and explore concepts with ample time for feedback. The hypothesized time needed would be between 1.5-2 hours to allow extra time for questions and dialogue. By not including a movement exploration,

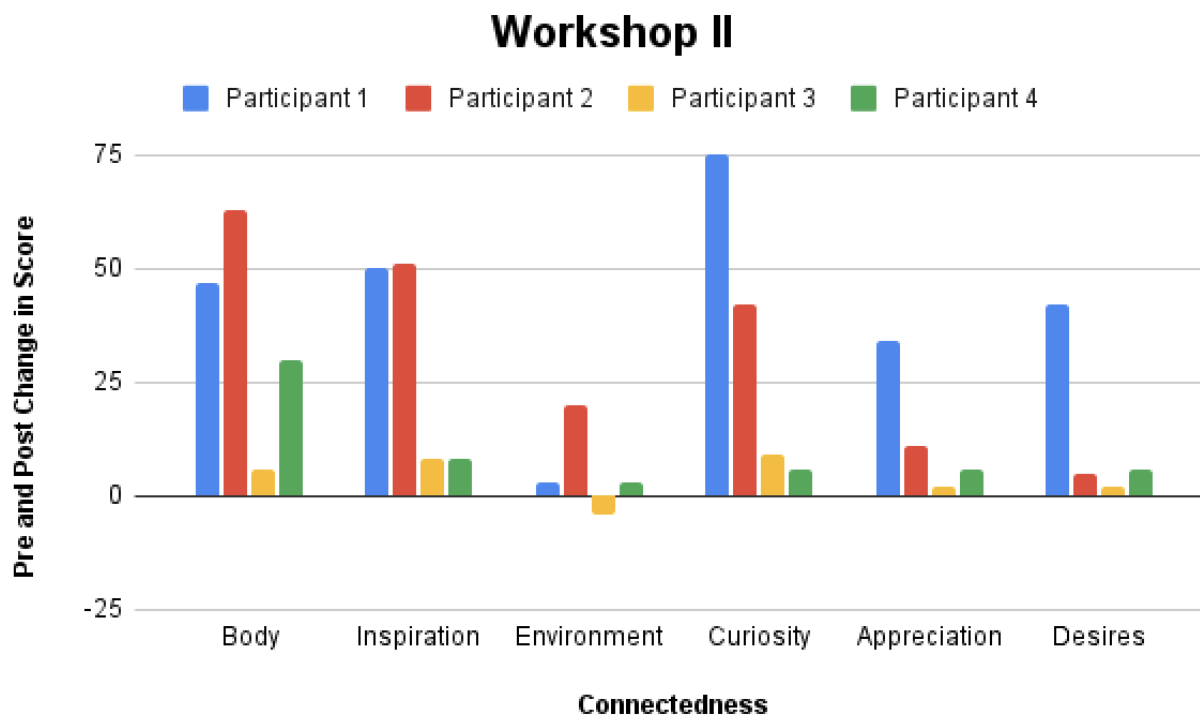
the participants only had visual and aural experiences with the subject material and ultimately left the instructor feeling that the workshop was not complete in relation to the learning aims. A movement exploration would have aligned with the study's aims of multimodal delivery and exploration with the content. By including a movement exploration in workshop one, it is hypothesized that the score changes of the Entry and Exit survey would have a larger impact on the entry and exit surveys.

## **Workshop Two Results**

### ***Entry and Exit Survey Response Changes***

The score changes of the entry and exit survey for workshop two show a greater trend of increase of perceived levels of connectedness than workshop one. Question three, "feeling of connectedness to your environment" made a large decrease in score change in relation to workshop one. For all participants, "feeling of connectedness to your body" (Q1), "feeling of inspiration" (Q2), and "feeling of curiosity" (Q4) had the greatest increase in scores.





**Figure 6.2:** Workshop Two Entry and Exit Survey, Change in Score.

### *Verbal Reflections*

In the verbal reflections, participants primarily reflected that the imagery from the visual presentations on the fascial system and the somatosensory system helped them notice different things while moving. Reflection after Movement Exploration 2.1 included discussion on fascial connectivity as it related to the images shown in the visual presentation. One participant described, referring to the posterior kinetic chain image in visual presentation one (slide 47), that “the cross-lateral connection isn’t something I normally think about when I am walking...I pictured the image you showed, and I felt like I could really feel that especially when moving slow and feeling the absorption of the pressure into the floor...the image helped with that.” One participant described that the subtlety of moving the distal ends of the body in supine and prone positions revealed more detailed sensations than when their movement was bigger when

standing. The participants also related their experiences with other dance classes such as general modern, Gaga, and Countertechnique® principles and that the movement exploration helped them both better understand aspects of “releasing” parts of the body in movement and connectedness of body parts as well as that it stirred up further questions in terms of what instructors really mean when guiding movement. The subjectivity of attuning to the different lenses of perception i.e. interoception, proprioception, and exteroception was highlighted by the participants. One participant described following Movement Exploration 2.2, “It was really easy for me to shift between interoception and proprioception because I feel I have the most experience in those, such as in modern class, but I felt like I had a hard time differentiating between proprioception and exteroception. I was trying to look more at my environment but found myself coming back inwards.”

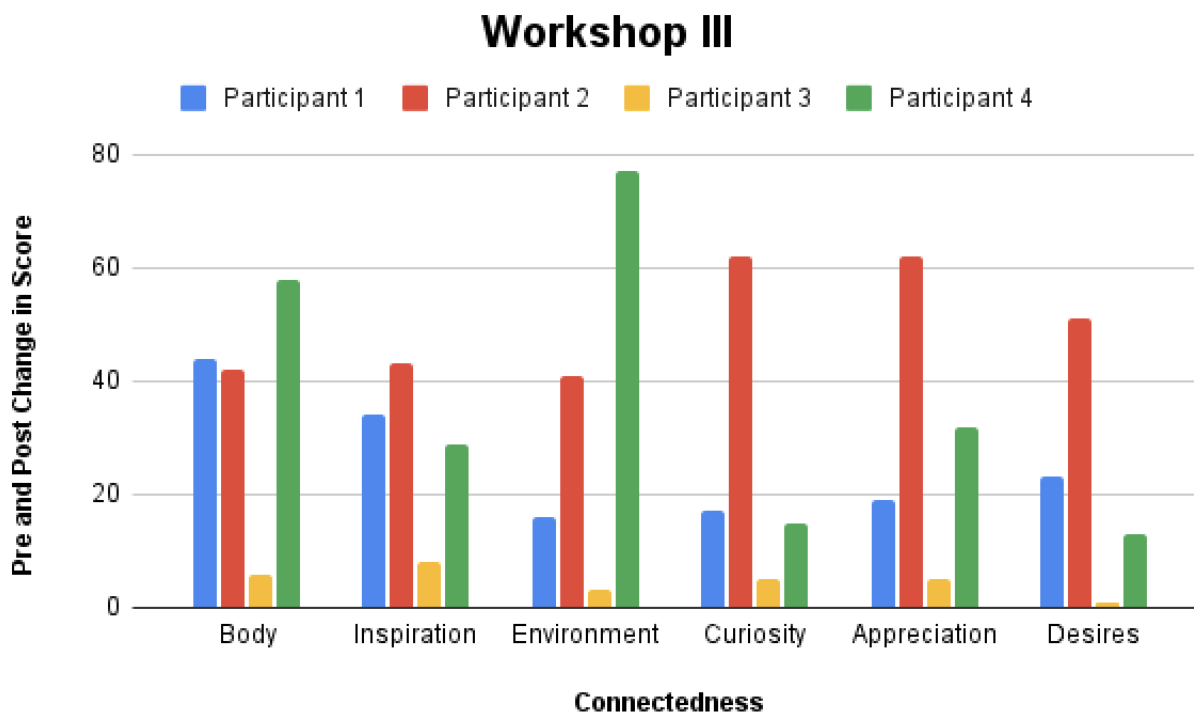
### ***Instructor Findings***

The instructor found most elements effective in relation to learning outcomes of workshop two. The successful elements included the review of material from visual presentation one, the inclusion of movement explorations, and delivering the information in a timely manner that did not feel rushed. The participants seemed engaged and curious to explore the presented concepts within movement. The participants described that the imagery from the visual presentation helped them have different embodied experiences within the movement explorations. The participants also reflected about the relations to their technique classes which relates to one of the overall aims of the workshop study. In addition, the verbal reflections showed a more wholistic and open way of thinking in that the participants described scenarios and thought processes that are not “right or wrong” regarding their experience with movement, but they highlighted subjective experiences they have with movement.

## Workshop Three

### *Entry and Exit Survey Response Changes*

The score changes of the entry and exit survey for workshop three show a greater increase in score change from all participants compared to workshops one and two.



**Figure 6.3:** Workshop Three Entry and Exit Survey, Change in Score.

### *Verbal Reflections*

In the verbal dialogue with participants, they described that they noticed the most changes in the more subtle aspects of the movement explorations. One of the subtleties was through the modalities of self-touch and self-massage of one leg prior to other leg and noticing the differences in sensation and movement. Participants noted immediate sensation of “release”

following the Self-Myofascial Release Sequence and noted an overall feeling of calmness. Within the dialogue, two participants proposed questions regarding the relations and differences between SMFR techniques with a stress transfer medium and mental imagery of “releasing” or the attempt to recreate the sensations they felt after the SMFR intervention. In reference to the overall workshop content and concepts, one participant described that “just having the awareness can make my practice better.” The same participant stated that they incorporated the imagery of fascia into their ballet class, and it helped them find balance more easily stating that “I felt like I could connect to my fascia.”

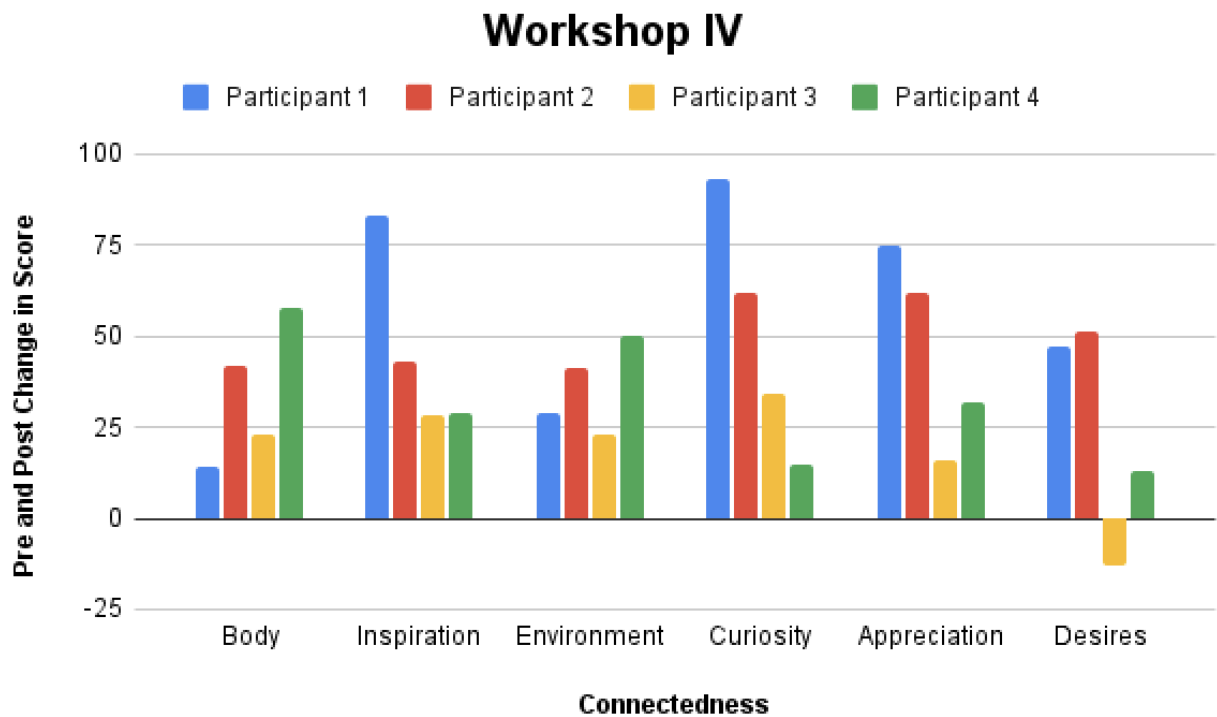
### ***Instructor Findings***

The instructor found most elements effective in relation to learning outcomes of workshop three. In the verbal reflections, the accumulative aspects of the workshop were reflected, and this revealed that the relations between the subject matter were at the forefront of the participants minds. The SMFR intervention seemed effective as it provided a stimulation of participants sense perception as stated in their verbal reflections. The verbal statements also reflected that the participants were incorporating the workshop material into their technique classes and that the visual presentations were effective for recalling imagery within movement. Overall, the instructor would hypothesize that an allotted time of 1.5-2 hours would be more effective for the delivery and exploration of the material.

## **Workshop Four**

### ***Entry and Exit Survey Response Changes***

The response changes of the entry and exit survey for workshop four show a higher overall increase in connectedness across the different realms compared to the previous three workshops.



**Figure 6.4:** Workshop Four Entry and Exit Survey, Change in Score.

#### *Verbal Reflections*

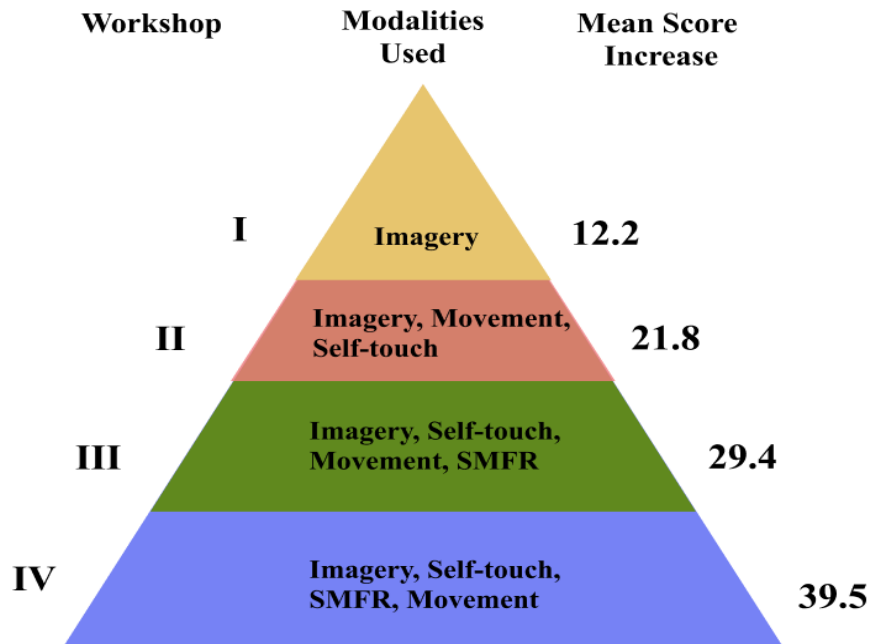
Verbal reflections for workshop four were limited due to the time and therefore were not recorded.

#### *Instructor Findings*

The instructor found both effective and not effective elements in relation to learning outcomes of workshop four. The use of projecting images for reference in movement exploration 4.1 was determined to be not as effective as the lead researcher anticipated. The lead researcher suggests that this was due to too many directions given to the participants to focus on at once.

#### **Perceived Sense of Connectedness: Score Change Analysis**

Overall, the execution of the workshops revealed further increasing change in scores for the Entry and Exit survey, measuring perceived levels of connectedness, over the workshop series. In Figure 6.5, depicted are the modalities incorporated for each workshop and their relation to the mean score increase of the Entry and Exit survey of the participants.



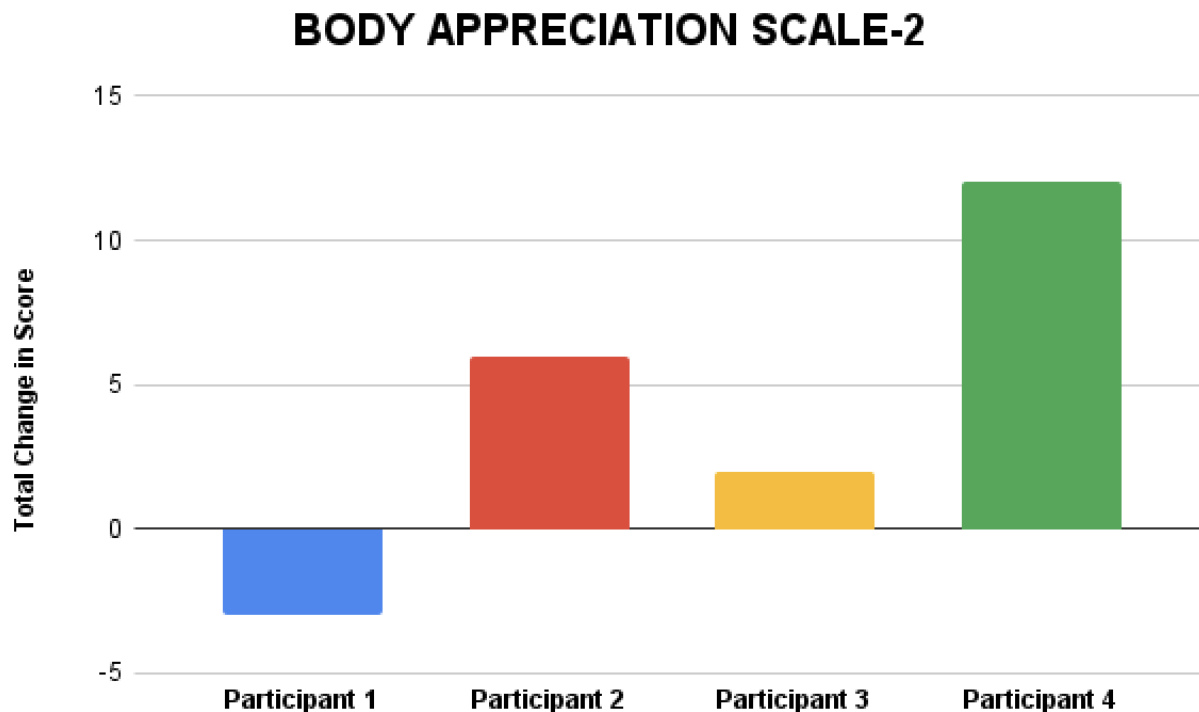
**Figure 6.5:** Workshop Results by Modalities Used and Mean Score Increase of Entry and Exit Survey.

The incorporation of different modalities such as imagery, kinesthetic exploration, self-touch, and self-myofascial release were discovered to impact the workshop’s outcomes differently. The general notion of modality accumulation is also considered to affect the mean score increase over time.

**Positive Body Image Assessment: Scale Results**

### *Body Appreciation Scale*

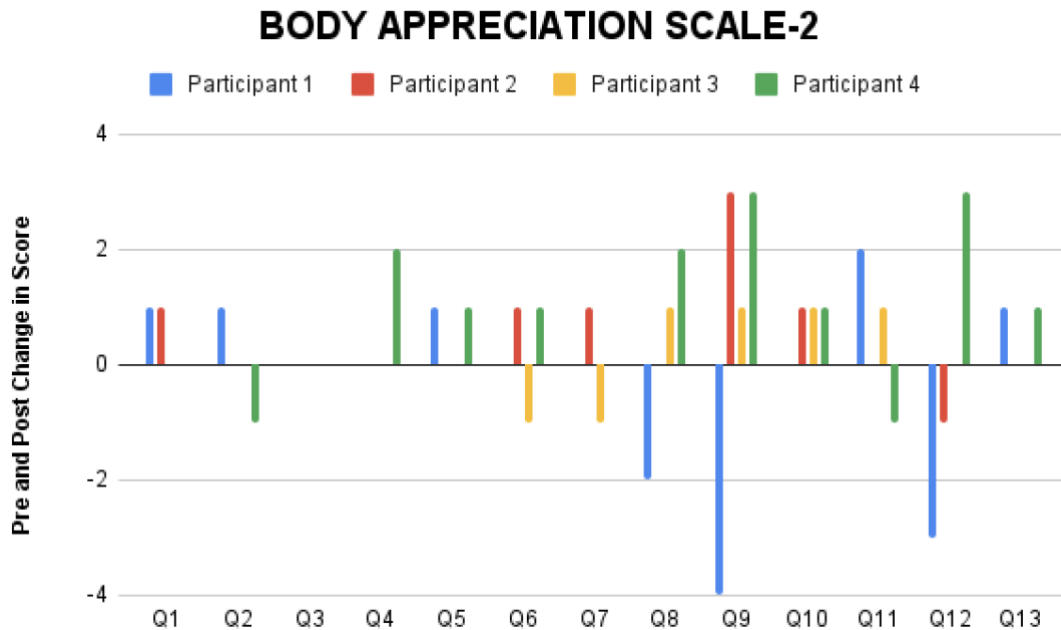
**Overall Change in Score.** The overall results of a pre and post workshop data intake of the Body Appreciation Scale-2 show that three of the four participants had an increase in score, with participant four having the highest increase. The increase of score indicates that the participant's body appreciation has increased positively. Participant one had a decrease in score meaning that their overall body appreciation had decreased from pre- to post- workshop.



**Figure 6.6:** Body Appreciation Scale-2 Overall, Change in Score.

**Change in Score by Question.** The score changes for each question show both increases and decreases in scores. Question three did not acquire a score change for any participant. Participant one had a large decrease in score for question nine, “I do not focus a lot of energy

being concerned with my body’s shape or weight.” Participant three had the least score change per question compared to other participants.



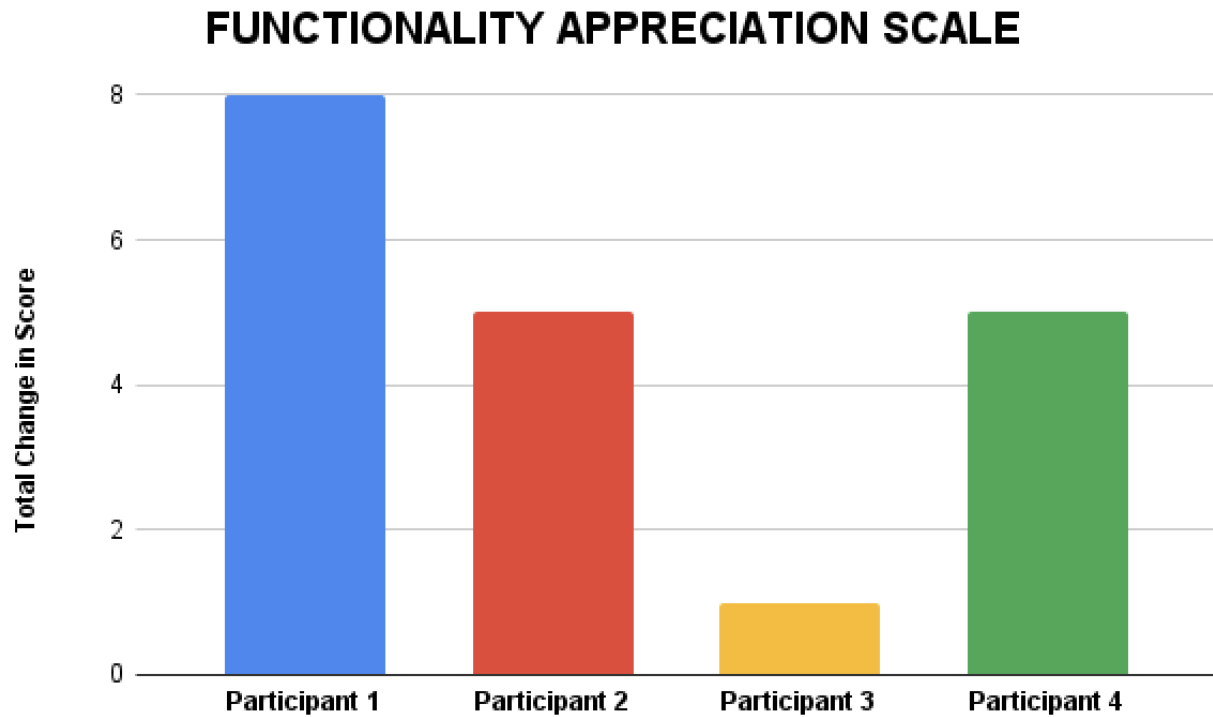
**Figure 6.7:** Body Appreciation Scale-2, Change in Score by Question.

***Functionality Appreciation Scale***

**Overall Change in Score.** The results of a pre and post workshop data intake of the Functionality Appreciation Scale show that all four participants had an increase in score. Contrary to the score decrease change for participant one with the BAS-2 scale, participant one had the highest increase in score for the FAS scale. Participant three had the least

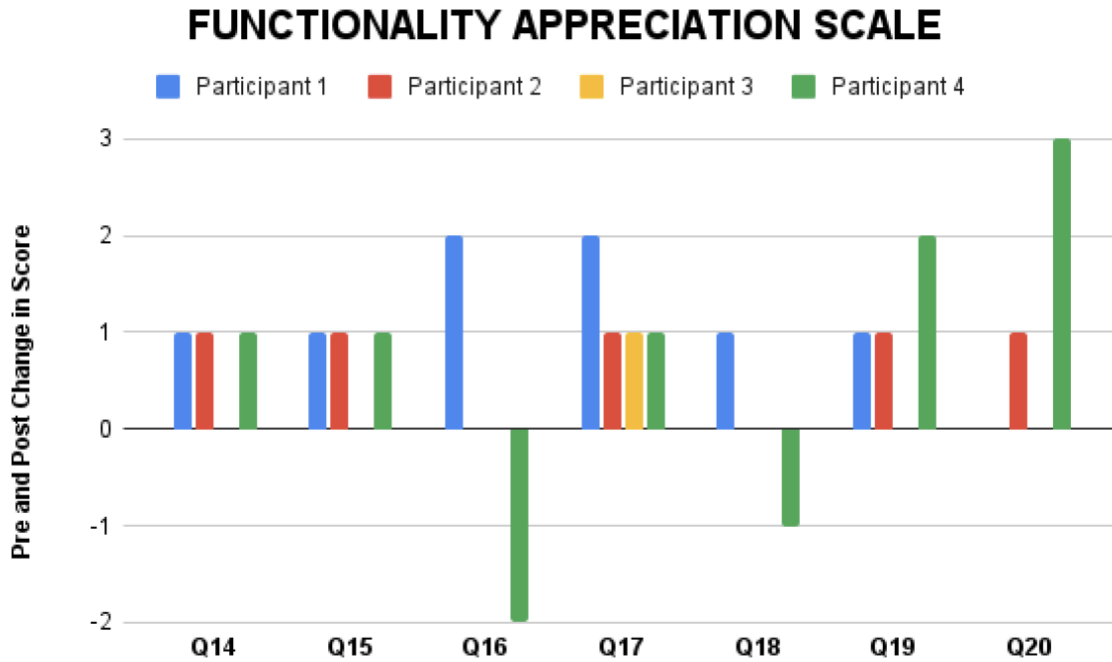


increase in overall score.



**Figure 6.8:** Functionality Appreciation Scale Change in Score.

**Change in Score by Question.** The score changes by question of the FAS scale have a trend of a score increase for all questions with the exclusion of questions 16 and 18. Participant four had a decrease in score for questions 16, “I appreciate that my body allows me to communicate and interact with others,” and question 18, “I am grateful that my body enables me to engage in activities that I enjoy or find important.” and the other participant’s scores did not change post workshop intervention. All but participant three had a score increase trend for the other seven questions meaning that their functionality appreciation had increased for all other questions besides questions 16 and 18.



**Figure 6.9:** Functionality Appreciation Scale, Change in Score by Question.

## Conclusion

For both the quantitative and qualitative outcome measures, the workshop series overall proved to be effective in relation to the study’s aims of increasing positive body image and the understanding and incorporation of the concepts into the participant’s dance practices. The chosen evaluative methods were helpful to report and measure the multimodal aspects of both the workshop’s learning aims and workshop content.

## **CHAPTER SEVEN**

### **CREATIVE INSTALLATION PERFORMANCE**

The creative installation performance directed by the lead researcher involved a multimodal presentation of photography, videography, sculptures, and dance movement that reflected themes of the thesis research. The main themes explored were likening networks concepts of the body to patterns in nature, the portrayal of the structural components of the fascial and somatosensory systems of the body, and how a dancer can relate to the concepts through improvisation. The overall intended tone of the installation was for it to be experiential and promote the non-linear themes of the research. The curation of the different elements in an installation-based structure reflected the multimodal construction of the workshop series. Intentions of the multimodal performance included an experimental approach to synthesizing and portraying the research concepts to a broader audience. The performance was held in the Experimental Media and Performance lab (XMPL), an adaptable black box theater, at the University of California, Irvine following the workshop implementation. The use of the XMPL aided in the multimodal aims of the installation performance due to the flexibility in arrangement of the space. This chapter first describes the installation components included in the thesis installation of 1) program note, 2) dance movement, 3) sculptures, 4) theatrical props, and 5) projections. Further, the chapter will describe the intended audience experience.

#### **Installation Components**

##### ***Program Note***

The installation included a program note (see Appendix P) given to audience members prior before entering the theater space. The program note describes the overall intention of the

installation in that it explores a multimodal presentation on the intersections of fascia, neural networks, and dance movement. The program note provides a culminated definition and description of both the fascial system and the somatosensory system that highlight themes found in the research and that were also represented and reflected in the varying components of the installation work. There were bolded vocabulary words in the program note that were highlighted for their importance of description. The overall purpose of including a program note was for the audience to relate themes they read to what they saw in the components of the installation.

### ***Dance Movement***

The installation included improvisational movement of one dancer who interacted with the additional installation components listed below. The dancer was given instructions by the lead researcher to respond to the concepts and imagery presented in the installation. Throughout the rehearsal process, the dancer had experience with the material presented in the workshops. The lead researcher worked with the dancer over the course of four weeks discussing aspects of the themes of the research and implementing them into an improvisational practice. Themes discussed include fascial continuity, sense perception, biotensegrity, and responding to patterns in nature. The intended use of using a live dancer for the installation was to both exemplify how a dancer can attune to the concepts of the researcher as well as provide the audience with a visual to apply the concepts listed in the program note to what they saw in the movement.

### ***Sculptures***

The installation included six sculptures (see Appendix Q) made by the lead researcher to represent components of the fascial and somatosensory systems. The primary aim of using the sculptures were to provide three dimensional abstract representations of the thesis themes. The sculptures created are described below.

**(1) Webbing.** A white circular wire with cotton webbing in the center was incorporated for the portrayal of the web-like structure of the fascial system. The webbing was incorporated to enhance the understanding of the fascial web in that there are varying lines of pull and portray the vectors found in the fascial tissue.

**(2) Compartment Depiction.** A sculpture made of paper tubes was incorporated to depict fascial compartments surrounding structures of the body. The depiction abstractly represents the role of fascia in skeletal muscle, providing separational compartments with the epimysium and fascicles. The sculpture was also intended to depict the general idea of small parts contributing to a holistic structure as well as comparison to similar structural patterns found in nature.

**(3) Tree Branch.** A tree branch was incorporated to highlight the dendritic patterns found in nature and the similarities of the peripheral nervous system. The branch was hung upside down to reveal the branching structure of roots as well as the downwards branching of the peripheral nervous system in the body.

**(4) Informational Pathway.** A long wire sculpture with four bunched areas was incorporated to represent informational pathways of synapses as well as a general sense of structural chaos.

**(5) Geodesic Dome Model.** A geodesic dome model was built and used to portray the tensegrity theory of the body. The vectors were shaped to have curves and spirals as to represent the curvature and spirals within make-up of the body.

**(6) Structure and Adaptability.** A metal wire and netted fabric were composed to portray an abstract portrayal of a rigid structure and the moldable net-like components of fascial tissue.

### *Theatrical Props*

The use of theatrical props (see Appendix R) were used by the dancer to highlight an active dialogue and portrayal between movement on the concepts of fascial movement and biotensegrity.

(1) **Fabric.** An enclosed piece of fabric was used to portray fascial sheaths and availability of movement within fascial tissue. The fabric had elasticity as well as a reflective surface to portray the image of fascia.

(2) **Large Geodesic Dome.** A large ten-foot diameter geodesic dome was used to incorporate the theory of biotensegrity and to highlight the dancer's body with push and pull movements to move them through space in and around the structure. Images of nature were projected onto the dome to help create a layered relationship between the rigid geodesic structure and the fluidity of the images of nature, promoting the notion that both nature and the body inhibit strong structural foundations that can endure change.

### *Projection*

The use of projection (see Appendix S) was used throughout the installation work to show photography and videography related to the research themes. The projection was used on a long white piece of paper, on the large geodesic dome prop, and on the main theater projection screen. The primary use of projection on the white paper and geodesic dome was used to present images of nature that portrayed patterns such as dendritic structures or multiplicity. The enlargement of images through projection allows for a closer perspective in looking at the images. The dancer, who was wearing an all-white costume, moved in and out of the projection that allowed the projected images to transfer onto their clothing; this element was used to portray the connectedness and interactions that the body and movement has with the natural world. The

main projection incorporated black and white footage from Guimberteau's endoscopy of fascia (see Appendix A) as well as images that depicted the peripheral nervous system and magnified photos of fascial tissue.

### **Audience Experience**

The audience was first greeted with the program note (see Appendix P) that described the main concepts incorporated into the installation. The audience was then led into the theater with the instruction that they could freely move in the space and observe different aspects of the installation. The incorporation of a walk-through experience was intended to give the audience partial agency to what they were interested in seeing and revisiting as well as that no audience member was likely to see the same sequence of events and perspective. The space was filled with repeating tonal music and was lit primarily to showcase the sculptures, the dancer, and the projections.

### **Conclusion**

The creative aspect of this research was used as an experiential implementation of the research themes, both found in the background research from the literature as well as the experience of directing the workshop series. The inclusion of multiple forms including sculptures, visuals, and movement highlighted the multimodal aspects that were incorporated into the pedagogical aspects of workshop series. Overall, the incorporated elements were included to provide multiple reflective entry points of the descriptions provided in the program note.

## **CHAPTER EIGHT**

### **DISCUSSION**

This thesis research study explored the development of a multimodal workshop series for collegiate level dancers that used multimodal pedagogy to introduce the concepts of the fascial system, the somatosensory system, and similar constructed patterns found in nature. Overall, this study investigated factors such as synthesizing foundational scientific material for the pedagogical development of the workshop, choosing outcome measures for the intervention, and experimenting with multimodal delivery of concepts. The main goal of the workshop series, with the experimental presentation of the concepts and material, was to relate the topics' role to wellbeing and to further provide tools for one to mindfully connect to the role of the bodily systems discussed. The presentations of the topics were aimed to stimulate appreciation for the body, as an active appreciation for the body contributes to an enhanced body image and general wellbeing. Below, this chapter discusses the study's findings regarding body image and multimodal pedagogy, proposed limitations for each part of the study methodology, and suggestions for further research.

#### **Body Image and Wellness**

In general, study interventions involving the domains of positive body image are sparse, but the theoretical and practical frameworks that exist have been considered and implemented into this study. In the literature, the general terminology regarding body image is currently being debated to move beyond the connotation of a solely external appearance, or "image," based idea of the body and encompass more of an embodied focus of the body. The term body image has been recognized as a dissociative term due to the focus on the body from external perspectives and viewpoints, as body image also encompasses all aspects of how one feels about the body,



including the multifaceted lived experiences of the body. The term embodiment is attaining more relevance with respects to positive body image and is increasingly recognized as the subjective experience of inhabiting the body.

Specific to the outcome measurements of this study, the construct of body appreciation has “gained and maintained empirical ground due to its comprehensiveness in covering the positive body image construct and its ease of assessment” (Piran & Tylka, 2019). The theory and practice of research on body appreciation has revealed its relationship to psychological wellbeing and physical health, supporting a more holistic contribution to the fields of positive body image and embodiment. The construct of body functionality is an emerging measure for “fostering positive embodiment” and supports the notion that “engaging in activities that emphasize body functionality and achieving attunement directly promotes positive embodiment” (Piran & Tylka, 2019). Body functionality appreciation research is new, but a preliminary study of a functionality-focused program intervention revealed increased functionality satisfaction, appearance satisfaction, body appreciation, and reduction in self-objectification (Piran & Tylka, 2019). Both measurements of body appreciation and functionality appreciation integrated into this study support the viewpoint of perceiving bodily lived experience more holistically. The findings are important to the field of dance as dance is an art form that relies on physical execution for expression yet is not solely about the physical execution. It is important for a dancer to be able to choose and articulate artistic choices within the form and this is less likely to be done with a judgmental or competitive view of the body. The study’s workshop series was implemented to provide a platform for dancers to better attune to their bodies in order to shift their attention to their embodied experiences rather than solely what the mirror reflects. During the workshops, the participants revealed their internal experience with the movement

explorations and considerations of the concepts for their technique classes. The study's outcome measures of verbal reflections and qualitative-based scale measurements demonstrate the positive enhancements to the body images of the participants within the context of the workshop.

### **Overview of Workshop Study Findings**

This study found that it is feasible to incorporate scientific concepts into a multimodal workshop for collegiate dancers. The workshop's design proved to be effective in providing a framework for combining scientific concepts, introducing self-care modalities in relation to the concepts, and analyzing how they both can aid in dance training practices and influencing the overall well-being of collegiate dancers. The increase in scores on both the Workshop Questionnaire (BAS-2, FAS) (see Appendix H) and the Entry and Exit survey (see Appendix I, J) reveal that there was an increase of perceived state connectedness and an overall enhancement of positive body image. For perceived state connectedness, the use of different modalities revealed corresponding changes in the scores of participants. The discussion below outlines the modalities incorporated into each workshop and situates the increased scores within the existing literature.

### ***Workshop Modality Findings***

As depicted in Figure 6.5 (see page 68), the incorporation of different modalities such as imagery, kinesthetic exploration, self-touch, and self-myofascial release were discovered to lead to different perceived levels of connectedness. This is an important acknowledgment for the workshop's design. Overall, the execution of the workshops revealed a consistent increase in scores on the Entry and Exit survey over the course of the series.

Workshop one included the use of nature and fascial system imagery. Workshop two incorporated additional modalities of a movement exploration focused on the fascial system and the intervention of self-touch. Workshop three included the addition of a self-myofascial release sequence coupled with movement. Workshop four consisted of a repeated accumulation of the modalities used in all previous workshops. The general increase of scores for perceived sense of connectedness was likely due to the mindful attentiveness that the workshop required and the practice of embodied mindfulness. More specifically, the different modalities of imagery, movement, self-touch, and SMFR techniques used may have contributed to the increase in scores within the workshop series.

**Imagery.** The multidimensional use of visual and mental imagery, incorporated through nature imagery and body system imagery for movement, was included to support a systematic understanding of the concepts and to provide references within movement explorations. Workshop one solely provided imagery of nature and introductory images of the fascial system. Specific to the imagery of nature, preliminary studies involving the exposure to images of natural environments reveal positive physiological effects, including the influence on state body appreciation (Swami et al., 2018). There are several reasons why exposure to nature or green spaces can contribute to positive body image. Studies investigating differing media modes portraying nature are conducted to see if they have the same effects of promoting self-compassion and “respecting and appreciating one’s body as a part of a wider ecosystem requiring protection and care” that natural greenspaces can invoke (Swami et al., 2018). While this thesis project used static images of nature, these studies suggest that there may be further benefits to using the medium of video because it is inherently more dynamic and more like one’s experience of being in nature. These studies suggest that the imagery of nature can positively affect the state

positive body image of individuals, that the multisensorial use of video footage would further enhance the outcomes of state body appreciation, and that involvement in actual natural environments could further promote the study's aim of enhanced positive body image.

In relation to the use of imagery alongside movement, imagery was deemed successful as the participants commented on how they recalled the imagery and how it helped them understand the concepts and contributed to their kinesthetic experience. The imagery was provided through diagrams and depictions of the fascial and somatosensory systems, photos and videos of fascia, photos and models depicting key concepts such as biotensegrity, and photos of comparable patterns found in nature. The lead researcher hypothesizes that the visual and mental imagery was successful because bodily systems are internal and cannot be seen objectively and the use of imagery supports both the understanding of the concepts and affects the experience of movement. This is supported by Vicky Fisher's suggestive analysis regarding the use of imagery in dance that involves three overlapping domains: physical, affective (psychological), and cognitive (Fisher, 2017). The incorporation of imagery can physically allow one to modify their movement, psychologically contribute to "relaxation, anxiety reduction, confidence, and body awareness," and cognitively aid in the comprehension and memory of concepts (Fisher, 2017). The use of imagery paired with the movement-based practices of the workshop was shown to be more effective for the outcome measurement of connectedness.

**Movement.** In general, there was a greater effect on score increases once movement and proprioceptive modalities were incorporated into the workshop modalities. The inclusion of kinesthetic explorations allowed for the participants to mindfully attune to the sensations of their body while applying the concepts and imagery to their movement experience, which the lead researcher hypothesized to have increased their interoceptive, proprioceptive, and exteroception

awareness. Applying the concepts to movement was natural because the sample group were all trained dancers. However, the pace and invitation for finer-tuned bodily attention directed participants towards the sensation of their experience rather than the visual outcome of the movement that is commonly accentuated in dance. The movement explorations provided a practice for mindful attention to the body. In other interventions involving embodied mindfulness and movement-based approaches to facilitate positive body image and embodiment, subjects are said to shift from a “judgment-based relationship” to a “sensing- and experiencing-based relationship” to themselves as they move towards intentional sensing and performing “attuned acts of self-care” (Piran & Tylka, 2019). The act of deep listening to the sensations of the body while moving can help an individual move from a more objective relation to their body based on how they are perceived by others to a more sensory-based relationship. The mindful approach to the movement explorations executed in the workshop can further be likened to mindful movement practices such as yoga. The body of research on yoga’s relationship to enhanced well-being, embodiment, and positive body image suggests that yoga-based practices promote “increased connectivity within, and dynamic shifting between, motor, cognitive, and emotional neurocircuitry, with potential beneficial effects for mind-body integration and self-regulation” (Piran & Tylka, 2019). As such, the neurological aspects involved in mindful movement such as an improvisational practice can contribute to perceived states of connectedness.

**Self-Touch and Self-Myofascial Release.** The inclusion of the sense-perception modalities of self-touch and self-myofascial release (SMFR) techniques is hypothesized to have provided further proprioceptive and interoceptive stimulation when added to the movement explorations

of the workshop series. The stimulation of mechanoreceptors involved in self-touch and SMFR increase the process of proprioception, triggered by approaches of squeezing, stretching, or compression of the body's tissue (Schleip, 2022). This stimulation is hypothesized to have increased the bodily sensitivity of participants, which in turn allowed them to mindfully attune to the changing of sensation throughout the interventions of self-touch, SMFR, and kinesthetic exploration. Research is still emerging regarding the neurophysiological factors of SMFR interventions, focusing on the afferent signals from fascia mechanoreceptors. However, scientists suggest that the mechanical pressures associated with SMFR techniques yield sympathetic responses and greater attunement of interoception, or “how we experience what is going on with and in our body” (Schleip, 2022). In a recently published chapter entitled “Interoception: A New Correlate for Intricate Connections Between Fascial Receptors, Emotion, and Self-Awareness,” sensorimotor and interoceptive states are also described as the building blocks of emotions that contribute to body- and self-awareness (Schleip, 2022). Therefore, the stimulation of the multimodal integrations of interoception can affect the body state of an individual. Though it is generally speculated that touch and fascial interventions enhance sense-perception and relaxation, individuals experience the effects of the interventions differently. By directing the participants to attune to their own sensory and emotional changes pre- and post- self-touch and SMFR intervention, the workshop series allowed them to acknowledge their own personal results. This acknowledgment was included to help the participants understanding which of the self-care approaches that was introduced worked best for them and could be added to their “toolbox” of self-care modalities.

**Modality Accumulation.** The general accumulation of modalities used throughout the workshop series may be a factor in the increase of scores as it provided content familiarity and

confidence in the participant's understanding of the subject matter. Workshop four included the accumulation of multimodal approaches and had the largest increase of scores measuring connectedness. The lead researcher hypothesizes that the combination of different modalities helped to address learners with different affordances and created a more holistic learning and exploring experience of the workshop topics.

### **Overview of Study Limitations**

Many limitations were present within the process of this thesis study and can serve as considerations for future interdisciplinary research on the relationship between dance training and the domains of positive body image, fascia, multimodal learning.

#### ***Background Research Process Limitations***

The background research process included multiple research topics and required varying levels of delimitations that the lead researcher used for the context of this thesis project. Among the published literature reviewed, the topics mentioned above are all emerging fields. This resulted in more literature on theoretical frameworks and less on study interventions. This made it difficult to synthesize the information most valuable to this study as well as find varying author publications as the community of researchers was limited. However, the literature that exists also suggests that research on the intersections of the topics discussed in this thesis is needed. Further research and scientific studies on the intersections of positive body image, the fascial system, multimodal, and their relation to dance movement would be beneficial, especially using interdisciplinary approaches. The multidimensionality of each research topic makes it more difficult discover concrete findings. However, given the relationship between the topics, studying them together also promises generative results. This study seeks to provide a model for communicating scientific research to communities making up the field of dance, including dance

educators and pre-professional and professional dancers, which will provide accessibility to valuable information. Further research on science communication oriented towards specific populations is suggested to promote effective pedagogical structures.

### ***Workshop Implementation Process Limitations***

In general, the workshop execution was impacted by the Covid-19 pandemic. Though the campus returned to in-person activities in Fall Quarter 2021, remote instruction resumed at the beginning of Winter Quarter 2022. This delayed the workshop recruitment and execution, which may have also contributed to the study only including four participants. Future research should attempt to include a larger sample group as well as the use of controls which would allow for the use of different modalities with different groups of dancers. To gain enough participants for the workshops, the time was limited to one hour, as opposed to the initially proposed time of two hours. This restricted the amount of time that could be spent on introducing concepts, kinesthetic investigation within movement explorations, and verbal reflection from participants. The time for participants to fill out the Workshop Questionnaire and the Entry and Exit Survey was also limited, which may have affected the outcome scores since participants were forced to answer the questions quickly. Due to the busyness of the participants' schedules, a number of the participants arrived late. This complicated the workshop design because the material was accumulative and rushing through it was not in line with the learning aims. For future workshops, the lead researcher suggests allotting 1.5-2 hours for each workshop and not allowing late attendance. Finally, in addition to running the workshop series with undergraduate dancers, the lead researcher suggests adapting the workshop material for professional dancer populations as well to examine how the material might impact professional dance experience.



Regarding the design of the workshops, there are many factors that future studies could take into consideration. The workshops were found to be more successful when incorporating a movement exploration, and it is hypothesized that the addition of more movement explorations would offer enhanced kinesthetic exploration. The lead researcher also suggests that the workshop coincide with a specific dance technique course or implement more technical movement experimentation within the workshops rather than just relying on improvisation. These could help dancers to implement and translate the concepts into technique classes. Another possibility is to incorporate the workshop into a dance anatomy and kinesiology course to further support a functional approach to the anatomy and kinesiology concepts presented. To bolster the strategy of multimodal learning, the lead researcher suggests adding the modalities of journal writing, photography, and movement composition to enhance the engagement with the material. These active learning practices could also encourage the participants to provide and reflect on their own perspectives, rather than solely the perspectives of the lead researcher. The additional practices of writing, photographing, and choreographing could be additional evaluative measures of the workshop's effectiveness.

Regarding the evaluative measures of this study, the lead researcher suggests involving both adapted and additional evaluative methods that would be more applicable to the dancer population. Additional methods might include incorporating an adapted functional body appreciation scale specific to dancers and utilizing a state awareness evaluation specific to perceived quality of embodiment. Other measurements could study how the use of nature imagery as well as the framework of networks and systems thinking contribute to learning outcomes. Such investigations could be accomplished with control groups involving the inclusion and exclusion of elements such as nature imagery. Additional evaluative measures

could examine how the dancer population incorporates the subject matter into their daily lives and dance training practices. The body image of dancers could be further studied by evaluating how dancers navigate negative attributing factors of dance training, including body idealism, the use of the mirror, and social networking sites that encompass training environments. Evaluative measures could address how participants respond to perceived negative feedback from dance teachers or choreographers as well as their reliance on mirrors in the dance studio. Due to the interdisciplinary nature of this study's literature and workshop implementation, there are numerous other limitations that may have not been discussed.

### ***Creative Body of Work Process Limitations***

For the creation of the installation performance, the lead researcher had to adapt to various unpredicted circumstances regarding the performance's timeframe and location. The set-up of the Blackbox theater promoted flexibility compared to traditional theater settings, but was not ideal for the audience experience that the researcher intended to accomplish. This was because the lead researcher presented their work alongside other presentations, and the space was constricted in order to accommodate the other performances. For future adaptations of the creative installation, a larger open space would be ideal to accomplish the free-roaming aspects of the design. A longer-term presentation would also support the aims of the work as the twenty minutes allotted was not enough time to incorporate further audience interaction. For future adaptations, clearer instructions to the audience would be helpful for avoiding confusion about the performance structure. In addition, the inclusion of audience participation through guided movement, dialogue, and evaluative surveys would contribute to the multimodal themes of the study.

### **Conclusion**

In summary, this study has developed a framework for incorporating concepts of the fascial system and somatosensory system into a workshop for collegiate dancers. The framework was based on information obtained from scholarly literature and the lead researcher's personal experience with dance and somatic training. Although there was limited time and evaluative methods for participant feedback, there was a natural tendency for participants to incorporate the workshop's content into their technical training. Continued research on these topics should consider implementing the framework into a supplemental training workshop series over the course of a semester or quarter and allowing for at least 1.5 hours per session. This would address this study's limitations on how quickly the information was introduced, the time of allowed for exploring the topics, and the accommodation of questions of participants.

## **CHAPTER NINE**

### **CONCLUSION**

This thesis included a review of the scholarly literature that helped to formulate a working hypothesis for designing an experimental pedagogical workshop series, a discussion of the implementation of the workshops, and analysis of the data collected. The literature encompassed interdisciplinary fields of positive body image, multimodal learning, the fascial system, and the somatosensory system. Intervention methods created by the lead researcher affected changes in positive body image associated with body appreciation and body functionality appreciation within the sample group of collegiate dancers. The outcome measures of scales (see Appendix H), surveys (see Appendix I, J), and verbal responses of participants were compiled and analyzed in order to present the workshop results. The outcome measurements showed an overall increase in positive body image within a three-week period, which was aligned with the hypothesis of the study. In addition to implementing the workshops, the lead researcher presented a reflective creative body of work in the form of an installation performance that incorporated elements of the workshop content. The lead researcher suggests further studies implementing the topics of this study into larger sample sizes from which additional inferences can be drawn.

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## APPENDIX A

### Video Links Referenced

**Fascia Endoscopy, “Strolling under the Skin”:**

<https://www.youtube.com/watch?v=eW0lvOVKDxE&t=955s>

**Fascia Plastinate, “FR:EIA”:**

[https://www.youtube.com/watch?v=Huv3\\_QwdbWQ&t=3227s](https://www.youtube.com/watch?v=Huv3_QwdbWQ&t=3227s)



# APPENDIX B

## IRB Document

PROTOCOLS



Whitney Schmanski

### #820 - Noticing Natural Networks: A Multi-Modal Experiential Workshop Investigating Well-Being

#### Protocol Information

Review Type	Status	Approval Date	Continuing Review Date
Exempt	Exempt	Jan 30, 2022	--
Expiration Date	Initial Approval Date	Initial Review Type	
--	Jan 30, 2022	Exempt	

#### Feedback

Approval Comment

Exempt Self Determination. Please refer to the 'Lead Researcher Certification' section of this application for the expectations and responsibilities related to human subject research conducted at UCI. Best of luck in your research.

#### Project Details

Specify the study title (this title should not exceed more than 100 words):

Noticing Natural Networks: A Multi-Modal Experiential Workshop Investigating Well-Being

Lead Researcher/Investigator:

Whitney Schmanski

Enter the Lead Unit:

\*\*\*IR-8041 - THE ARTS-DANCE (Lead Unit)\*\*\*

#### Project Screener

Administrative Determination or Registration

Submission for Administrative Determination or Registration:

Exempt Self-Determination

Provide a non-technical summary of the proposed research that can be understood by IRB/hSCRO members with varied research backgrounds, including non-scientists and community members (this summary should not exceed more than 250 words):

This thesis will explore how multi-sensorial modalities of self-massage, imagery, and experiential movement in a workshop format will contribute to an enhanced Positive Body Image in collegiate level dancers. I will design and implement a series of four workshops that will include baseline outcome measures including surveys and specific scales to measure Positive Body Image.

#### Instructions

##### Exempt Self-Determination Instructions

UCI IRB review is required for most activities that constitute [engagement in human subjects research](#), as federally defined.

At UCI, researchers, including undergraduate students proposing exempt human subject research as part of the Undergraduate Research Opportunities Program (UROP) are permitted to self-determination their exempt research without confirmation from the IRB.

The IRB will NOT review this submission. Instead, it will be register as 'Exempt' research and a confirmation email will be sent.

Should the study sponsor require evidence of IRB review for an exempt self-determination, please provide the sponsor [this letter](#).

- **IMPORTANT!** All exempt self-determinations must be tacked in Kual Research Protocols (KRP).
- If the research is eligible for Exempt Self-Determination, maintain a printout of the completed form in the research records.
- The Lead Researcher (LR) is responsible for maintaining all supplemental documentation (as indicated in the form) in the research records. This documentation may be requested by Human Research Protections for quality assurance review.

For regulatory or institutional guidance:

- Contact the [Human Research Protections staff](#)

For technical issues or questions:

- Visit the [KRP User Guide](#)
- Contact [Electronic Research Administration \(ERA\)](#)

## Exempt Self-Determination

### Verify Self-Determination Eligibility

Is the research regulated by the Food and Drug Administration (FDA)?

No

Is the research supported by the Department of Justice (DOJ)?

No

Does the research include any of the following?

No

### Verify Exempt Categories Eligible For Self-Determination

Select the category(ies) that apply to the research:

**Category 1:** Education (the following criteria must be met)

**Category 3:** Research involving *benign behavioral* interventions in conjunction with the collection of information from an adult subject through verbal or written responses (including data entry) or audiovisual recording if the subject prospectively agrees to the intervention and information collection and at least one of the following criteria is met:

One of the following criteria must be met:

3iA) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects CANNOT readily be ascertained, directly or through identifiers linked to the subjects

3iB) Any disclosure of the human subjects' responses outside the research would NOT reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, educational advancement, or reputation

**Category 2:** Research that includes only interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) if at least one of the following criteria are met:

One of the following criteria must be met:

2i) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects CANNOT readily be ascertained, directly or through identifiers linked to the subjects

2ii) Any disclosure of the human subjects' responses outside the research would NOT reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, educational advancement, or reputation

**Category 4:** Secondary research for which consent is not required: Secondary research uses of identifiable private information or identifiable biospecimens, if at least one of the following criteria is met:

One of the following criteria must be met:

4ii) Information, which may include information about the biospecimens, is recorded by the investigator in such a manner that the identity of human subjects cannot readily be ascertained directly or through identifiers linked to the subjects, the investigator does not contact the subjects, and the investigator will not re-identify subjects

The research is **eligible** for Exempt Self-Determination. Check the box to continue with the form:  
Exempt Self-Determination

## Study Funding

Select the funding source(s) (**check all that apply**):

Department or campus funds (includes department support, unrestricted funds, start-up funds, personal funds, campus program awards, etc.)

## Study Team

### Study Team:

• List only study team members who are engaged in human subjects research below.

• Administrative Contact (AC): Do not add ACs to the study team table. To add ACs, navigate to the **Permissions** tab on top-right-hand-side of form. All ACs must complete the requisite **Human Research Protections CITI Training**.

• Lead Researcher (LR): LRs must meet requirements specified on the **Lead Researcher Eligibility page** for study to be approved.

• Select 'Oversight of Research' along with other applicable duties.

• Select 'Full Access'.

• Faculty Sponsor (FS): FSs are required when the person serving the LR role is not qualified to serve as LR-- the FS must be eligible to be LR.

• Select 'Oversight of Research' along with other applicable duties.

• Select 'Full Access'.

• Co-Researcher (CR): CRs are faculty, staff, students and other academic appointees who the LR considers to be key personnel for conducting the research study. These individuals work closely with the LR to design, conduct, and/or report on the research.

• Research Personnel (RP): In accordance with the **Research Personnel Heat Map**, do NOT list RP below. Instead, track them in the **Permissions** tab or on the **Study Team Tracking Log** (or equivalent)

• **IMPORTANT!** To initiate a request for UCI to serve as the IRB of Record for non-UCI researchers, the LR must have a dual affiliation with the non-UCI entity and IRB review is required to formalize the reliance process.

• Collaborative Institutional Training Initiative (CITI) Human Research Protections Training Courses

• Confirm CITI training is complete and current for all study team members.

• For more information, visit **HRP Training and Education**.

Researcher

Whitney Schmanski

Training

Social/Behavioral Investigators - Basic Course 10/20/21 - 10/19/26

To promote the objectivity of the research, all researchers are required to disclose their related disclosable financial interests, per the IRB COI Policy. If you have any questions about the COI process in general, contact the COI team.

Each member of the study team for this protocol must be asked the following question to comply:

"Do you, your spouse/registered domestic partner, and dependent children have any disclosable financial interests\* (i) that would reasonably appear to be affected by this research study; or (ii) in entities whose financial interests would reasonably appear to be affected by this research study?"

Degree

Position/Title

Department

\*\*\*IR-8041 - THE ARTS-DANCE (Lead Unit)\*\*\*

Affiliation

Researcher Role

Lead Researcher

Permissions

Full Access

Duties

Specify relevant training and experience for the referenced duties/responsibilities:

Researcher

Kelli G Sharp

Training

GCP for Clinical Trials with Investigational Drugs and Medical Devices (U.S. FDA focus) - Refresher Course 08/28/20 - 08/28/23

Biomedical Investigators - Basic Course 08/21/17 - 08/20/22

To promote the objectivity of the research, all researchers are required to disclose their related disclosable financial interests, per the IRB COI Policy. If you have any questions about the COI process in general, contact the COI team.

Each member of the study team for this protocol must be asked the following question to comply:

"Do you, your spouse/registered domestic partner, and dependent children have any disclosable financial interests\* (i) that would reasonably appear to be affected by this research study; or (ii) in entities whose financial interests would reasonably appear to be affected by this research study?"

No

Degree

Position/Title

Assistant Professor

Department

\*\*\*IR-8041 - THE ARTS-DANCE (Lead Unit)\*\*\*

Affiliation

UCI Faculty

Researcher Role

Faculty Sponsor

Permissions

Full Access

Duties

Oversight of Research

Research Procedures

Describe additional research procedures below:

Specify relevant training and experience for the referenced duties/responsibilities:

**Background & Purpose of the Research**

Describe the purpose, specific aims or objectives and specify the hypotheses or research questions to be studied:

This thesis will explore how multi-sensorial modalities of self-massage, imagery, and experiential movement in a workshop format will contribute to an enhanced Positive Body Image in collegiate level dancers. I will design and implement a series of four workshops that will include baseline outcome measures including surveys and specific scales to measure Positive Body Image.

**Subject Population(s) (Individuals/Records/Biospecimens)**

**Maximum and Expected Number of Persons/Records/Biospecimens to be Enrolled**

1. Click "Add Line" button above Enrollment Table to add a Category/Group
  - a. To change visibility of columns, click "Columns" button above Enrollment Table and select which Column rows to view.
2. Specify the maximum and expected numbers of individual-level information and/or biospecimens to be accessed/analyzed within each Category/Group

Category/Group

Adults, UCI Dance Majors

Age Range

18 and over

Maximum Number of Subjects, Subjects to be Consented or Reviewed/Collected

10

Number Expected to Complete the Study or Needed to Address the Research Question

4

Will this study only take place at UCI and does not involve other sites?

Yes

**Eligibility Factors (Inclusion/Exclusion Criteria)**

1. Click "Add Line" button above Eligibility Factors Table to add a inclusion/exclusion criteria
  - a. To change visibility of columns, click "Columns" button above Eligibility Factors Chart and select which Column rows to view.
2. Identify the factors for limited eligibility and provide a scientific rationale. Include additional rows for factors, as needed.

Category/Group Eligibility

Adults, UCI Students

Inclusion Criteria

UCI Dance Major, 18 years of age or older, English speaking, No current injuries that prevent from participating in dance movement

Exclusion Criteria

Non UCI Dance Major, Under 18 years of age, Non English speaker, current injuries that prevent participation in dance movement

Is eligibility based on age, gender, pregnancy/childbearing potential, social/ethnic group, or language spoken (e.g., English Speakers only)?

Yes

**Limited Eligibility Factors (Special Populations)**

1. Click "Add Line" button above Limited Eligibility Factors Table to add a special population
  - a. To change visibility of columns, click "Columns" button above Limited Eligibility Factors Table and select which Column rows to view.
2. Identify the special populations and provide a scientific rationale. Add additional rows, as needed.

Eligibility Limited to the Following Factors

Language Spoken (e.g., English speakers only)

Specify the rationale for this group:

The language used in workshops will be English and they need to understand the content

Pre-Screening and Determining Eligibility without Informed Consent

Will identifiable information be obtained for the purpose of screening, recruiting, or determining eligibility of prospective subjects?  
Yes

The 2018 Common Rule allows for Pre-Screening activities (i.e., determining if potential subjects may be eligible to participate in research) performed *without* the written informed consent of the prospective subject or legally authorized representative (LAR). This means that the IRB does *not* need to grant a waiver of informed consent.

Provide a complete list of the data points, variables, and/or information that will be collected during Pre-Screening (i.e. data abstraction form):  
Check here if the list will be submitted as a separate document [i.e. case report form (CRF; eCRF)]

Check all the Pre-Screening activities that apply:  
Study team will obtain information through oral or written communication with the prospective subject or LAR (i.e. self-report of medical information; medical records will not be screened)

Will the study team contact subjects for eligibility or recruitment purposes?  
Yes

**REQUIRED!** Submit the pre-screening script in the Attachments Section.  
UCI IRB requires the pre-screening script meets the [Recruitment Requirements](#).

Recruitment Methods

Will this study involve **NO** direct contact with participants (i.e., passive observation of public behavior)?  
No

Indicate all methods that will be used to recruit subjects for this study:

Recruitment Method Flyers/Brochures
Specify Where Posted UCI Dance Studios and Office
Type of Space Public (i.e., site/media that allows open access to content)

Recruitment Method Online/Social Media
Specify Where Posted Community Student Advising Committee of UCI Dance Department IG (@csac_uci)
Type of Space Public (i.e., site/media that allows open access to content)

Recruitment Method Online/Social Media
Specify Where Posted UCI Dance Majors Email
Type of Space Private (i.e., site/media that allows control of access to content)

Informed Consent Process

[Methods of Informed Consent](#)

Identify the consent process as applicable for each participant population (check all that apply):  
Electronic signed informed consent (eIC)

Electronic Signed Informed Consent (eIC)/Assent

Does this recruitment method include all subjects?  
Yes

**REQUIRED!** Develop and use an Adult Consent Form

**Maintain on file:**

- all informational materials, including any videos and web-based presentations, which the subject will receive and view during the eIC process.
- any optional questions or methods used to gauge subject comprehension of key study elements.

UCI IRB requires the eIC process adheres to the OHRP guidance: [Use of Electronic Informed Consent: Questions and Answers](#)

Circumstances of Consent

Indicate the location where the consent process will take place (**check all that apply**):  
Internet

Specify how the research team will assure that subjects, their parents, or their legally authorized representative (LAR) have sufficient time to consider whether to participate in the research:  
Subjects or their LAR will be allowed 'X amount of time' to consider whether to consent

Specify hours, days or weeks for subjects, parents or their LAR will be allowed to consider whether to consent:  
Participants will be given time to consider their participation and ask any further questions they may have through email, in person, or by phone by the deadline for agreement for participation.

Will this study include **Non-English Speaking Participants**?  
No, only individuals who can read and speak English are eligible for this study

Research Procedures

Will **deception** or **incomplete disclosure** be involved in the research?  
No

**Research Procedures**

Provide a detailed chronological description of the clinical or treatment plan:  
Timeline -Recruitment of participants that meet Study Info Sheet qualifications -Confirm Participants -Conduct 4 Workshops over a 4 week time period that includes surveying in written and audio form -Consent -Pre-Workshop Surveys -Data Analysis -Thesis Development

List all procedures involving the use and/or collection of photographs, or audio/video recording:  
Audio and/or video recording may take place with informed consent of participants. All data will be destroyed after publication.

Specify the total duration of a subject's participation in the study and clearly outline the duration of participation for each study visit and sub-study, as applicable:  
Pre-Study: 10 minutes Workshop 1: 1.5 hours Workshop 2: 1.5 hours Workshop 3: 1.5 hours Workshop 4: 1.5 hours

List data collection tools (e.g., measures, questionnaires, observational tool) below by clicking the 'Add Line' button. Include additional rows for study instruments, as needed:

The 'Columns' button allows you to display or hide columns in the Study Instrument List.

Name of Tool:

Body Appreciation Scale-2 (BAS-2)

Is the data collection tool standardized or validated?

Yes

Please provide data collection tool citation:

Tylka, T. L., & Wood-Barcalow, N. L. (2015). The Body Appreciation Scale-2: item refinement and psychometric evaluation. *Body Image, 12*, 53-67. doi:10.1016/j.bodyim.2014.09.006

Name of Tool:

Functionality Appreciation Scale (FAS)

Is the data collection tool standardized or validated?

Yes

Please provide data collection tool citation:

Alleva, T., Kroon Van Diest (2017). The Functionality Appreciation Scale (FAS): Development and Psychometric Evaluation in U.S. Community Women and Men. *Body Image, 23*, 28-44. doi:https://doi.org/10.1016/j.bodyim.2017.07.008

Name of Tool:

Body compassion Scale (BCS)

Is the data collection tool standardized or validated?

Yes

Please provide data collection tool citation:

Altman, J. K., Linfield, K., Salmon, P. G., & Beacham, A. O. (2020). The body compassion scale: Development and initial validation. *J Health Psychol, 25*(4), 439-449. doi:10.1177/1359105317718924

Does the research involve the use of **identifiable private information**?

No

Risk Assessment

Risks and Discomforts

1. Describe and assess any reasonably foreseeable risks and discomforts associated with each procedure for each subject population – physical, psychological, social, legal or other:

2. If this study will involve the collection of identifiable private information, even temporarily, for which the disclosure of the data outside of the research could reasonably place the subjects at risk, include the risk of a potential breach of confidentiality:

- Potential breach of confidentiality.
- Potential discomfort regarding the subject material.
- Potential for physical injury, no more risk than a dance class.

Discuss what steps have been taken and/or will be taken to prevent and minimize any risks/potential discomforts to subjects:

- A breach of confidentiality will be minimized by proper data storage and an use of non-identifier code, and allowing access by only lead researcher and faculty sponsor. - Potential discomfort due to the workshop material will be minimized by allowing participants to take a break, leave the workshop, and/or cease participation in the study. - Potential injury to workshop participants will be minimized by allowing participants to participate at their own pace, take a break, or modify movement based on ability and pain levels.

Certificate of Confidentiality

Is the research partially or wholly funded by NIH (including NIH Institutes and Centers), or does the research involve identifiable sensitive information that require CoC protections?

No

Potential Benefits

Is there the prospect of a direct benefit anticipated for subjects?

Yes

Describe the potential benefits subjects may expect to receive from participation in this study:

Workshop participants may benefit from the opportunity to learn about ways to incorporate multi-sensorial modalities into their personal and artistic practices.

Specify the expected potential societal/scientific benefit(s) of this study:

Potential societal benefits include enhanced body of knowledge on the intersection of self myo-fascial release, imagery, Positive Body Image, and somatic approaches to movement.

Alternatives to Participation

Describe the alternatives to participation in the study available to prospective subjects (check all that apply):

No alternatives exist. The only alternative to study participation is not to participate in the study

Participant Compensation

Will subjects be compensated?

No

Will subjects be reimbursed for out-of-pocket expenses?

No

Confidentiality of Research Data

Information and/or Biospecimens Storage

Indicate how information and/or biospecimens (including signed consent forms) will be stored (check all that apply):

Information will be maintained electronically. Information will be password protected and maintained in an encrypted format

Encrypted Format

Specify where the information will be maintained electronically:

Google Drive

Will subject/patient identifiers be collected or retained?  
Yes

**Subject/Patient Identifiers**

Will any subject/patient identifiers be collected or retained for data analysis, recruitment, consenting and/or compensation (check all that apply)?

Email addresses  
Names  
Telephone numbers

Will a code be used to link subject/patient identifiers with the information and/or biospecimens?

A code will be used. Subject/Patient identifiers will be kept separately from the information and/or biospecimens. The code key will be destroyed at the earliest opportunity, consistent with the conduct of this research

Will research data/biospecimens be transported or maintained on portable devices (e.g., laptop, smartphone, external hard drive, etc.)?

Yes

Specify the device(s) or method(s) of transportation:

All information will be stored on a password protected cloud service.

Explain why transporting or maintaining subject/patient identifiable data/biospecimens on portable devices is necessary:

It is necessary to store the identifiable data on the password protected cloud service as it is easily accessible to the research team.

Specify who will have access to subject/patient identifiable information/biospecimens as part of this protocol (check all that apply):

Authorized UCI personnel (such as the research team) and appropriate institutional officials: such as the Office of Human Research Protections (OHRP) Regulatory entities such as the Food and Drug Administration (FDA), the National Institutes of Health (NIH)

Specify whether subject/patient identifiers be disclosed in presentations and/or publications:

Subject/Patient identifiers will not be disclosed

Specify how long all subject/patient identifiers will be retained. This includes identifiers stored in paper format, stored electronically as well as video recordings, audio recordings, photographs, etc.:

Destroyed after publication/presentation or end of protocol

Will any identifiable photos or audio/video recordings be collected or used?

Yes

**Collection of Photographs, or Audio/Video Retention & Recording**

Will identifiable audio recordings be collected?

No

Will identifiable video recordings be collected?

Yes

How will the video recordings be transcribed?

Identifiable video recordings will not be transcribed

Provide rationale on why identifiable video recordings will not be transcribed:

To have a record of each workshop for reference.

Will the identifiable video recordings be de-identified?

No

Provide rationale on why identifiable video recordings will not be de-identified:

They will be used solely for reference.

Will identifiable photographs be collected?

No

**Research Information and/or Biospecimens Retention**

Indicate how long research information/biospecimens will be retained:

In accordance with UCOP policy, information/biospecimens will be retained for 10 years after the end of the calendar year in which the research is completed, unless otherwise specified in the award agreement

Will research information and/or biospecimens be shared?

No



Lead Researcher Certification

Financial Disclosure

Investigators' Disclosure of Financial Interest

In order to inform research subjects of circumstances that may affect their decision to participate in this study, all researchers are required to disclose their financial interests with outside institutions.

The Lead Researcher of the protocol must ask the following question of all study team members:

**"Do you, your spouse/registered domestic partner, and dependent children together have any disclosable financial interests (i) that would reasonably appear to be affected by the research; or (ii) in entities whose financial interests would reasonably appear to be affected by the research?"**

A member of the study team who answers in the affirmative will be contacted by the Conflict of Interest Oversight Committee (COIOC) to obtain additional information regarding their specific financial interest(s).

**IMPORTANT!** If there has been a change in the financial disclosures of the LR or the study team, please also request a 'Change in Financial Interests'.

As Lead Researcher, I certify that the disclosures for all study team members are accurate

As Primary Lead Researcher and Faculty Sponsor, we have ultimate responsibility for the performance of this study, the protection of the rights and welfare of the human subjects, and applicable UCI policies, as well as state statutes for research involving human subjects.

I hereby assure the following:

1. The information provided in this application is accurate to the best of my knowledge.
2. The information provided in this application has been discussed and shared with my Department Chair. Any requests for changes based on this discussion are included in this application upon submission.
3. All named individuals on this project have read the procedures outlined in the protocol, are aware of and have reviewed relevant HRPP Policies and Procedures and understand their role on the study.
4. All named individuals on this project have completed the required electronic educational research tutorials and have been made aware of the 'Common Rule' (45 CFR Part 46) and acknowledge the importance of the Belmont Principles - Respect for Persons, Beneficence and Justice in conducting research involving human participants. Also UCI has signed the Federalwide Assurance (FWA) that is available for review on the Human Research Protections (HRP) website.
5. Minor changes to the research that do not increase risk to participants, or significantly alter the study aims or procedures, such as the addition or removal of students researchers, do not require additional self-confirmation of exemption or approval from the IRB. Major changes that increase risk or constitute substantive revisions to the research including procedural changes will require a new self-confirmation of exemption or approval from the IRB.
6. When conducting research at a non-UCI location outside of California (but within the United States), Lead Researchers must comply with the requirements and policies of the location and State laws regarding human research procedures.
7. When collaborating with another entity (e.g., another UC, CHOC, CSUF, or a local school district), the collaborators who are engaged in human research activities are responsible for securing their own (non-UCI) IRB exemption/approval.
8. The Exempt Self-Determination, consent documents including recruitment materials and data collection materials will be maintained by the Lead Researcher or Faculty Sponsor for 10 years beyond the completion of the research. If you will cease your affiliation with UCI during this 10 year period and intend to transfer your identifiable data to a new institution, please notify your Faculty Sponsor and Department to determine whether this is permissible.
9. This research study is subject to routine monitoring by the Human Research Protections (HRP) unit of the Office of Research. Through the Education Quality and Improvement Program (EQUIP) program, HRP staff conduct periodic quality improvement monitoring and educational outreach.

As the Lead Researcher and Faculty Sponsor (if applicable), we agree with the above

End of form. Please review responses for accuracy and completeness.

Please ignore the Admin Details Section below. This section is for IRB/hSCRO use only.

Administrative Details Form

General Information

Date of ERA Transcription:

Committee:

Project Status:

Date of Committee Determination:

Pre-2018 Common Rule?

Cognos Reports & FileNet

[HPSter](#) | [hSCROssover](#) | [FileNet](#) | [KR Award Lookup](#)

## APPENDIX C

### Workshop Recruitment Flier

# NOTICING NATURAL NETWORKS

A multi-modal workshop  
investigating well-being

#### THESIS RESEARCH STUDY WITH 2ND YEAR MFA DANCE STUDENT WHITNEY SCHMANSKI

The purpose of this research study is to design a multi-sensory experiential movement workshop that incorporates scientific imagery, self-massage, and movement exploration. Participants will not be compensated.

#### Workshop Requirements:

- 18+ years old
- UCI Dance Major
- English Speaker
- No current injuries

#### Workshop Dates:

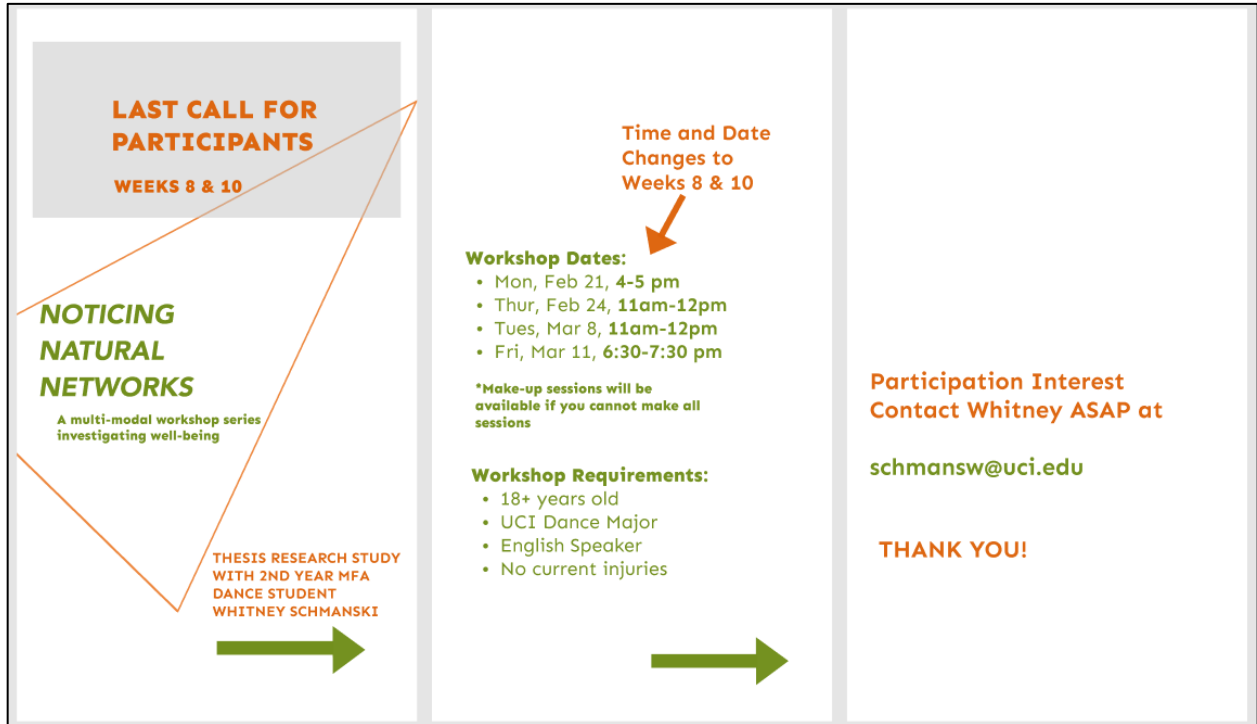
- Mon, Feb 21, 4-5 pm
- Thur, Feb 24, 11am-12pm
- Tues, Mar 8, 11am-12pm
- Fri, Mar 11, 6:30-7:30 pm

**Participation Interest:  
Contact Whitney  
Schmanski at  
schmansw@uci.edu**

Thesis Chair: Dr. Kelli Sharp, Dance Department  
Claire Trevor School of the Arts | ksharp@uci.edu

## APPENDIX D

### Workshop Recruitment for Instagram



## APPENDIX E

### Study Information Sheet

**University of California, Irvine  
Study Information Sheet**

***NOTICING NATURAL NETWORKS: A Multi-Modal Experiential  
Workshop Investigating Well-Being***

**Lead Researcher**

Whitney Schmanski, MFA Student  
Dance  
schmansw@uci.edu

**Faculty Sponsor**

Dr. Kelli Sharp  
Dance  
ksharp@uci.edu

- Please read the information below and ask questions about anything that you do not understand. A researcher listed above will be available to answer your questions.
- You are being asked to participate in a research study. The purpose of this research is to explore how a multi-modal workshop contributes to well-being. The workshop incorporates the topics of fascia, the somatosensory system and the general theme of networks as it relates to both the body and nature.
- You are eligible to participate in this study if you are at least 18 years of age, an English speaker, a dance major at UCI, and have no current injuries preventing you from participating in dance movement.
- The research procedures involve participating in a series of four 1 hour workshops. All workshops will be held on the UCI Campus in the Claire Trevor School of the Arts. Participants will be asked to complete both an entry survey and exit survey on each workshop day. Participants will also be asked to complete a workshop questionnaire on the first workshop day and the last workshop day. The time for taking the surveys is accounted for in the workshop scheduling.
- Possible risks/discomforts associated with the study are no more than in a typical dance class. If participants are feeling any pain or discomfort they will be allowed to go at their own pace or stop if needed.
- You will not be compensated for your participation in this research study.
- All research data collected will be stored securely and confidentially on a password protected laptop computer or in a locked cabinet or room at UCI and will be maintained until the completion of research by July of 2022.
- If you have any comments, concerns, or questions regarding the conduct of this research please contact the researchers at the top of this form.

· Researchers will use your information to conduct this study. Information gathered during this research study will only be used for this study. They will not be shared with other researchers.

· Please contact UCI's Office of Research by phone, (949) 824-6662, by e-mail at [IRB@research.uci.edu](mailto:IRB@research.uci.edu) or at 141 Innovation Drive, Suite 250, Irvine, CA 92697 if you are unable to reach the researchers listed at the top of the form and have general questions; have concerns or complaints about the research; have questions about your rights as a research subject; or have general comments or suggestions.

· **What is an IRB?** An Institutional Review Board (IRB) is a committee made up of scientists and non-scientists. The IRB's role is to protect the rights and welfare of human subjects involved in research. The IRB also assures that the research complies with applicable regulations, laws, and institutional policies.

· Participation in this study is voluntary. There is no cost to you for participating. You may choose to skip a question or a study procedure. You may refuse to participate or discontinue your involvement at any time without penalty. You are free to withdraw from this study at any time. **If you decide to withdraw from this study you should notify the research team immediately.**

## APPENDIX F

### Workshop Screening Form

Research Workshop Series

3/27/22, 4:15 PM

## Research Workshop Series

Noticing Natural Networks: A Multi-Modal Experiential Workshop Investigating Well-Being:

This workshop series is for research purposes for a MFA Thesis by Whitney Schmanski with UCI faculty sponsor Dr. Kelli Sharp.

---

The respondent's email (null) was recorded on submission of this form.

**\* Required**

1. Email \*

---

You have expressed interest to participate in a study titled "Noticing Natural Networks: A Multi-Modal Experiential Workshop Investigating Well-Being". The purpose of this research is to explore how multi-sensory modalities of self-massage, imagery, and experiential movement in workshop format contributes to well-being.

Must answer yes to all of the following questions to participate:

2. I am an English speaker \*

*Mark only one oval.*

Yes

No

3. I am 18 years of age or older \*

*Mark only one oval.*

Yes

No

4. I am an enrolled UCI Dance Major \*

*Mark only one oval.*

Yes

No

5. I have no current injuries preventing me from participating in dance movement \*

*Mark only one oval.*

Yes, I have no current injuries that prevent me from participating in dance movement

No, I have an injury that prevents me from participating in dance movement

Other: \_\_\_\_\_

**Additional Study Information:**

6. The workshops you will participate in are for research purposes and may be audio and video recorded for use by the lead researcher. Do you agree to allow the lead researcher to record you with acknowledgment in the workshop. \*

*Mark only one oval.*

- Yes, I consent to the use of audio and video recording equipment
- No, I DO NOT consent to the use of audio and video recording equipment

7. I understand that the research procedures involve participating in a series of four workshops UCI Campus. I understand that I will be asked to participate in the four workshops and that I will also be asked to fill out participant surveys. \*

*Check all that apply.*

- Yes, I understand
- No

#### **Workshop Dates**

Feb. 21, 4-5pm  
Feb. 24, 11am-12pm  
Mar. 8, 11am-12pm  
Mar. 11, 6:30-7:30pm

8. I am available Feb. 21, 4-5pm \*

*Mark only one oval.*

- Yes
- No
- Other: \_\_\_\_\_



9. I am available Feb. 24, 11am-12pm \*

*Mark only one oval.*

- Yes
- No
- Other: \_\_\_\_\_

10. Mar. 8, 11am-12pm \*

*Mark only one oval.*

- Yes
- No
- Other: \_\_\_\_\_

11. Mar. 11, 6:30-7:30pm \*

*Mark only one oval.*

- Yes
- No
- Other: \_\_\_\_\_

12. I understand that I will not be compensated for this study \*

*Check all that apply.*

- Yes, I understand
- No

13. I understand that the possible risks/discomforts associated with the study are no more than a typical dance class. I understand that participants that are feeling any pain or discomfort will be allowed to go at their own pace or stop if needed. \*

*Mark only one oval.*

- Yes, I understand  
 No

14. I understand that the research team will use my information to conduct this study. Information gathered during this research study will only be used for this study and will not be shared with other researchers. \*

*Mark only one oval.*

- Yes, I understand  
 No

15. I understand that participation in this study is voluntary. \*

*Mark only one oval.*

- Yes, I agree to let the research team know if I do not want to participate  
 Other: \_\_\_\_\_

16. I understand that I may choose to skip a question or a study procedure. I may refuse to participate or discontinue my involvement at any time without penalty. I am free to withdraw from this study at any time. \*

*Mark only one oval.*

- Yes, I understand  
 Other: \_\_\_\_\_

17. I will let the research team know immediately if I no longer want to participate in the workshop. \*

*Mark only one oval.*

- Yes  
 Other: \_\_\_\_\_

18. I acknowledge my responsibility to let the study team know immediately if I have discomfort or an injury, or any adverse events during the study period. \*

*Mark only one oval.*

- Yes  
 Other: \_\_\_\_\_

**For questions, please contact:**

Whitney Schmanski, Lead Researcher: [schmansw@uci.edu](mailto:schmansw@uci.edu)  
Dr. Kelli Sharp, Faculty Sponsor: [ksharp@uci.edu](mailto:ksharp@uci.edu)

**Thank you for your time and efforts, they are greatly appreciated!**

## APPENDIX G

### Workshop Audio and Video Release Form

#### Workshop Release Form

You have been asked to participate in a study titled "Noticing Natural Networks: A Multi-Modal Experiential Workshop Investigating Well-Being". The workshops you will participate in are for research purposes and may be audio and video recorded for use by the lead researcher. By signing this form, you agree to allow the lead researcher to record you with acknowledgment in the workshop.

For questions, please contact:

Whitney Schmanski, Lead Researcher  
[schmansw@uci.edu](mailto:schmansw@uci.edu)

Dr. Kelli Sharp, Faculty Sponsor  
[ksharp@uci.edu](mailto:ksharp@uci.edu)

**I consent to the use of audio and video recording equipment:**

**Name:**

---

**Signature:**

---

## APPENDIX H

### Workshop Questionnaire BAS-2 + FAS

## Workshop Questionnaire

---

#### Start of Block: Body Appreciation Scale-2

Please indicate whether the question is true about you never, seldom, sometimes, often, or always. Please answer in the perspective of being a dancer.

---

Q1 I respect my body.

- Never (1)
  - Seldom (2)
  - Sometimes (3)
  - Often (4)
  - Always (5)
- 

Q2 I feel good about my body.

- Never (1)
  - Seldom (2)
  - Sometimes (3)
  - Often (4)
  - Always (5)
-

Q3 On the whole, I am satisfied with my body.

- Never (1)
  - Seldom (2)
  - Sometimes (3)
  - Often (4)
  - Always (5)
- 

Q4 Despite its flaws, I accept my body for what it is.

- Never (1)
  - Seldom (2)
  - Sometimes (3)
  - Often (4)
  - Always (5)
- 

Q5 I feel that my body has at least some good qualities.

- Never (1)
  - Seldom (2)
  - Sometimes (3)
  - Often (4)
  - Always (5)
-

Q6 I take a positive attitude toward my body.

- Never (1)
  - Seldom (2)
  - Sometimes (3)
  - Often (4)
  - Always (5)
- 

Q7 I am attentive to my body's needs.

- Never (1)
  - Seldom (2)
  - Sometimes (3)
  - Often (4)
  - Always (5)
- 

Q8 My self-worth is independent of my body's shape and weight.

- Never (1)
  - Seldom (2)
  - Sometimes (3)
  - Often (4)
  - Always (5)
-

Q9 I do not focus a lot of energy being concerned with my body's shape or weight.

- Never (1)
  - Seldom (4)
  - Sometimes (5)
  - Often (6)
  - Always (7)
- 

Q10 My feelings toward my body are positive for the most part.

- Never (1)
  - Seldom (2)
  - Sometimes (3)
  - Often (4)
  - Always (5)
- 

Q11 I engage in healthy behaviors to take care of my body.

- Never (1)
  - Seldom (2)
  - Sometimes (3)
  - Often (4)
  - Always (5)
-



Q12 I do not allow unrealistically thin images of men/ women presented in the media to affect my attitudes toward my body.

- Never (1)
  - Seldom (2)
  - Sometimes (3)
  - Often (4)
  - Always (5)
- 

Q13 Despite its imperfections, I still like my body.

- Never (1)
- Seldom (2)
- Sometimes (3)
- Often (4)
- Always (5)

End of Block: Body Appreciation Scale-2

---

Start of Block: Functionality Appreciation Scale

Please indicate the extent to which you agree with each of the following statements. Please answer in the perspective of being a dancer.

---

Page Break

---

Q14 I appreciate my body for what it is capable of doing.

- Strongly Disagree (1)
  - Disagree (2)
  - Neither Agree nor Disagree (3)
  - Agree (4)
  - Strongly Agree (5)
- 

Q15 I am grateful for the health of my body, even if it isn't always as healthy as I would like it to be.

- Strongly Disagree (1)
  - Disagree (2)
  - Neither Agree nor Disagree (3)
  - Agree (4)
  - Strongly Agree (5)
- 

Q16 I appreciate that my body allows me to communicate and interact with others.

- Strongly Disagree (1)
  - Disagree (2)
  - Neither Agree nor Disagree (3)
  - Agree (4)
  - Strongly Agree (5)
-

Q17 I acknowledge and appreciate when my body feels good and/or relaxed.

- Strongly Disagree (1)
  - Disagree (2)
  - Neither Agree nor Disagree (3)
  - Agree (4)
  - Strongly Agree (5)
- 

Q18 I am grateful that my body enables me to engage in activities that I enjoy or find important.

- Strongly Disagree (1)
  - Disagree (2)
  - Neither Agree nor Disagree (3)
  - Agree (4)
  - Strongly Agree (5)
- 

Q19 I feel that my body does so much for me.

- Strongly Disagree (1)
  - Disagree (2)
  - Neither Agree nor Disagree (3)
  - Agree (4)
  - Strongly Agree (5)
-

Q20 I respect my body for the functions that it performs.

- Strongly Disagree (1)
- Disagree (2)
- Neither Agree nor Disagree (3)
- Agree (4)
- Strongly Agree (5)

End of Block: Functionality Appreciation Scale

---

# APPENDIX I

## Workshop Entry Survey

### Entry Survey

Start of Block: Please answer the questions as you feel entering this workshop session.

Feeling of connectedness to your body

0 10 20 30 40 50 60 70 80 90 100

0 being the least connected, 100 being the most connected ()



Page Break

Feeling of inspiration

0 10 20 30 40 50 60 70 80 90 100

0 being the least inspired, 100 being the most inspired ()



Page Break

Feeling of connectedness to your environment

0 10 20 30 40 50 60 70 80 90 100

0 being the least connected, 100 being the most connected ()



Page Break

Feeling of curiosity

0 10 20 30 40 50 60 70 80 90 100

0 being the least curious, 100 being the most curious ()



Page Break

Feeling of appreciation

0 10 20 30 40 50 60 70 80 90 100

0 being the least appreciative, 100 being the most appreciative ()



Page Break

Feeling of connectedness to your desires

0 10 20 30 40 50 60 70 80 90 100

0 being the least connected, 100 being the most connected ()



End of Block: Please answer the questions as you feel entering this workshop session.

# APPENDIX J

## Workshop Exit Survey

### Exit Survey

Start of Block: Please answer the questions as you feel entering this workshop session.

Feeling of connectedness to your body

0 10 20 30 40 50 60 70 80 90 100

0 being the least connected, 100 being the most connected ()



Page Break

Feeling of inspiration

0 10 20 30 40 50 60 70 80 90 100

0 being the least inspired, 100 being the most inspired ()



Page Break

Feeling of connectedness to your environment

0 10 20 30 40 50 60 70 80 90 100

0 being the least connected, 100 being the most connected ()



Page Break

Feeling of curiosity

0 10 20 30 40 50 60 70 80 90 100

0 being the least curious, 100 being the most  
curious ()



Page Break

Feeling of appreciation

0 10 20 30 40 50 60 70 80 90 100

0 being the least appreciative, 100 being the  
most appreciative ()



Page Break

Feeling of connectedness to your desires

0 10 20 30 40 50 60 70 80 90 100

0 being the least connected, 100 being the most  
connected ()

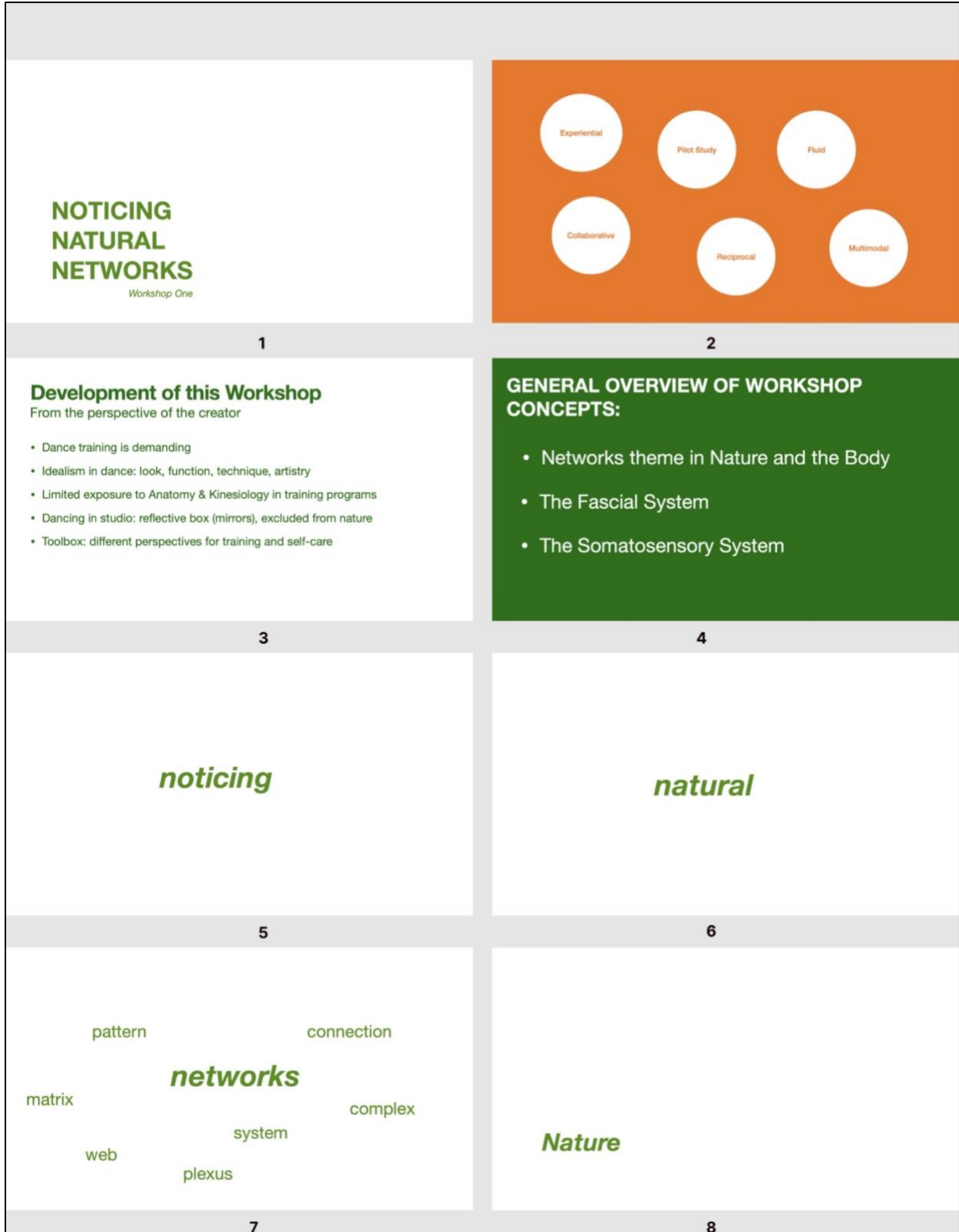


End of Block: Please answer the questions as you feel entering this workshop session.



# APPENDIX K

## Visual Presentation One





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14

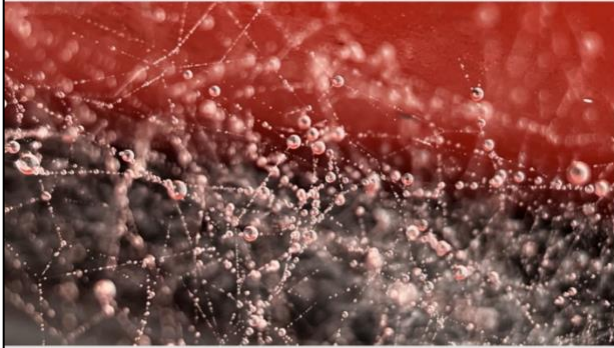


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16





17



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30



31

*what are you noticing?*

32

*"It is only by understanding the parts that we can appreciate the beauty of the whole; equally, it is only by valuing wholeness that we can understand the authentic roles of the parts."*

-James Earls

(Earls, 2020)

## Human body

33

### FASCIAL SYSTEM

Fascial web, fascial net, fascia  
Fibrillar (collagen) continuous network

- "Fascia keeps everything separate yet connected at the same time"
- "A three-dimensional continuum of fascial tissue and organs spread throughout the body"

(Lesondak, 2017; Schleip, 2022)

34

### FASCIA BASICS

David Lesondak's Fascia Fundamentals:

- "Fascia has layers—but not really"
- "Fascia is your soft Skeleton"
- "Fascia is Fiber & Fluid"
- "Fascia Connects— Force Transmission"
- "Fascia Senses"
- "Fascia Regenerates and Repairs"

(Lesondak, 2022)

35

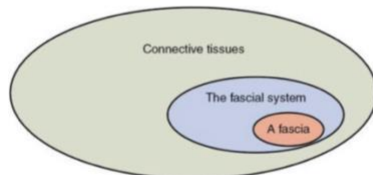
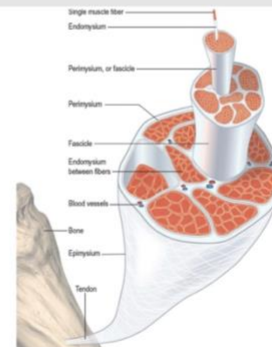


FIG. 6.4 The terminology of the Fascia Nomenclature Committee recommends the term "the fascial net" (also called "fascial system" by some authors) for a subset of tissues belonging to the connective tissue system of the body. Additionally, the phrase "a fascia" (also called "proper fascia" by some authors) describes a subset of tissues within the larger category of "the fascial system."

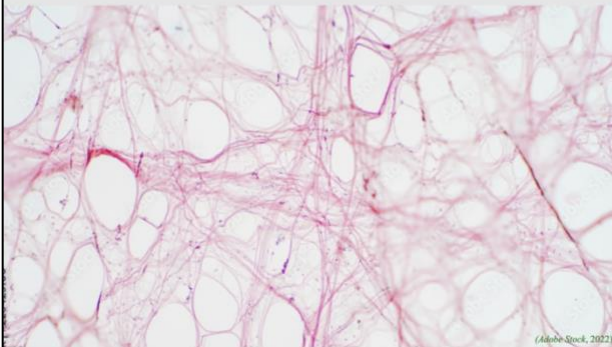
(Schleip, 2022)

36



38

37



(Adobe Stock, 2022)

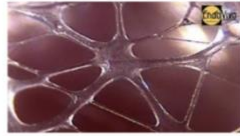


(Guimberteau, 2014; Guimberteau & Armstrong, 2015; Schmanski, 2022)

39

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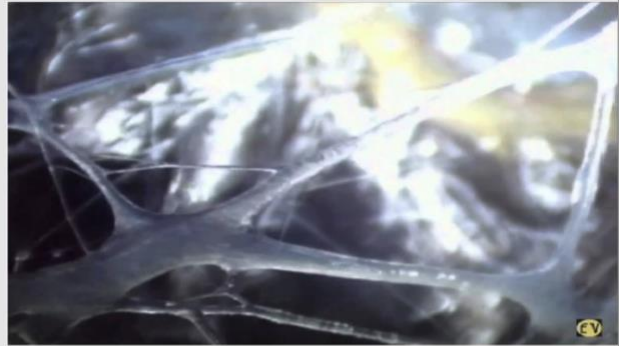




**Fascia via Endoscopy**  
**Dr. Jean-Claude Guimberteau**

(Guimberteau, 2014;  
 Guimberteau &  
 Armstrong, 2015)

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42



43

### Fascia Continuity Models

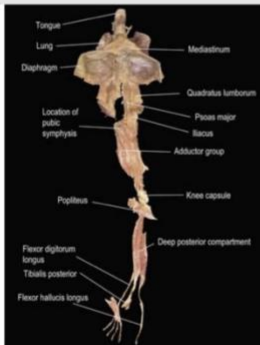


Functional: Posterior Kinetic Chain



Anatomy Trains:  
 Outer layer connective "meridians" of fascia  
 (Schleip, 2022)

44



Deep Front Line

45

### TENSEGRITY

"Structures that maintain their integrity due primarily to a balance of woven tensile forces continual through the structure" - Thomas Myers

Systematic Structure:  
 One part affects all



R. Buckminster Fuller

46



Tensegral Structures



47

### BIO-TENSEGRITY

Stephen Levine: application of tensegrity principles to biological structures

48

***“The real voyage of discovery consists not in seeking new landscapes but in having new eyes”***

-Marcel Proust

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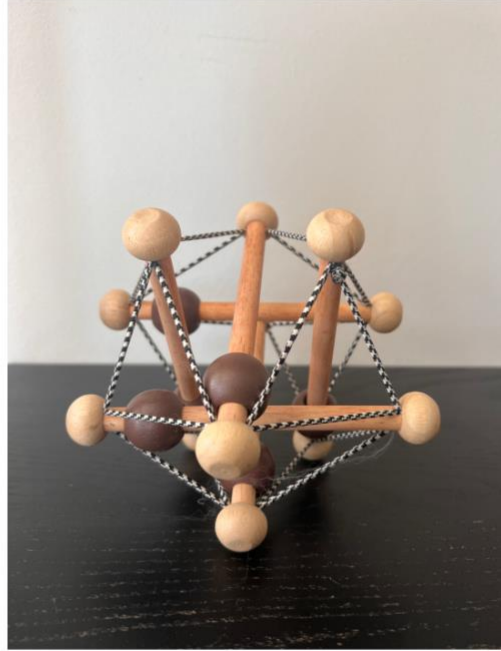
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**APPENDIX L**

**Physical Objects used in Workshop One**



**Web**

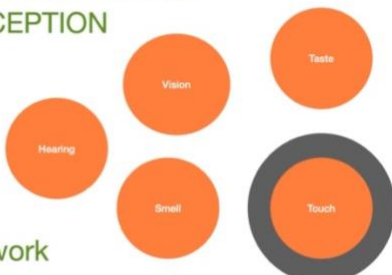

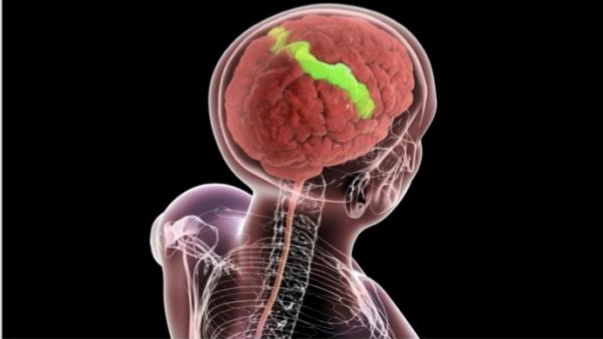



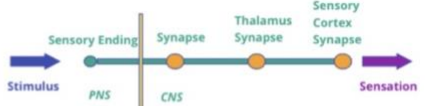
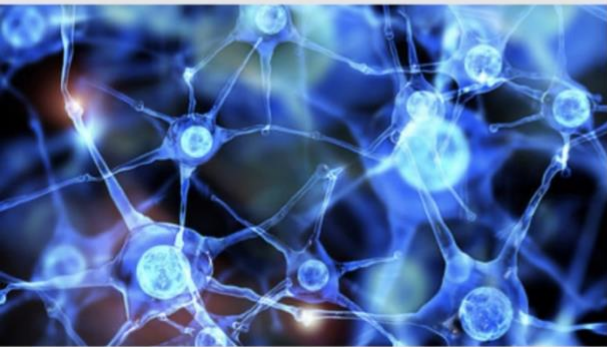


**Tensegrity Model**



# APPENDIX M

## Visual Presentation Two

<h3>NOTICING NATURAL NETWORKS</h3> <p>Workshop Two</p>	<h3>THE NERVOUS SYSTEM</h3> <h4>SENSE PERCEPTION</h4> <p>Sensory signals that inform us about our body and our environment</p>  <p>Sensory Network</p>
<p>1</p> <h3>SOMATOSENSATION</h3> <p>"Body Sense" Brain and Body Information System</p>  <p>Does not have a single sense organ, Multisensory rather than a single unified modality Do we touch with our whole body?</p>	 <p>4</p>
<h3>RECEPTOR EXAMPLES</h3> <p>Respond to different stimuli</p>  <p>Mechanoreceptors</p>  <p>Nociceptors</p>  <p>Thermoreceptors</p>	<h3>Basic Somatosensory Pathway</h3> <p>Neuronal Network</p>  <p>6</p>
 <p>7</p>	<h3>EXTERIOCEPTION</h3> <h3>PROPRIOCEPTION</h3> <h3>INTEROCEPTION</h3> <p>All require bodily awareness</p> <p>8</p>

## EXTEROCEPTION

Relation to external environment

9

## PROPRIOCEPTION

Ability to sense body position and orientation in relation to the environment as well as the force or effort of the movement

10

## INTEROCEPTION

Conscious or unconscious  
Internal sensations of the body

How we experience what is going on with and in our body

Information is processed differently than exteroception and proprioception. Processing happens in the insula region and is associated with an emotional or motivational component. (Schleip, 2022)

11



12

How is fascia involved in sense perception?

13

## INNERVATION OF FASCIA

-Contains mechanoreceptors that assist with proprioception due to the large amount of surface area

-Dense innervation:  
250 million nerve endings in the fascial net  
200 million nerve endings in the skin  
126 million nerve endings in the eyes

-Our brains rely heavily on that input

14

“The fascia is the one system that connects to every aspect of human physiology. . .fascia is a metasytem, connecting and influencing all other systems, a concept with the potential to change our core understanding of human physiology’ (Schleip,2022)

15



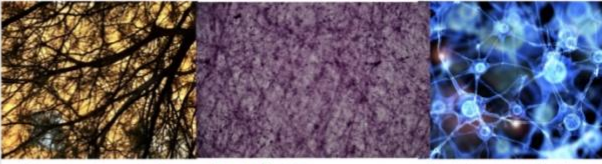

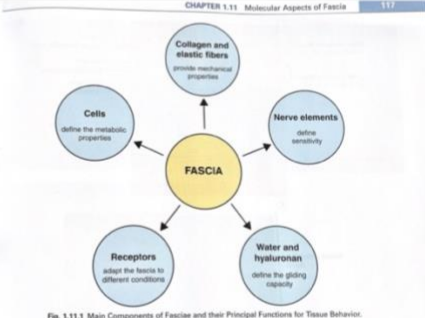
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# APPENDIX N

## Visual Presentation Three

<p><b>NOTICING NATURAL NETWORKS</b> <i>Workshop Three</i></p>	 <p>Network patterns in the body and in nature <i>Tree</i></p> <p>Fascia System <i>Areolar Connective Tissue</i></p> <p>Somatosensory System <i>Node Structure in central nervous system</i></p>
<p><b>Self-Touch</b> <b>Self-Massage</b> <b>Self Myo-Fascial Release</b></p> 	<p><b>Do you practice self-massage, foam rolling, etc.?</b></p>
<p><b>Fascia Recap</b></p> <ul style="list-style-type: none"> <li>• Models of structure and connectivity (i.e. biotensegrity and myo-fascial meridians) → connectivity of areas of the body → primary organ of structure</li> <li>• Function in relation to muscular activity and force transmission → movement</li> <li>• Fascia contains a large amount of nerve endings and mechanoreceptors → somatosensory system / body sense perception</li> </ul>	 <p>CHAPTER 1.11 Molecular Aspects of Fascia 117</p> <p>Fig. 1.11.1 Main Components of Fasciae and their Principal Functions for Tissue Behavior.</p>
<p><b>What can happen to fascial tissue?</b> <i>A few examples</i></p> <ul style="list-style-type: none"> <li>• Can become shortened and tight which can contribute to poor muscular biomechanics, a decrease in muscle strength and endurance, etc.</li> <li>• Inflammation</li> <li>• Changes in sensory input</li> <li>• Adhesions, Trigger points (TrPs)</li> </ul>	<p><b>Self Myo-Fascial Release (SMFR)</b> <i>Growing scientific literature and studies</i></p> <ul style="list-style-type: none"> <li>• <b>Myo-Fascia:</b> refers to the musculoskeletal fascia</li> <li>• <b>“Release”</b> The accepted term SMFR may need to change due to the lack of evidence in research</li> <li>• <b>“Tool-assisted soft tissue mobilization”</b> (Schleip et al., 2022)</li> <li>• <b>Uses an object as a stress transfer-medium (STM)</b> i.e. roller, ball.</li> <li>• <b>Mid 1990’s:</b> “introduced to the performing arts community as a comprehensive warm-up and conditioning program”</li> </ul>



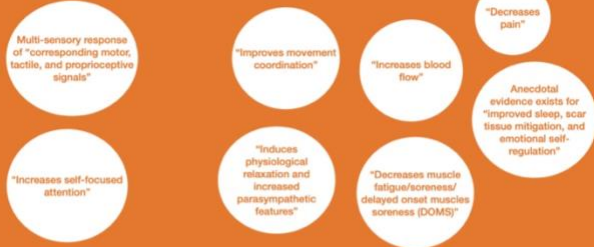
**"Relevant research topics include how fascia release affects flexibility and range of motion, pain sensitivity, dynamic performance measures, and proprioception"**

(Schleip et al, 2022)

9

## BENEFITS OF: Self-Touch

## Self Myo-Fascial Release



10

## What happens when Foam Rolling?

*A few examples*

- Fascial Hydration, Hyaluronic acid
- Increase circulation
- Thixotropy: "a process in which heat or pressure is applied to a material, which in turn makes it less dense and more fluid" (Schleip, 2003) → decreasing viscosity → increasing ROM
- Trigger point (TrPs): myo-fascial adhesion "hypersensitive tender spots"
- Decreases pain sensitivity
- Lower tension, fatigue, anxiety
- Stimulation of Proprioception
- Stimulation of Parasympathetic nervous system

11

## Autonomic Nervous System

Sympathetic

Parasympathetic

Fight or flight

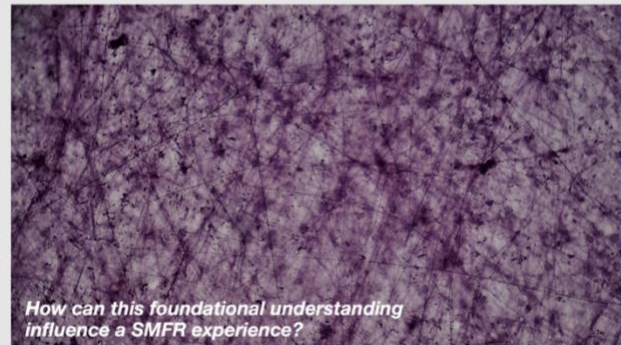
Rest and digest

12

## Safe Practices for Foam Rolling

- AVOID rolling / putting pressure on these areas:
  - abdomen
  - posterior portion of knee
  - Cervical spine (neck)
  - Lumbar spine (low back)
  - superior portion hip flexors
  - over joints / bony landmarks (kneecap, tibia)
    - processes of the spine (spine vertebrae)
- Precaution: If you feel tingling, pulsing, or "falling asleep" of limbs, move to a different area. This indicates pressuring nerves improperly or limiting blood flow
- Support head and neck

13



*How can this foundational understanding influence a SMFR experience?*

14

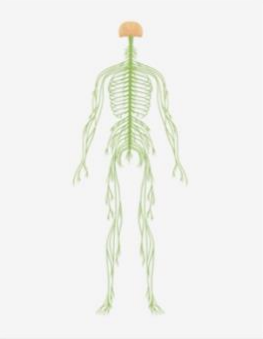



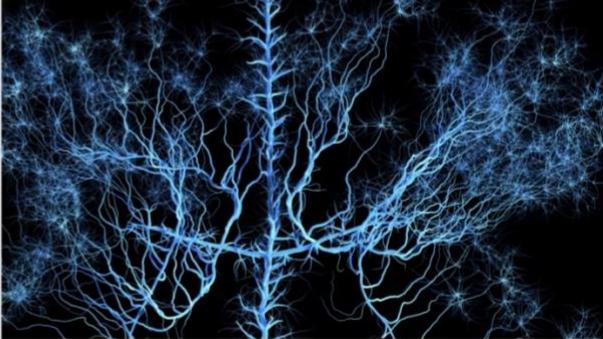

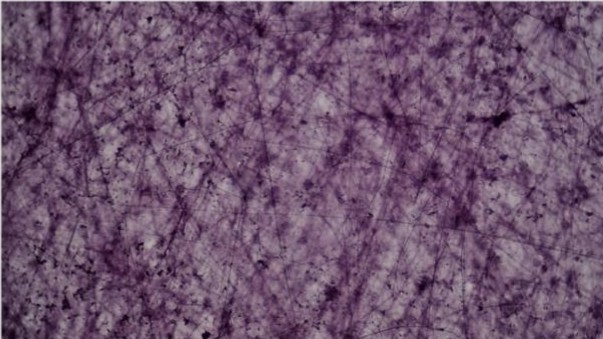
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# APPENDIX O

## Visual Presentation Four

<p><b>NOTICING NATURAL NETWORKS</b></p> <p><i>Workshop Four</i></p>	
<p>1</p>	<p>2</p>
	
<p>3</p>	<p>4</p>
	
<p>5</p>	<p>6</p>
	
<p>7</p>	<p>8</p>



### Fascial System Definition

“The fascial system consists of the three-dimensional continuum of soft, collagen- containing, loose and dense fibrous connective tissues that permeate the body... (the fascial system) interpenetrates and surrounds all organs, muscles, bones and nerve fibers, endowing the body with a functional structure, and providing an environment that enables all body systems to operate in an integrated manner.”

(Sue Adstrum, 2017)



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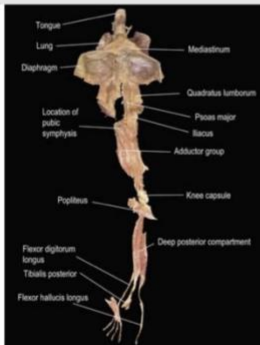
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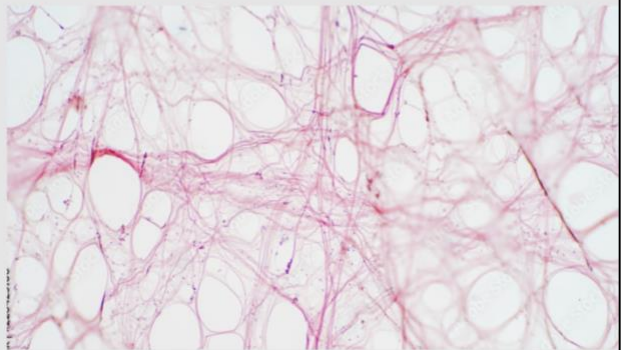
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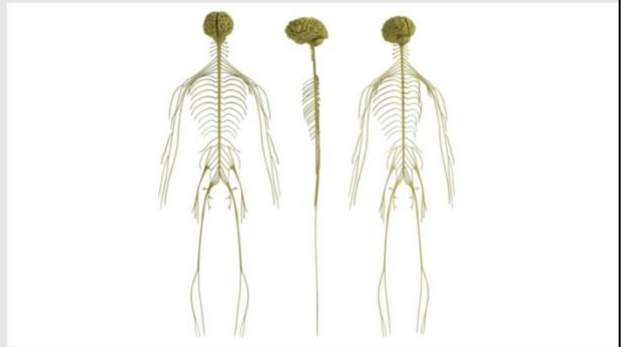
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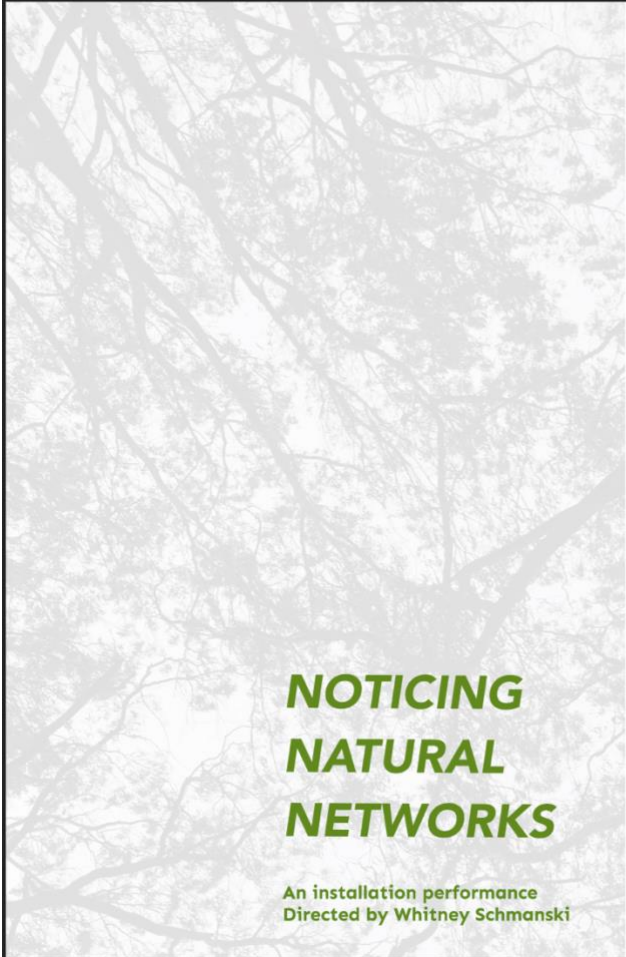
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## APPENDIX P

### Thesis Program Note



**NOTICING  
NATURAL  
NETWORKS**

An installation performance  
Directed by Whitney Schmanski

This thesis installation explores a multimodal presentation on the intersections of fascia, neural networks, and dance movement.

**THE FASCIAL SYSTEM**

is a **three-dimensional** connective tissue continuum that permeates the body. It surrounds all organs, muscles, bones, and nerve fibers, providing body systems **functional structure** in order to operate in an **integrated** manner. The fascial system remodels the **architecture** of its **collagenous fiber network** depending on various demands of movement. Within the theory of **biotensegrity**, the fascial net aids in force dispersion through **tension & compression**, similar to tensegrity structures such as the geodesic dome. The reciprocal relationship between fascia and dance movement is advantageous for tissue through **multi-directional movement**, range of motion, and dynamics of dance. Movement depends on the fascial net for muscular exertion, structural integrity, and sensory input. The fascial web is recognized as the **body's richest sensory organ** due to the innervation and expansive surface area in the body.

**THE SOMATOSENSORY SYSTEM**

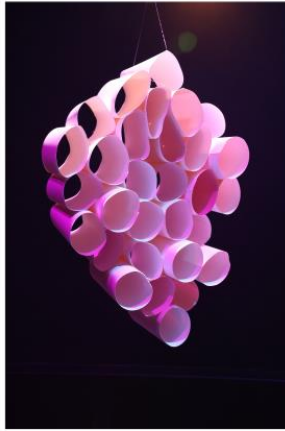
is a sophisticated neural network in the human nervous system that allows for **sense perception of the body**. It connects the brain and body by receiving and **processing sensory input** of internal and external environments, including **interoception** (internal sensations of the body), **proprioception** (sense of body movement and relation to space), and **exteroception** (awareness of the body relative to the external environment). The make-up of the peripheral nervous system involves **dendritic** structures, similar to branch patterns found in nature.

APPENDIX Q

Thesis Installation Sculptures



1



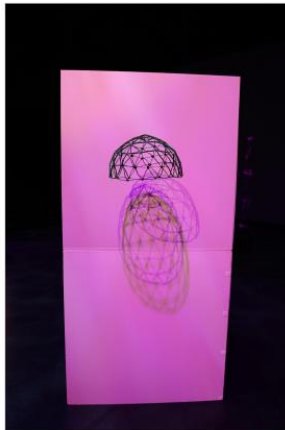
2



3



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5



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**APPENDIX R**

**Theatrical Props used in Thesis**



**1**



**2**

**APPENDIX S**

**Thesis Projection**



**1**



**2**