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Focus Group and Survey Responses to Postural Feedback During Creative Movement Exploration

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Abstract

John H. Riskind's "appropriateness hypothesis" states that posture, positions, and gestures can be emotionally self-regulating if an individual holds a posture that is appropriate for its context.¹ A litany of studies on power posing suggests expansive postures could increase Feelings of Power.² One meta-analytic review demonstrates the "robust" significance for evidence of "power feelings, emotion, or self-esteem" due to postural feedback while cautioning researchers on the empirical invalidity of evidence for behavioral and physiological variables.³ A qualitative description of individuals' experiences as they change posture, gesture, and position would direct future research on postural feedback. The current project qualitatively examines focus group and survey responses to postural feedback during creative movement exploration. Sixteen undergraduate students were recruited from Betsy Blackman Dance Program. Analysis revealed participants reported at least one instance of each main code: Body Awareness, Change of Emotion or Thought due to Change in Body (Contraction, Expansion, or Other Physical Change) and Application to Own Patterns. Some themes are unique while some are reoccurring, highlighting the complexity of postural feedback. The

¹ John H. Riskind, "They Stoop to Conquer: Guiding and Self-Regulatory Functions of Physical Posture after Success and Failure." *Journal of Personality and Social Psychology* 47, no. 3 (1984): 479. doi:10.1037/0022-3514.47.3.479.

² Carney, Dana R., Amy J. C. Cuddy, Andy J. Yap. "Power posing: brief nonverbal displays affect neuroendocrine levels and risk tolerance." *Psychological Sciences* 21, no. 10 (2010) 1363. <https://doi.org/10.1177/0956797610383437>; Carney, Dana R., Amy J. C. Cuddy, and Andy J. Yap. "Review and Summary of Research on the Embodied Effects of Expansive (vs. Contractive) Nonverbal Displays." *Psychological Science* 26, no. 5 (2015): 657. <https://doi.org/10.1177/0956797614566855>; Amy J. C. Cuddy, Jack S. Schultz, and Nathen E Fosse. "P- Curving a More Comprehensive Body of Research on Postural Feedback Reveals Clear Evidential Value for Power-Posing Effects: Reply to Simmons and Simonsohn." *Psychological Science* 29, no. 4 (2017): 656. <https://doi.org/10.1177/0956797617746749>.

³ Robert Körner, Lukas Röseler, Astrid Schütz, and Brad J. Bushman. "Dominance and Prestige: Meta-Analytic Review of Experimentally Induced Body Position Effects on Behavioral, Self-Report, and Physiological Dependent Variables." *Psychological Bulletin* 148, no. 1–2 (2022): 67. <https://doi.org/10.1037/bul0000356>.

varying themes include, but are not limited to, Feelings of Power. Results discourage future research from narrowing its focus to Feelings of Power and suggest the possibility of intentional postural adjustment as an emotional self-regulation tool.

Introduction

Can posture change emotion? Power posers unite to urgently exclaim “yes!” while the rest of the world raises skeptic eyebrows. My education in dance, public health, and psychology has heightened my exposure to the interplay between emotion, physical movement, and society. I am often very aware of my own posture and will use posture, positions, and gestures to help myself appropriately engage in a situation. This technique is the foundation of the postural feedback theory, which posits that changing the body can change emotion. While I consider my emotional changes a result of my postural adjustment, it was unclear the extent to which postural feedback is supported by the literature and others’ experiences. A literature review and two-phase research project gauge and engage in the current dialogue around postural feedback, while highlighting more inquiries for further research.

Literature Review

Introduction

In 12 databases offered through the University of South Carolina library, “‘body language’ OR posture OR pose OR ‘bodily feedback’] AND [‘chang* W3 emotion’ OR emotion] yielded 273 studies, of which the ten most relevant abstracts were included in this review. Formative studies from preliminary research in Fall 2022 and Spring 2023, an empirical study that accounts for cultural differences, two reviews of empirical evidence for the role of power, and three chapters of a book on embodied cognition were also included. The following literature review will support the conceptual framework of postural feedback and theories of emotion. The relevant scientific dialogue lays the foundation for the current project’s development of two creative movement workshops and analysis of survey and focus group responses.

Conceptual Framework of Embodied Emotion

Theories of Emotion

Emotion research has outlived the operational definition of emotion. Instead of having one definition, or a model of how emotion functions, outdated versions of emotional theories are pitted against each other. Further, terms ‘affect,’ ‘emotional experience,’ ‘mood,’ ‘feeling,’ and ‘emotion’ are used synonymously.⁴ Any theories of emotional processing, therefore, lack precision due to a muddled definition.

Klaus Scherer, leading researcher in emotion science, proposes a working definition, which resembles a visual flow chart of emotional processing. He is mindful

⁴ Klaus R. Scherer, “Theory convergence in emotion science is timely and realistic.” *Cognition and Emotion*, 36, no. 2 (2022): 156.

that the definitions and theories of emotion may never fully unify but points out the coherence between three psychological theories, “basic emotional theory,” “appraisal theory,” and “constructivist theory.”⁵ Each would agree on the basic structure of Scherer’s working definition of emotion. Most of the differences between the theories are semantic. Influential emotion theorists would agree that emotions are episodes that happen after an event, are integrated with other bodily processes, are evaluative of situation magnitude, are causal to physiological, motor, and action reactions, are accessible to consciousness, and are grouped unique to the individual.⁶

Though emotional processing lacks one precise theory, several pillars of emotion are widely accepted by theorists. This article lays a theoretical foundation for a study on emotion. Namely, emotions are known to be integrated with motor functions and dependent on the individual.

Embodiment

Though modern iterations of emotion theory would agree that physiology plays a role in emotional experience, the field of embodied cognition aims to unpack those physiological details of thinking and feeling. Traditional cognitive science, in contrast, argues for the computer-like processes of the human mind.⁷ The modern understanding of embodied cognition has three major points. First, the way an organism’s body operates determines the concepts they understand.⁸ Second, Shapiro points out unacknowledged limitations in the early research that concluded the brain’s computational nature. Embodiment asserts that the brain is not a computer inside a

⁵ Scherer, “Theory convergence,” 160-161.

⁶ Scherer, “Theory convergence,” 164.

⁷ Lawrence Shapiro, *Embodied Cognition*. (New York: Routledge, 2019), 4-5.

⁸ Shapiro, *Embodied Cognition*, 37.

body, but the body is a network of emotional, motor, and sensory systems that determine how we think.⁹ Third, an organism's body and environment not only stimuli of cognition but a part of its construction.⁶ Embodied cognition posits that cognition and the body are inextricable, so to what extent can the body affect the way an individual thinks and feels?

One 2007 study applies the theory of embodied cognition to emotion. Paula M. Niedenthal references several studies that support emotion being an "integrated, multimodal experience."¹⁰ For example, slumped individuals were less proud of their success on an achievement test than upright individuals, and people who held a pencil between their teeth (smiling) found a cartoon funnier than those who held the pencil with their lips (no smiling).¹¹ The connection of sensory, motor, and affective modalities can be seen when individuals' thoughts and verbal descriptions of emotion accompany the corresponding facial expression. Further, Niedenthal references a past study that suggests bodily and facial movements influence emotional processing.¹² Niedenthal explains that emotion, not just cognition, is embodied because of the interconnection between sensory, motor, and affect pathways.

Neurophysiology of Emotion

The neurophysiology of emotional changes due to postural feedback is not defined by the literature, therefore presenting an incomplete demonstration of cellular functioning of embodied emotion. One 2021 study cites the current evidence from animal research on the neurophysiology of emotional pathways. When automatic

⁹ Shapiro, *Embodied Cognition*, 37.

¹⁰ Paula M. Niedenthal, "Embodying Emotion," *Science* 316 (2007): 1003.

¹¹ Niedenthal, "Embodying Emotion," 1002.

¹² Niedenthal, "Embodying Emotion," 1002.

states, like fear, are perceived by an organism, the amygdala “instantaneously” alerts the thalamus.¹³ When emotion is slowly formed with deliberation, we see the corticolimbic circle display the activity between the “prefrontal regions of the cortex and amygdala.”¹⁴ If a stimulus triggers the amygdala, an individual might respond with an emotional feeling instantaneously, without analyzing it first. “Sight, sound, painful stimuli, etc.” are the only stimuli cited for initiating the amygdala response.¹⁵ Could the amygdala instigate an emotional neural pathway with a clenched jaw and arm crossing? fMRI research supports amygdala activation when participants view images of fearful postures, not including facial expressions.¹⁶ This evidence suggests that perceiving fearful postures in others could elicit emotional associations and activate neural pathways. No studies to date have examined brain activation for postural self-adjustment, which is the defining characteristic of postural feedback.

Empirical Evidence that Posture Changes Emotion

Postural Feedback

In 1984, John H. Riskind coined the “appropriateness hypothesis,” which emphasizes the influence of an individual’s situation on postural feedback.¹⁷ The hypothesis theorizes the postures that match with their appropriate situations can be emotionally self-regulating. For example, adopting slouched posture after a loss (posture and situation match) could comfort the individual, and adopting upright

¹³ Olivera Stanojlović et al., “Neural Pathways Underlying the Interplay between Emotional Experience and Behavior, from Old Theories to Modern Insight,” *Archives of Biological Sciences* 73, no. 3 (2021): 7.

¹⁴ Stanojlović, “Neural Pathways,” 7.

¹⁵ Stanojlović, “Neural Pathways,” 7.

¹⁶ Beatrice de Gelder et al., “Fear fosters flight: a mechanism for fear contagion when perceiving emotion expressed by a whole body,” *Proceedings of the National Academy of Sciences of the United States of America* 101, no. 47 (2004): 16704.

¹⁷ Riskind, “They Stoop to Conquer,” 479.

posture after a success (posture and situation match) could prolong the positive feelings. Their study found that participants with matched postures had more persistence in finishing a given task than those with mismatched postures. Further, those who failed a task and were in an upright posture felt more sadness and negative mood than those in the contracted posture. This evidence shows us that the integration of posture and situation, not merely posture nor situation alone, determines how the individual feels. A second article found that the effect of posture not only depends on the situation, but the kind of emotion, too. Duclos et al. found that postures historically symbolizing fear, sadness, and anger had a stronger effect in producing matching emotions than happy, agreeable, interested, and disgusted.¹⁸ Both these studies introduce the idea that postural feedback can change subjective feelings, depending on the environment and type of posture.

Two studies suggest that postural feedback can also change behavioral and physiological variables. A review of the neuroscience of embodied emotion shows us that “facial expressions, hand contractions [and] body postures influence relative left frontal cortical activity,” the part of the brain that is associated with approach motivation.¹⁹ Additionally, Price et al. cited a theory that the corrugator muscle involved in narrowing the brows may limit inhale from the nostrils, increase inhale through the mouth, and raise the temperature of blood entering the brain. The zygomatic muscle, which creates a smile, could increase oxygen flow through the nose and decrease the temperature of blood flowing to the brain.²⁰ These two examples suggest that postural feedback and facial expressions could influence emotion; however, the implication that

¹⁸ Sandra E. Duclos et al., “Emotion-Specific Effects of Facial Expressions and Postures on Emotional Experience.” *Journal of Personality and Social Psychology* 57, no. 1 (1989): 105-106.

¹⁹ Tom Price, Carly Peterson, and Eddie Harmon-Jones. “The Emotive Neuroscience of Embodiment.” *Motivation & Emotion* 36, no. 1 (2012): 27.

²⁰ Price, Peterson, and Harmon-Jones. “The Emotive Neuroscience of Embodiment.” 29.

approach motivation and temperature of blood can change due to postural feedback is a tenuous claim. A 2022 meta-analysis on postural feedback suggests that methodological design, using more expansive displays than contractive displays, could skew the types of feelings reported, including reports of Feelings of Power.²¹ Other sources have pointed out the illegitimacy of the physiological and behavioral effects. Cappellen et al. tests validity of the postural feedback evidence by comparing expansive/upward posture to negative/downward posture and neutral posture in two 2022 studies. In both studies, each participant was randomly assigned to one of the three postures.²² All participants would hold whatever posture assigned and listen to an emotionally “generative” and “ambiguous” song. The second study tested all three postures on each participant and further tested Respiratory Sinus Arrhythmia (RSA) to measure parasympathetic activity and Cardiac Pre-ejection Period (PEP) to measure sympathetic activity. The parasympathetic nervous system (PNS), associated with rest and digest, and the sympathetic nervous system (SNS), associated with fight and flight, are two components of the autonomic nervous system, which “regulates involuntary physiologic processes.”²³ Cappellen et al. reference the literature suggesting that postural movement causes PNS and SNS to influence “subjective affective experience.”²⁴ The results show parasympathetic activity (RSA) was greater for participants in upward/expanded pose than in the downward/constrictive pose, but sympathetic activity (PEP) was not significantly greater for either pose. Cappellen et al.

²¹ Mikkelsen Elkjær et al., “Expansive and Contractive Postures and Movement: A Systematic Review and Meta-Analysis of the Effect of Motor Displays on Affective and Behavioral Responses.” *Perspectives on Psychological Science* 17, no. 1 (2022): 278.

²² Patty Van Cappellen et al., “Bodily Feedback: Expansive and Upward Posture Facilitates the Experience of Positive Affect.” *Cognition & Emotion* 36, no. 7 (2022): 1330.

²³ Joshua A. Waxenbaum, Vamsi Reddy, Matthew Varacallo, “Anatomy, Autonomic Nervous System.” Last updated 2023 Jul 24, In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing

²⁴ Van Cappellen et al. “Bodily Feedback” (1329).

concluded that physiological variables, like RSA and PEP, may correlate with affective changes during postural feedback.

Elkjær et al. discredit the empirical evidence supporting behavioral and physiological changes to posture.²⁵ Körner et al. found that the physiological effects of body positions, like hormones and heart rate, are not significant, and the significant effects on behavior are nullified when the researchers controlled for publication bias.²⁶ This latter meta-analysis asserts that body positions have a “robust” significant impact on “power feelings, emotion, or self-esteem.”²⁷ These analyses lead to reasonable doubt in the validity of postural feedback on physiology and behavior but to greater confidence in the effect of postural feedback on emotions and thoughts.

Postural Feedback on Feelings

Cappellen et al. found that those who adopted the expansive/upward posture self-reported “greater positive affect” than those who were in the contracted/downward posture in their first study.²⁸ They attribute this result to “experimenter expectancy effects” because the double-blinded second study yielded lower self-reported affect ratings for participants in the expanded/upward posture than those in the first study. In the second study, the implicit emotional test yielded a significant impact of posture on affect. Additionally, those in a contracted/downward posture did not report significantly more negative affect than those in expanded/upward posture for both studies. These

²⁵ Mikkelsen Elkjær, E. et al., “Expansive and Contractive Postures and Movement: A Systematic Review and Meta-Analysis of the Effect of Motor Displays on Affective and Behavioral Responses.” *Perspectives on Psychological Science* 17, no. 1 (2022): 276-304.

²⁶ Robert Körner et al., “Dominance and Prestige: Meta-Analytic Review of Experimentally Induced Body Position Effects on Behavioral, Self-Report, and Physiological Dependent Variables.” *Psychological Bulletin* 148, no. 1-2 (2022): 67.

²⁷ Körner, “Dominance and Prestige.” 76.

²⁸ Cappellen, “Bodily Feedback,” 1332.

results suggest that expanded/upward postures may not reliably produce high affect ratings and contracted/downward posture may not reliably produce low affect ratings.

A review on postural feedback would be incomplete without mention of the controversial hypothesis that body language can change an individual's Feelings of Power. Amy J. C. Cuddy, most recognized for her 2012 TEDTalk with almost 70 million views, began to study expansive body language and Feelings of Power in 2010.²⁹ Her hypothesis was that expansiveness leads to feeling more powerful and contractiveness to feeling more powerless.³⁰ She contributed to two literature reviews in 2015 and 2017, prompted both times by failed replications of her 2010 study.³¹ Two researchers publicly criticized the 2010 and 2015 reports for "p-hacking" and Demand Effect bias.³² Critics doubted the validity of results supporting postural feedback on affective states, especially Feelings of Power. Cuddy's 2017 review answered these criticisms with an updated "p-curve" and revealing strong evidential value for posture changing Feelings of Power and affective states for studies conducted before 2017.³³ Cuddy's research provides strong evidence for postural feedback on self-reported emotion, specifically, Feelings of Power.

The association between expanded posture and Feelings of Power may seem obvious. One meta-analysis found that people intuit the relationship between nonverbal behavior and dominant personality, even more than the actual relationship. They looked at seventeen individual nonverbal behavior variables and their relationship with

²⁹ Amy Cuddy, "Your body language may shape who you are." Filmed 2012 at TEDGlobal.

³⁰ Carney, Cuddy, and Yap. "Power posing," 1366.

³¹ Carney, Cuddy, and Yap. "Review and Summary of Research" 657; Cuddy, Schultz, and Fosse. "P-Curving," 656.

³² Joseph Simmons, Uri Simonsohn, Leif Nelson, "[37] Power Posing: Reassessing the Evidence behind the Most Popular TED Talk," Data Colada, February 12, 2020, <https://datacolada.org/37>; Joseph Simmons, Uri Simonsohn, and Leif Nelson, "[66] Outliers: Evaluating a New P-Curve of Power Poses," Data Colada, February 12, 2020, <https://datacolada.org/66>.

³³ Cuddy et al. "P- Curving," 662.

the “vertical construct” which is defined as “dominant personality” or perceived “success in controlling others.”³⁴ The analysis yielded results that a dominant personality is related to increased facial expressiveness, bodily openness, and smaller interpersonal distances. It also showed results that people perceive those associations in addition with many more nonverbal qualities not actually related to the vertical construct. An individual’s beliefs and perceptions about others’ dominance could very easily change the way they interact with other people around them. This break-down of nonverbal behaviors in relation to dominance helps us understand that powerfulness can be perceived with a variety of postures, gestures, and positions.

Nonverbal displays of power are not uniform cross-culturally. Park et al. found that expansive body postures signify power universally, but with some qualifications. A posture with both hands resting on a desk widely apart from one another increased Feelings of Power for both those born in the United States and those born in either China, South Korea, Taiwan, or Vietnam.³⁵ Those born in the Eastern Asian countries reported higher Feelings of Power in an upright seated position than those born in the United States, and those born in the United States reported higher feeling of power in a posture where their feet were crossed on top of a desk.³⁶ These results provide some evidence that expansive postures increase Feelings of Power in East Asian and American cultures, but the nuances of an expansive pose could affect Feelings of Power because of cultural associations.

³⁴ Judith A Hall, Erik J. Coats, Lavonia Smith LeBeau, “Nonverbal behavior and the vertical dimension of social relations: A meta-analysis.” *Psychological Bulletin* 131, (2005): 898. <https://doi.org/10.1037/0033-2909.131.6.898>.

³⁵ Lora E. Park et al., “Stand tall, but don’t put your feet up: Universal and culturally-specific effects of expansive postures on power.” *Journal of Experimental Social Psychology* 49, no. 6 (2013): 967.

³⁶ Park et al., “Stand tall,” 969.

Implications of Postural Feedback in Therapeutic Settings

One study found that individuals experienced closed and open yoga poses differently based on the number of depressive symptoms they displayed.³⁷ Those participants with sub-clinical and higher levels of depression experienced *decreased* negative affect after the closed pose, which supports the appropriateness hypothesis in the 1984 study by Riskind et al. The closed pose might have felt comforting to these individuals, as if they felt expressly understood by themselves. They experienced no change in affect after the open pose. Inversely, those with little or no depressive symptoms felt no affective change in the closed pose but a decrease in negative symptoms in the open posture. Personal differences may affect the feelings experienced after an open or closed posture. Another study randomly divided participants with mild to moderate depressive symptoms into two groups. One group maintained an upright posture for 25 minutes. Participants in the control group adopted their normal slouched postures. Those with the upright posture reported an overall “greater high arousal positive affect.”³⁸ These two studies including individuals with depressive symptoms provide interestingly contrasting results. Slumped posture can be comforting in yoga, but in a different context, upright posture could be helpful. Posture, in specific contexts, has relevant therapeutic capacities.

One study sought to examine if a couples therapist using “somatically focused interventions...leads to deeper emotional experiencing for the partner.”³⁹ For example, if one patient shakes his head while recalling a memory, the therapist will state, “I see

³⁷ Alison Carol Woolery. “Body Posture as a Mechanism of Mood Change in Yoga.” *Dissertation Abstracts International: Section B: The Sciences and Engineering* 67, no. 9-B (2007): 5431.

³⁸ Carissa Wilkes et al., “Upright Posture Improves Affect and Fatigue in People with Depressive Symptoms.” *Journal of Behavior Therapy and Experimental Psychiatry* 54, (March 2017): 147.

³⁹ Sari Kailanko et al., “Somatic Interventions and Depth of Experiencing in Emotionally Focused Couple Therapy.” *International Journal of Systemic Therapy* 33, no. 2 (2022): 113.

you are shaking your head.” Individuals experienced “immediate increase in depth” of emotion after receiving somatically focused interventions. This finding is relevant as the current project operates under the use of body awareness in emotional processing, a potentially crucial component of postural feedback. If individuals are aware of their own postures, gestures, and positions, they may become aware to an unattended feeling or thought.

Current Project

Since past research has suggested postural feedback can affect an individual's thoughts and feelings, the current project has two purposes: to apply the research on postural feedback in an applicable and relevant format for adults and to investigate the responses to postural feedback through survey and focus group responses. Phase I of this study was designed with a limited understanding of creative movement and postural feedback. Phase I results were analyzed and presented at the International Association for Dance Medicine and Science in October 2023. Phase II was developed after completion of USC courses Creative Dance (DANC 370) and Introduction to Neuroscience (PSYC 455), during participation in Cognitive Psychology (PSYC 405), and after further study on postural feedback literature. Though both Phase I and II investigated participants' responses to creative movement, the methodology and analysis of Phase II is stronger than Phase I.

Phase I

Methods

Twenty posters created on Canva, were posted in community recreation centers, USC campus buildings, fitness centers, two restaurants, and a grocery store in mid-August, 2023.⁴⁰ One psychology lab was emailed to recruit participants. No participation resulted from these efforts. Rather, several USC undergraduate students, the researcher's peers, were texted. Five of the invited students, each studying different

⁴⁰ See Appendix A

academic fields, attended Phase I. In March 2024, the five participants completed an open-ended short-answer survey for basic demographic information.

Phase I Demographic Survey Responses

Initials	Gender identity (social presentation) and sex (biology at birth)	Ethnicity (culture) and race (genetics and physical appearance)	Age	Year at USC	Involvement in Dance*
QQ	Female (she/her/hers) in all capacities	Irish American- white	22	4th	No
RR	Female, female	American, Chinese	22	4th	No
SS	Male	White or Caucasian	21	4th	No
TT	Non-Binary, Male	Afro-Latina; I looked mixed.	20	3rd	No technique classes; I'm a Dance Minor
UU	Male; Male	European/Caucasian & Native American; White	22	4th	No

Table 1.1

*An abbreviation of "Do you take dance classes at least once per week? Were you in the USC dance program (majors and minors) at the time of the workshop?"

A creative movement workshop was planned using Anne Green Gilbert's format of creative movement and advice from André Megerdichian, Department of Theatre and Dance Professor, Megan Saylor, Dance Movement Therapist, and Stephanie Milling, Chair of the Department of Theatre and Dance.⁴¹ The goals of this workshop were to provide participants with an experience of postural change, body awareness, expansion, and contraction in a non-exercise and non-dance-studio context and to measure participants' subjective experiences of body awareness and postural feedback.

The workshop occurred in a large theatre rehearsal room without mirrors. During the hour workshop, each of the three movement sessions were followed by a short focus group, each designed for discussion of the prior movement session. The

⁴¹ See Appendix B; Gilbert, A. G. (1992). In *Creative Dance for All Ages*, (pp. 28-29), advised by Milling, S., University of South Carolina.

movement sessions and focus groups progressed in depth of processing required for the five participants throughout the workshop. The first movement session and focus group introduced creative movement to participants. The second movement session and focus group introduced situational prompts and related them to participants' daily lives. The third movement session and focus group provided an opportunity for participants to experience postural feedback. The three focus groups were transcribed with Scribie Transcription Service. The participants were not informed of the research on postural feedback until after the three focus groups. After the focus groups and movement session ended, participants received a short briefing of the research on the postural feedback hypothesis and encouragement for continued reflection on body awareness. Participants, finally, completed written reflections, which were analyzed separately from the focus groups. Focus group transcriptions and reflection responses were coded with MAXQDA Software Program for comments relating to "Body Awareness," "Change of Inner Affect due to Change of Body" and "Feelings of Power." Each idea was coded and categorized into a fitting code. Some ideas took several sentences to express, but some ideas took one word. Each code was weighted the same and the frequencies of each code are expressed in Table 1.2.

Findings and Discussion

Frequency of Coded Segments by Document

Code	Focus Group 1	Focus Group 2	Focus Group 3	Feedback	Total
Body Awareness	15	27	16	3	61
Change of Body Changes Inner Affect > Contraction	1	0	6	1	8
Change of Body Changes Inner Affect > Expansion	1	0	9	1	11
Change of Body Changes Inner Affect > Other	0	3	5	3	11
Feelings of Power	0	0	3	0	3
Total	17	30	38	8	93

Table 1.2: The frequency of segments coded for any variable is highest for body awareness in the second focus group. Feelings of Power comments were reported twice in the third focus group.

Ideas expressing Body Awareness, Change of Body Changes Inner Affect (Contraction, Expansion, or Other), and Feelings of Power fluctuated throughout the workshop. Focus Group 1 and Focus Group 2 gathered responses to the first part of the workshop, where participants were guided through simple movements and prompts designed to increase their body awareness, introduce kinesthetic vocabulary (i.e. “expand,” “contract”), explore ordinary improvisation. Focus Group 3 contains responses from the second part of the workshop, where participants were prompted to change their postures. Examples include “expand your hands,” “contract your chin closer to your chest,” “make your steps smaller,” “expand your arms.”

The format of this workshop provides context for Table 1.2. The increase of body awareness comments in the Focus Group 2 is likely due to the increase in opportunities to move and notice. The decrease in “body awareness” and increase of all other codes in Focus Group 3 is likely a reflection of the workshop content. Participants were no longer noticing their posture physically, but the ordinary situational prompts primed

the experiencing of change in emotion. Three ideas coded for Feelings of Power were mentioned, which modestly support the research claiming expanded body postured that increased body awareness could increase Feelings of Power in the self. The criteria for coding Feelings of Power originally included words associated with strength, like power, confidence, and dominating. Therefore, two segments, not containing the word “power” but containing “confidence” and “dominating” were coded for Feelings of Power. However, in Phase II, the coding criteria for Feelings of Power was limited to only mentions of “power.”

Conclusion

The first purpose of Phase I was to test if creative movement allowed participants to experience Body Awareness, Change of Affect due to Change of Body, and Feelings of Power. Phase I responses were coded and sorted by frequency of coded segments by each document. The lesson plan and research methodology in Phase II was revised to identify the quality of participants’ responses, not rather than limiting analysis to the quantity of the coded segments.

The second goal of this phase was to test body language self-adjustment as a potential self-regulation technique; however, measuring for the adjustment of body language as a potential self-regulation technique is outside the scope of this study, due to a lack of operational specificity. Phase II contained revised language which helps define this study. For example, the study was not measuring “affect,” but “emotion” and “thought.” “Postural feedback” more accurately describes what was originally referred to as “body language.”

Also, the recruitment changed from Phase I and Phase II. Phase I recruitment targeted a diversity of age and occupation with posters throughout the city of

Columbia, SC, but ultimately, these efforts were unsuccessful. Instead, five invited collegiate students attended. These students were unfamiliar with the research topic and did not regularly participate in creative movement or dance. Though the five invited participants engaged fully and reported a positive experience, the ineffective poster recruitment strategy suggests creative movement may not be approachable for people who do not regularly dance and do not otherwise have ties to the researcher. If creative movement is not interesting to people who do not regularly dance, it might not be an effective educational tool for body awareness and postural feedback.

Phase I focus group and feedback comments suggest creative movement might increase individuals' body awareness and provide them with an exploration of applicable postural feedback. However, the limited analysis of results do not identify the qualities of how individuals may respond to creative movement. A broad qualitative analysis of postural feedback, not narrowed to Feelings of Power, could provide more complete information.

Phase II

Methods

The purpose of Phase II was to investigate participants responses to creative movement and to educate participants on postural feedback. Phase II was designed after Phase I was presented at the International Association for Dance Medicine and Science Annual Conference in Columbus, Ohio. Also, Creative Dance (DANC 370), provided an opportunity to create a more sound and effective creative movement workshop and to conduct a thorough literature review. Both Phase II workshops

included the BrainDance, a “pair and share” activity, a survey, one imaginative movement section, and one focus group.⁴²

Participants were recruited from the USC Betsy Blackmon Dance Program and incentivized with a \$15 Starbucks gift cards for the first thirty registrations. Announcements were sent through email to every student in the program. Each dance class instructor was asked to announce or allow for the announcing of this workshop in-person. Six students registered to participate on February 12th and eleven students registered for February 16th. One student did not attend the February 16th workshop due to an unforeseen time conflict. Both workshops occurred during the dance program’s Wellness Week, a program featuring five wellness goals and five wellness lectures. The current project was not a featured lecture but was advertised as an optional wellness activity. In March 2024, participants completed an open-ended short-answer survey for basic demographic information.

⁴² See Appendix C

Phase II Demographic Survey Reponses

Initials	Gender identity (social presentation) and sex (biology at birth)	Ethnicity (culture) and race (genetics and physical appearance)	Age	Year at USC	Involvement in Dance*
AA	I am female	I am white	19	2nd	Yes
BB	Female	**	22	4th	Yes
CC	Female and female	White	20	2nd	Yes
DD	Female	white	21	3rd	Yes
EE	Female; female	White/ caucasian/ American	20	2nd	Yes
FF	female, she/her	white, caucasian	18	1st	Yes
GG	Non binary, female	White	21	4th	Yes
HH	Cisgender female	White	20	3rd	Yes
II	Female	Caucasian/ White	19	2nd	Yes
JJ	Female and Female	American and White	19	2nd	Yes
KK	I identify as a female, and my sex at birth was female	I'm a white female, and was born in America.	19	1st	Yes
LL	Female, Woman, she/her	White	18	1st	Yes
MM	female, female	Asian	20	3rd	Yes
NN	Both female	White	21	3rd	Yes
OO	Gender identity = female, Sex = female	White / Caucasian	22	4th	Yes
PP	female	white	20	3rd	Yes

Table 2.1

*This question is an abbreviation of "Do you take dance classes at least once per week? Were you in the USC dance program (majors and minors) at the time of the workshop?"

**Participant left this question blank and in "other comments" questions wrote, "I did not fill out anything under ethnicity or race because it is hard to describe. Most Caribbean people would just say we are ethnically diverse..."

The results were analyzed by document and arranged by speaker. Coding the responses highlighted five major topics. Feelings of Power was not one of those major topics. Each idea expressed by participants was coded with the same weight, but some ideas included more words. Therefore, analyzing the code coverage of a document or speaker would not provide an understanding of how the participant responded to creative movement, but how many words they used to express their ideas. Instead, the

most effective way to understand the ideas expressed in the two Phase II workshops is to note the frequency table (Table 2.2) and qualitative summary tables (Tables 2.3-2.9).

Findings

The five main topics are Body Awareness, Change of Thought or Emotion due to Contraction, Change of Thought or Emotion due to Expansion, Change of Thought or Emotion due to Other Physical Change, and Application to Own Patterns.

Frequency of Themes Coded by Speaker and Variable

Speaker	Body Awareness	Change due to Contraction	Change due to Expansion	Change due to Other	Application to Own Patterns	Total
AA	4	2	5	4	7	22
BB	4	4	2	6	2	18
CC	5	7	4	4	6	26
DD	13	2	2	4	7	28
EE	8	2	4	5	9	28
FF	6	6	6	4	5	27
GG	7	2	3	4	6	22
HH	11	3	4	2	7	27
II	6	3	3	2	5	19
JJ	4	3	3	3	3	16
KK	7	2	2	2	6	19
LL	6	2	2	5	8	23
MM	10	3	4	0	6	23
NN	4	1	4	2	1	12
OO	1	5	5	1	6	18
PP	3	1	1	2	5	12
Total	99	48	54	50	89	340

Table 2.2: Quantitative summary of the frequency of coded segments by speaker. Each idea was summarized by a theme, which is categorized by one of five topics.

The workshop focused on expanding/contracting, tensing/releasing, breath (inhale/exhale), and parts of the body. Responses coded for body awareness included themes with those terms. For codes Change of Thought or Emotion due to Contraction,

Change of Thought or Emotion due to Expansion, or Change of Thought or Emotion due to Other Physical Change, thought and emotion distinguish “thinking” from “feeling.” Phase II included a focus on Applications to Own Patterns to analyze how participants related the workshop to their habits and goals.

The evidence on postural feedback has almost exclusively employed upward or expansive postures and downward or contractive postures. Since these movement directives are basic and encompass many kinesthetic options, the current project focusses on expansion and contraction in both Phase I and II workshops. The Language of Dance Motif System comprised a list of basic movement elements. Expansion, contraction, and rotation are listed as the three movement possibilities.⁴³ Tension, release, and breath were introduced in the BrainDance as they co-occur and complement expansion and contraction.

⁴³ Guest, Ann Hutchinson, 2000, *Motif at a Glance Language of Dance Centre*. ISBN: 0-95510779 9 X

Identified Themes in Segments Coded for "Body Awareness," by Speaker

Themes by Topic	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Breath																
After heart rate increased, breathing required less thought.					X											
Breath became more rapid with stressful prompts and slower with the relaxed prompts.															X	
Breath increased my body awareness.					X											
Breathing was sometimes hard or nonexistent if I thought about breathing.		X					X									
I focussed on my breath more when I was nervous.							X									
Feeling emotion affected my breathing more than I expected.					X											
Contraction																
Contracting one small body part affected my whole body.												X				
Contraction felt more natural or comfortable than expansion.				X		X	X							X		
Contraction felt natural in the morning prompt.												X				
Contraction in the chest, shoulders, hands								X					X			
Contraction required more energy than expansion.														X		
During alone prompt, my first instinct was to curl up.								X								
I contracted during award prompt, sad friend prompt, and wallflower prompt.							X									
I kept my hands close to my center, especially during award prompt.					X											
In contraction, I noticed a tendency to pick at my face.					X											
In contraction, I was more serious than in expansion.															X	
In contraction, I was most focussed on inward sensations.								X								
Expansion																
Expanding felt natural during award prompt.															X	
Expanding the chest was my first instinct.							X									
Expanding took up more space around me.															X	
Expansion allowed energy to flow through my limbs.					X											
Expansion changed my focus from inward to outward								X								
Expansion felt expansive (in survey question asking about tension and breath).									X							
Expansion felt natural during reuniting prompt.															X	
Expansion felt physically unstable at times.					X											
Expansion in the head and chest						X			X							
Expansion in the head and chest helped me feel my thoughts and emotions more than expansion in the arms and legs.						X										
Expansion is enjoyable.					X											
Expansion requires less energy which felt better.															X	
In expansion, I sometimes would smile.															X	
In expansion, my eyes focused up, with a broad gaze.					X											

Table 2.3: Breath, Contraction, and Expansion were three of the nine major themes coded by Body Awareness.

Identified Themes in Segments Coded for "Body Awareness," by Speaker

Tension/Release	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
More release came after holding tension.									X						X	X
No tension in my legs or feet.											X					
Tension all over my body		X										X				
Tension in my hands and shoulders						X										
Tension in my upper body						X			X							
Tension occurred during sad friend prompt and reuniting prompt.												X				
Verbal mention of tension increased my awareness of it.		X														
Breath + Tension/Release																
Breath and tension heightened my awareness of the other.					X											
Breath was more shallow when I focussed on it.																X
Breathing releases tension or released tension facilitates breath.			X	X			X						X			
Breathing was hard, nonexistent, or shallow if I held tension.	X	X	X										X	X	X	
Exhale increased my awareness of tension.							X									
Exhale leads to release or release leads to exhale.		X					X	X	X			X	X			
I could feel the tension and release of breath when standing still more than when walking. I did not think about breath "as much as I should." I am accustomed to tension in my upper body, and I do not often think about it.							X									
I struggled to completely release tension in exhale.									X							
I struggled to completely release tension in shoulders, even with exhale.							X									
Inhale does not necessarily increase tension.								X								
Inhale increases tension.		X							X	X						
Tension and breath have an opposite relationship.														X		
Contraction + Tension																
Contraction increased tension in my body.			X			X	X			X	X	X	X			X
Contraction is hard to maintain because tension is held.				X												
I did not enjoy feeling tense in contraction.		X														X
Expansion + Tension																
Expansion felt like a release of tension until the expansion felt unnatural. Unnatural expansion felt tense.		X														
Expansion sometimes included release and sometimes tension.							X									
Without tension, expansion feels released or feels easy.														X	X	
Breath + Expansion																
Expansive movements deepened my breaths.									X	X		X				
Miscellaneous Observations																
BrainDance helped me become more aware of my body.							X									
Contraction, tension, and shallow breath occurred at the same time.									X	X		X				
During sad friend prompt, I used my hands' warmth to comfort myself.							X									
In contraction, I could still focus on my breath. In tension, I could not.						X										
During award prompt, body awareness increased because I did not want to appear too confident.						X										

Table 2.4: Tension/Release, Breath + Tension/Release, Contraction + Tension, Expansion + Tensions, Breath + Expansion, and Miscellaneous Observations were six of the nine major themes coded by Body Awareness.

Identified Themes in Segments Coded for "Change of Thought or Emotion due to Contraction," by Speaker

Theme	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
Change of Thought																	
Contraction changed my mindset in completing imaginary tasks.																	X
Contraction drew my attention away from breathing.																	X
Contraction drew my attention to holding tension.																	X
In contraction, I was not focussed on the prompt or my mind wandered.																	X
Change of Emotion																	
Contraction felt anxious, tense, or stressed.																	X X
Contraction felt closed off from others, or focussed on myself.																	X X
Contraction felt comforting.																	X X
Contraction felt inappropriate for some situations.																	X X
Contraction felt more natural to me than expansion.																	X X
Contraction felt powerful and angry during disappointment prompt.																	X
Contraction felt sad. Even during reuniting prompt, contraction made me want to cry because "I haven't seen [my friend] in forever."																	X
Contraction felt timid, shy, or less confident.																	X X
Contraction felt tired.																	X X
Contraction felt unorganized and frustrated.																	X
Contraction felt weak and vulnerable during prompts set in public.																	X
Contraction generally felt negative, darker, awkward, or uncomfortable.																	X X

Table 2.5

Identified Themes in Segments Coded for "Change of Thought or Emotion due to Expansion," by Speaker

Theme	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Change of Thought																
Expansion increased my awareness of the surrounding environment.					X			X		X	X	X				
Expansion made me breathe better.				X												
Change of Emotion																
During award prompt, expansion made me feel proud when I had previously felt a shame or embarrassment.									X							
Expansion felt anxious.		X														
Expansion felt awkward because inappropriate for the context.							X									
Expansion felt confident.					X	X		X				X				
Expansion felt content.						X										
Expansion felt excited, energized.		X						X	X						X	
Expansion felt free.			X									X	X			
Expansion felt joyful, happy, or I tended to smile.	X			X			X					X				
Expansion felt less natural and more awkward than contraction.							X	X								
Expansion felt more comfortable than contraction because expansion requires less physical effort than contracting.													X			
Expansion felt natural because appropriate for the context.																X
Expansion felt positive.		X	X		X			X				X	X			
Expansion felt powerful.						X	X	X								
Expansion felt relaxed.			X		X			X	X	X	X	X	X	X		
Expansion felt sad.		X														
Expansion felt vulnerable.		X		X												
Experiencing confidence and happiness was easier when I expanded my head and chest than when I expanded my arms and legs.						X										
I felt whatever emotion more clearly in expansion than in contraction.		X														
In expansion, I felt like I had given up.							X									
In expansion, I was worried about how I looked to others.						X										
Miscellaneous Themes																
I felt no change with expansion when it was inappropriate for the context.														X		
Generally, expansion changed the way I felt.											X					

Table 2.6

Identified Themes in Segments Coded for "Change of Thought or Emotion due to Other Physical Change," by Speaker

Theme	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Change of Thought																
Breath helped me notice I have tension.				X		X										
Breath increased my body awareness.				X		X										
I think I am not well when I notice tension in my hands. This can cause many anxious thoughts.									X							
Increased heart rate made breathing feel more natural than breathing at resting heart rate.					X											
Releasing tension in chest helped me think about breathing.													X			
Tensing took my attention from breathing.	X						X						X	X		
Change of Emotion																
Conscious breaths felt relaxing.	X	X	X	X	X	X	X			X	X					X
My hands on my body comforted me.				X	X						X					
Releasing felt content.				X												
Releasing felt positive.	X												X			
Releasing felt relaxing.	X						X			X	X	X				
Tensing felt anxious.	X				X											
Tensing felt frustrating.	X				X											
Tensing felt inappropriate when I was relaxed.									X							
Tensing felt negative.	X												X			
Tensing felt sad.	X															
When my muscles are tight, I cannot feel as deeply as when my muscles are relaxed.	X															
Miscellaneous Themes																
Generally, I have experienced body changing my thoughts or feelings.	X	X					X	X	X	X			X	X		
I am not sure if body can "automatically" change the mind, but I think they "influence each other"																X
Moving my head and chest changed thoughts and emotions more than moving other parts of my body.						X										

Table 2.7

Identified Themes in Segments Coded for "Application to Own Patterns," by Speaker

Connections to Habit	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Body awareness and holding tension in negative, sad, stressful situations																X
Body awareness in dance or performances (general)	X	X			X	X	X					X				X
Body awareness in formal settings												X				X
Body awareness in interviews												X				
Body awareness in public or public speaking			X	X	X	X	X	X				X	X			X
Body awareness in the mirror						X										
Body awareness when "you are supposed to be confident"					X											
Body awareness when I feel awkward, uncomfortable, shy, self-conscious, or nervous		X	X							X	X	X				X
Body awareness when I first wake up and stretch										X						
Body awareness when talking to new people								X	X	X	X					
Body awareness when talking to someone older																X
Body awareness with friend									X							
Connections to usual walking patterns	X				X											
Contraction felt more natural or comfortable than expansion.					X		X	X				X				
During BrainDance, I was reminded that using my hands to contact different body parts increases my body awareness.						X										
During contraction, I felt shy, but I usually do not feel shy.					X											
During expansion, I felt more open to the world than usual.													X			
During the alone prompt, tensing felt inappropriate because I was relaxed, but I often hold tension when I am alone.								X								
Expansion felt more natural than contraction.						X										
I have better posture in dance out of habit.	X															
I often hold tension in my shoulders, and I do not often think about it.						X										
I often am aware of my body in a group of strangers. If I am with one friend in a group of strangers, I am oblivious to my body, because I am comfortable.											X					
I often am aware of my slouched posture.	X															
I often am contracted when I first wake up because I never want to get out of bed.												X				
I often am not as aware of my body when I am alone.					X											
I often am not as aware of my body when I feel confident, safe, or joyful.			X													
I often do not exhale and then become tense, especially in ballet.											X					
I often feel "inside of myself" and tension in my body when I feel watched.								X								
I often feel better after I notice my body and emotion, without trying to change it.								X	X							
I often feel jittery in my hands and feet and tension in my stomach when I am anxious. I will stretch my stomach and hands to relieve tension.																X
I often feel productive and enjoy the challenge when I contract during exercise.																X
I often feel small when I contract.					X											

Table 2.8: Continued in Table 2.9

Identified Themes in Segments Coded for "Application to Own Patterns," by Speaker

Connections to Habit (continued)	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
I often have expanded postures in my relaxed state.						X										
I often hold my hands close. This might be an unintentional					X											
I often hold tension all over my body.	X						X									X
I often hold tension in my chest. I realized breathing was easier after I released the tension.													X			
I often keep my shoulders back, posture relaxed, and words clear, so that I am presentable in professional situations.																X
I often pick at the skin on my face.					X											
I often release tension in my body to quell anxious thoughts.									X							
I often think about how my posture looks.									X							
I often try to match others' postures in social situations. When I am alone, I am in weird and funny positions.														X		
I often will clench my hands to release tension in my stomach. When I notice this action, I realize I am anxious and become more anxious about my wellbeing.									X							
I often will shake my body to release tension, breathe, and relax.					X											
Recently, my muscles have been more tight, and that tension might have increased my stress and bad mood.						X										
When my muscles are tight, it is hard to know what I am feeling.						X										
Future Applications	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Becoming aware of my body could lead to more release and comfort.						X						X				
Expanding my back and chest could lower my tension and stress.																X
I associate contraction with negativity, but contraction is not always negative.						X							X			
I often am tense, but I want to breathe and relax.										X						
I realized I hold tension in my chest, but when I released, I could breathe more. If I want to breathe more, I will think of releasing first.													X			
I want to continue to notice my habits and what they mean emotionally, without changing them.							X	X			X				X	
If contraction can bring sense of comfort, would contraction on stage make an audience feel comforted or uncomfortable?														X		
Using my breath helped me release more, so I could use breath to relax.										X						
When I am tired, I drink caffeine, am not aware of my body, and do not think to change my posture. When I expanded during the morning prompt, I felt more aware of my body. I could use posture to become more energized.						X										

Table 2.9: Continuation of Table 2.8

Discussion and Limitations

The results show both recurring and unique responses to creative movement and postural feedback between participants. The creative methodology and analysis used describes a diversity of experiences between sixteen individuals, across two workshops, and invites other projects to continue researching responses to postural feedback. The completion of this study has yielded inquiries for future research.

First, the terms used to prompt movement could connote emotion because many physical verbs and adjectives are colloquial descriptions for emotion. For example, tense in “I felt more tense” (MM, Survey) can be interpreted as anxious or contracted. Open in “It felt like I was a lot more open to the world than I usually am” (MM, Survey) describes a feeling of welcome but is often used to describe physical contexts. Small in “It makes me feel small and almost shy” (JJ, Survey) describes a feeling of insignificance but usually denotes size of some physical object or organism. Further, tension and release may carry more emotional connotation than expansion and contraction. A group comment from DD and survey response from LL focused on the effect of tension and release on emotion and thought, rather than the effect of expansion and contraction. Since tension/release and contraction/expansion are physically similar prompts, further research would clarify if the language used to prompt postural feedback affects the results. If an individual is prompted with a word that has emotional connotations, they may associate emotions with that cue; therefore, prompt cues may confound the effect of posture on emotion.

Second, the fascination with power has guided a large body of research on postural feedback, and what ideas would be considered Feelings of Power. Are confidence, freedom, shyness, and insecurity offshoots of power? This project sought to

preserve nuance in each participants' responses to movement and found other prominent themes, in addition to Feelings of Power.

Thirdly, the effect of postural feedback may differ widely between individuals, but analysis in context may identify the reasons for participant responses. Many reported themes were anomalous while some, like "body awareness while in public or public speaking" (Table 2.8) had a large consensus. Further, DD reported a different breathing when in tension than when in contraction while HH, II, and MM commented that shallow breathing, tension, and contraction co-occurred (Table 2.4). In Table 2.6, some participants reported that expansion felt more relaxed and positive while some reported it felt less natural and more awkward. The range of responses for Tables 2.5-2.7 reflect Riskind's appropriateness hypothesis, that some postures induce different feelings based on their context. If the analysis of the current project included the contextual prompts for each of the themes displayed on the table, the reader may gain more insights into the reasons for reported thoughts and feelings.

Table 2.9 shows that participants identified applications of postural feedback to their daily lives. Future research could determine if postural feedback could be intentionally employed as an emotional self-regulation tool.

A prior familiarity with the current hypothesis of postural feedback likely influenced the degree to which participants engaged in the creative movement. Because the participants and researcher maintained an informal rapport throughout the study and the postural feedback hypothesis was included in the survey and verbally discussed during the focus groups, the educational nature of this project may have interfered with the purity of its research. Also, Phase II occurred after a Phase I presentation at the International Association for Dance Medicine and Science Annual

Conference in Columbus, OH. Participants may have a knowledge base of Cuddy's "power posing" research. This study contains a high possibility of bias.

Implications

The current project uniquely wields creativity as a tool to investigate postural feedback. Further research could explain the neuromechanics of postural feedback and the extent to which it could be used for emotional regulation. Evidence from the current project suggests that a change in body can bring about a change in emotion or thought. Notably, the emotion and thought responses vary widely, depending on the movement, context, and individual. The assumption that expansion always leads to Feelings of Power and contraction leads to Feelings of Powerlessness is an unsupported generalization of Cuddy's 2010 findings. Additionally, a focus on Feelings of Power may prove helpful to some fields of study. However, the research aimed to understand postural feedback and discover implications for emotional regulation might broaden its focus from Feelings of Power. Focus group and survey responses from the creative movement workshop demonstrates a network of emotion and thought experiences unrelated to power. A narrow methodological focus on power could impair the integrity of future studies.

Conclusion

The preparation, implementation, and analysis of the current project aimed to understand postural feedback more fully, though perhaps it provided more questions than answers. Emotion and cognition are often conceptualized as being “all in the head,” or nonphysical experiences; however, the research in emotional processing theory, embodied cognition, and postural feedback supports that emotion and cognition involve the musculoskeletal system and their sensory modalities. Further determination on the nature and neuromechanics of postural feedback might direct theories of cognition and emotion. Creative methodology, like the one used in the current project, may meaningfully measure ordinary postural feedback responses. Could posture change the emotions and behaviors of our daily lives, and how has it already changed us? How does technological presence in every sphere and industry divert attention away from postural and emotional experience? If posture can change emotion, could individuals use postural feedback to emotionally self-regulate? A more complete understanding of postural and emotional habits could deepen our understanding of the health of ourselves and our communities.

Appendix A: Creative Movement Workshop Poster

CREATIVE MOVEMENT WORKSHOP

Join us for a free and easy movement workshop focussed on body awareness and wellness! Bring your friends and family ages 18 and up!



**THURSDAY
AUGUST 31, 2023**

6:00 pm - 7:00 pm



707 Catawba St
Columbia, SC 29201



Questions:
mcm46@email.sc.edu



Hosted by Mary Catherine Matthews,
for her USC Research Project



Registration

Appendix B: Phase I Lesson Plan

Introduction (Explore)

- Individuals' intro movements, emulate movement.
- Welcome
 - o the purpose of this project
 - o the role of movements
 - o importance of forgetting self-consciousness
 - o You are invited to move but you are welcome to observe, too.

Circle movements (Introduce expansion and contraction)

- Ordinary movement (with examples of expansion and contraction)
 - o Pick a normal pose, or posture and we'll copy it.
 - o Other participants emulate this movement.
 - o Explain what expansion or contraction mean
 - Expansion: reaching
 - Contraction: shrink
 - o Go around circle and we will expand an ordinary posture or contract it. Each person either expand or contract that movement
 - o Other participants emulate this manipulation
- Throughout this exercise, "what do you notice most about the movement in your body?"
- Notice your walking pattern
 - o What is the relationship of your body to the space around it
 - Where is your weight on your feet
 - What happens when you change the weight
 - Where is any tension
 - Hold /release tension somewhere else
 - What part of your body is leading you
 - Lead with head, pelvis, feet
 - o Make something expanded
 - o Make something contracted

Focus Group I (Respond)

- Audio record
- What did you notice about what we just did?
- Did any of the movements we just did remind you of anything from your everyday life?
- What do you notice about moving expansive or big?
- What do you notice about moving contractive or small?

Free Movement (Create) (make sure these prompts look like the second round)

- Walk around 2nd time
 - o Participants walk in ways they move ordinarily.
 - o Invite to walk, stand, or sit.
- Now, walk like you are going to make your morning cup of coffee, tea, or breakfast.
 - o Does the speed of your walking change
 - o What body part is leading you?

- Are you holding tension anywhere?
- Are you expanded or contracted in certain parts?
- Now walk like you are late to your meeting or class or event.
 - Does the speed of your walking change
 - What body part is leading you?
 - Are you holding tension anywhere?
 - Are you expanded or contracted in certain parts?
- Move like you didn't get the promotion you were hoping for.
 - Does the speed of your walking change
 - What body part is leading you?
 - Are you holding tension anywhere?
 - Are you expanded or contracted in certain parts?
- Move like you are relaxed, no one is watching, and you have nowhere to be.
 - Does the speed of your walking change
 - What body part is leading you?
 - Are you holding tension anywhere?
 - Are you expanded or contracted in certain parts?
- Move like you are receiving an award.
 - Does the speed of your walking change
 - What body part is leading you?
 - Are you holding tension anywhere?
 - Are you expanded or contracted in certain parts?
- Move like you are talking to someone sad.
 - Does the speed of your walking change
 - What body part is leading you?
 - Are you holding tension anywhere?
 - Are you expanded or contracted in certain parts?
- Move like you are about to give a gift to a good friend.
 - Does the speed of your walking change
 - What body part is leading you?
 - Are you holding tension anywhere?
 - Are you expanded or contracted in certain parts?

Second Group Discussion (Respond)

- What did you notice about what we just did?
- Which of these movements have you done before? Did any of them feel familiar?
- Are the movements you do these in everyday life different than how they are here?
- Are you ever aware of your body language? What movements make you aware of your body language?

These prompts again but with expansion or contraction.

- Now, walk like you are going to make your morning cup of coffee, tea, or breakfast.
 - Notice
 - Expand/contract/ oscillating (in randomness)
 - Notice
- Now walk like you are late to your meeting or class or event.
 - Notice
 - Expand/contract/ oscillating (in randomness)

- Notice
- Move like you didn't get the promotion you were hoping for.
 - Notice
 - Expand/contract/ oscillating (in randomness)
 - Notice
- Move like you are relaxed, no one is watching, and you have nowhere to be.
 - Notice
 - Expand/contract/ oscillating (in randomness)
 - Notice
- Move like you are receiving an award.
 - Notice
 - Expand/contract/ oscillating (in randomness)
 - Notice
- Move like you are talking to someone sad.
 - Notice
 - Expand/contract/ oscillating (in randomness)
 - Notice
- Move like you are about to give a gift to a good friend.
 - Notice
 - Expand/contract/ oscillating (in randomness)
 - Notice

Third Group Discussion (Respond)

- Audio record
- What did you notice about the movements during the last round of prompts?
- Did you have a preference for any of the last prompts?
- Did anything feel natural? Or weird?
- What did you notice about changing the movements by expansion or contraction?
- How often do you think about how your body language is oriented?
- Some of the movements we explored today are associated with feeling powerful, powerless, vulnerable, strong, kind, and protected. When you are performing these actions, take a moment to realize your body language
- How could your body tell you how you are feeling?
- Could you shift your movement patterns in mindful self-adjustment to change the way you feel?
- Invite participants to reflect on this experience, offer feedback, and express thoughts regarding the workshop they did not want to share.

Finally, I will thank and dismiss the participants.

*In describing the project, I will avoid words associated with power as to not bias the results of the expansive/contractive movement exploration.

Appendix C: Phase II Lesson Plan

Part Two: Exploring Ordinary Body Language using Creative Movement (modifiable for individuals in seated position)

Educator: Mary Catherine Matthews

Date: 02/12/24

Target Age group/level: adults in collegiate dance program, who are familiar or unfamiliar with movement, who can move around or stay seated.

Length of lesson: about 60 minutes

Focus of lesson: The content of this lesson contains a series of prompts to inspire ordinary body language and body awareness for participants and a series of conversations to verbally process the content. The skills attained will be to describe a heightened awareness of body language, describe inner affect changes, and apply body awareness and body language self-adjustment to ordinary life.

Materials: The materials that would be helpful:

- An open room without mirrors
- Chairs for sitting down if helpful
- A speaker with music without words helps to make the space more comfortable.
- Guided notes
- Clipboards or books for writing on guided notes
- Trifold of prompts
- Pens/pencils

Resources:

Conversations with André Megerdichian, Dr. Stephanie Milling, and Megan Saylor.

Cuddy, Amy. J. C., Jack S. Schultz, Nathen E Fosse. "P- Curving a More Comprehensive Body of Research on Postural Feedback Reveals Clear Evidential Value for Power-Posing Effects: Reply to Simmons and Simonsohn (2017)." *Psychological Science*, 29, no. 4 (2017): 656-666. <https://doi.org/10.1177/0956797617746749>

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Vocabulary:

- Body language: the postures, gestures, and patterns that we physically embody; not only to communicate with other people, but also to express our inner affect (thoughts and feelings)
- Expand: to become big, to reach, to grow, elongate, extend, unfold
- Contract: to become small, to shrink, to fold inward, closing
- Tension: muscle gripping that puts a body part in stasis
- Release: muscle relaxing that lets a body part be available for movement
- Breath: the inhale and exhale

Learning Objectives	<p>I can describe a heightened awareness of my body by explaining the differences between moving expansive and contraction, tense and released, with inhale and with exhale.</p> <p>I can describe the changes in my inner affect (thoughts and feelings) when I change my body language.</p> <p>I can apply the concepts of body awareness and body language self-adjustment to my daily life.</p>	<p>These objectives require high level thinking and verbal iteration that is unique to each individual but relevant and understandable to the general population.</p>
Instructional Procedures	<p>Introduction (6 min) <u>Educator:</u> Welcome to this Creative Movement Workshop. We are all here because most of us all move. From the time we were very little, we used our bodies to express ourselves, communicate, and to travel to where we need to be. The purpose of this workshop is to help us all explore our own movement patterns and postures that we may use in our daily lives. Becoming aware of our bodies can be very helpful, but I understand this kind of activity may feel weird or awkward. I would encourage you all to bravely explore and enjoy your own patterns. If you need to drink water, or observe at any time, you are welcome. We will break into two partner groups and one large group conversation.</p> <p>Lets go around the circle and everyone say your name. As you say your name, show us a move. It can be a dance move or a simple gesture. Go with the first thing that comes to you. After you say your name and do your move, the rest of us will copy. Then, please let us know if there are any injuries or limitations you want us to know and be aware of. I'll show you what I mean. (says name and does movement, Invites participants to join in the name saying and movement doing, shares any injuries or limitations). Now you will all say my name and do my movement.</p> <p>Participants: (performs exercise)</p> <p><u>Educator:</u> Great job, everybody. Throughout the rest of the workshop, I will ask you to notice... I mean notice what thoughts keep coming to you, what feelings, what sensations, what's around you, anything.</p> <p>BrainDance (Explore and Introduce expansion, contraction, tension, release, and breath) (10 min.) <u>Educator:</u> Let's do a warmup called the BrainDance, created by Creative Dance innovator, Anne Green Gilbert. Sometimes, we</p>	<p>I decided to include the BrainDance as a warmup to help individuals attune to the different parts of their bodies and to introduce the vocabulary terms explored in this section.</p> <p>I introduce expansion, contraction, tension, and breath during the breath sequence, and I feel this is a very human way for participants to experience expansion and contraction. Instead of the walking exploration, the BrainDance is easily adapted for people sitting in chairs or wheelchairs</p> <p>I am consciously using inclusive</p>

	<p>get so used to our bodies and spend so much time thinking, that we don't feel our bodies parts anymore. But, our session today is all about movement and what movement can do for us. We can say hello to our bodies, get the blood flowing, and notice if anything happens. Let's start by taking an inhale and an exhale.</p> <p><u>Educator:</u> Let's all breathe in together. And breathe out. Breathe in. and breathe out. You can touch your chest and touch your belly and feel the breath as you inhale. And then feel the breath as you exhale. Now as you breathe in, you can feel your chest <i>expand</i>. As you exhale you can feel your body <i>contract</i>. Let's repeat this several more times.</p> <p>Make a tight fist with your favorite hand. When you make a fist, you experience tension in that hand. All your muscles are working to keep your hand balled up. Let go of the fist. We hold tension in other places in our body. Notice where are you holding any tension? Maybe your jaw, your shoulders, the fronts of your ankles, your belly. Now, hold tension somewhere else. What do you notice about that change? You can release the tension now.</p> <p>Notice the relationship between tension and breath. When you exhale, what happens to the tension? When you inhale, where is the tension?</p> <p>Begin by lightly patting your body parts with your hands. Start at the lowest part of your body. If you are using your hands, you can brush, squeeze, poke, and lightly scratch all parts of your body. Now you can work our way higher....higher...and to the highest point of your body</p> <p>Now, we can practice by bringing our body parts as close to the center as we can. This is called <i>contraction</i>. Try to curl up as small as you can. Now you can reach your body as far away as you can. This is called <i>expansion</i>. Try to become as big as you can. See if you can expand and contract on high, middle, and low levels. Can you expand and contract in different directions?</p> <p>Now, let's explore all the ways we can move the top half of our bodies. You can think about your head, shoulders, chest, spine, arms and fingers. Can you swing, gather, scatter, pick, jab, curve, roll?</p> <p>Now let your upper body be still, and let's see how we can move the bottom half of our bodies. You can think about your hips, knees, feet, toes. Can you rock from side to side? Can you wobble your knees, wiggle your toes, swing your legs, roll your ankles?</p> <p>Now let's move only the right side of our body. You can expand, contract, shake, twirl your right arm, right leg. Try the same thing to the left.</p> <p>Let's pretend we have a big book laying across our body. We can bring the right side over the left side to close the book. Then open it again, then close the left side on to the right side. Now look with your eyes to the right and keep your focus at the same level as you go to the left. How does your focus change as your eyes</p>	<p>language, like "highest/lowest part of your body," that Rachel Whiting shared with Alex Carnevale at the NDEO conference.</p> <p>I have borrowed the structure from the draft of my first lesson plan assignment and included much of the same content:</p> <p>These prompts and conversations are structured to avoid directly asking participants to share inner affect changes; however, the prompts and questions open the conversation for mentions of inner affect changes. The structure of the movement prompts are to inspire body awareness on ordinary movement.</p> <p>I used Dr. Ann Hutchinson Guest's <i>Motif at a Glance</i> to decide if I should introduce other movement concepts like like gather, scatter, heavy, or uplift. However, I wanted to keep expansion, contraction, tension, release, and breath. I was wary about overwhelming the participants. And these 5 terms seem more relatable to daily life than the others.</p>
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	<p>pass over the objects and people in the room? Now let your eyes track to the left.</p> <p>Now, let's see how we can move "cross-laterally," which means using one part of the upper body with the opposite part of the lower body. You can touch one right-hand finger to one left knee. You can move a left shoulder as you move a right hip. Let's explore what other cross-lateral movements we can find. Focus your eyes where the wall and floor meet, now keep your focus on a straight line going up the wall to the highest point you can see. See how your focus changes when you look at everything. From the highest place, now to the lowest place, let your eyes track back down.</p> <p>Finally, let's practice balancing and not balancing. See what it feels like to sway from side to side. You can tip the body forward and backward. How far can you go before you feel off balance? Imagine there is paint on your nose and paint circles in the air.</p> <p>Let's come back to the breathing. You can touch your belly and your chest. As you breathe in, expand your arms and feel the tension rising in your chest. Notice what this sensation is like. As you exhale, contract your arms and feel the tension releasing. Notice this sensation. Let's try this 5 more times.</p> <p>Partner (Respond) (2 minutes) <u>Educator:</u> Look to the person or group of people beside you and discuss what you just experienced. What did you notice about how your body moves? Which part of that exercise did you like the most and why? What did you notice about breath, expansion, contraction, tension, and release?</p> <p><i>Participants discuss within partners and Educator moves around to hear and engage in conversation.</i></p> <p>Instructed Movement (Create and Perform) (15 min.) <i>Guided, individual exploration</i> <u>Educator:</u> Now we will do some pretending and play with some themes we've already talked about: breath, tension, expansion, and contraction.</p> <p>Pretend you are going to pour your morning cup of coffee, tea, or breakfast. Now expand your shoulders. Notice, does this change anything? Now expand your shoulders more. Now contract your shoulders inward</p> <p>Pretend you're at a dance party, but you're sitting on the side, rather than on the dance floor. Now cross your arms. Now uncross your arms and exhale. Notice. Now cross your arms and exhale. Notice.</p>	
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	<p>Now, pretend you are late to your meeting, but you can't leave yet! Now hold tension in your jaw and fists. Contract your chin down to your chest. Notice what is different here. Now lift your head again and release the tension.</p> <p>Pretend that you worked very hard on something, but it fell through, and it's over now. Expand your hands and inhale. Notice. Expand your hands and exhale. Contract your hands and inhale. Contract your hands and exhale. Notice.</p> <p>Now take a moment to imagine that no one is watching you and you have nowhere to be. You just get to be right here. Contract your shoulders and make your steps smaller. Notice this change. Expand your shoulders and make your steps bigger. Notice this change.</p> <p>Your name was just called for an amazing award! How would you react? Now expand any part of your body. Now expand it more. Now contract it as much as you can. Notice how this changes.</p> <p>Imagine you need to talk to your friend who is very sad. Now inhale and hold tension everywhere. Now exhale and let all the tension release</p> <p>Pretend you see your best friend, who you haven't seen so long! Reunited! Now contract some body part. Contract it more. Contract it even more. Notice what is different here. Now expand it as much as you can</p> <p>Personal Reflection (Respond) (6 minutes) <u>Educator:</u> Here is a list of the prompts we just went through to help remind you of what you just did. (<i>share these prompts</i>)</p> <ul style="list-style-type: none"> ▪ <i>Pretend you are going to pour your morning cup of coffee, tea, or breakfast</i> ▪ <i>Pretend you're at a dance party, but you're sitting on the side, rather than on the dance floor.</i> ▪ <i>Now, pretend you are late to your meeting, but you're waiting on your ride so you can't leave yet!</i> ▪ <i>Pretend that you worked very hard on something, but it fell through, and it's over now.</i> ▪ <i>Now take a moment to imagine that no one is watching you and you have nowhere to be. You just get to be right here.</i> ▪ <i>Your name was just called for an amazing award! How would you react?</i> ▪ <i>Imagine you need to talk to your friend who is very sad.</i> 	<p>I included this last question in the "group conversation" and in the personal reflection because it is personal but requires more recollection than the other questions. Sometimes others' thoughts help "jog our memories."</p> <p>I included a final discussion here because I did not want to expose participants to these questions on the guided notes before I discussed this final paragraph.</p>
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- *Pretend you see your best friend, who you haven't seen so long! Reunited!*

Educator: I will now pass you **Guided Reflection Notes*** where you can reflect on your experience. (10 min.) (*begin passing out notes and pens*)

- I plan to read your reflections, but **your answers will not influence my interactions with you.** Please answer honestly.
- As we continue to dialogue, you will have the chance to add to your answers or write more on the back of the page, so **feel free to jot down your first thoughts.**
- No need for your reflections to be in complete sentences or with pretty handwriting. This is just for you to start thinking.
- I will ask the questions for those of you who would like to hear them.

Focus Group Conversation (Respond) (12 min.)**

Educator: Thank you all. Let's now use those same prompts to talk as a group. I will record this discussion so that I can study our responses to all the movement we did.

- Can you explain any differences you noticed when we switched from expansion to contraction or the other way around.
- Can you explain any differences you noticed when we switched from tensing to releasing and the other way around.
- Can you explain any differences you noticed when we switched from inhale to exhale and the other way around?

Conclusion (12 min.) and Final Discussion

Educator:

Like hinted to in the guided notes, some movements aren't communicating to other people. Some movements are linked to our thoughts and emotions. When you take a moment to notice your body language: where it is expanded, contracted, tense, or released, you may gain some insights if you are feeling powerful, powerless, excited, sad, vulnerable, protected, strong, angry, kind, and available. Maybe, you will find that you can adjust your movement patterns to regulate how you're feeling. when I'm feeling really anxious, I'll put my, like we did with the breath and the BrainDance, I put my hands on my chest and stomach and it feels where there was tension. I'm like massaging it out and making it feel more released. And that helps me feel more comforted instead of anxious. So when we can notice our body language, we can gain insights into how we're feeling and maybe what even our body wants and needs.

Can anyone think of an example where you have used body posture, positions, and gestures to affect the way you think or feel? (*participant discussion*)

	<p>Moving forward, was there anything from this workshop that you think you will remember and take with you into your daily life? (<i>participant discussion</i>)</p> <p>Please take a moment to add anything to your reflection papers or share any final thoughts.</p> <p>Thank you for coming and have a great rest of your day.</p>	
Assessment of each objective	<p>The summative assessment will be passed if participants describe, either in the focus groups or written reflection:</p> <ul style="list-style-type: none"> ▪ a heightened awareness of their bodies by explaining the differences between expansion and contraction, tension and release, inhale and exhale. ▪ A change in their own thoughts and feelings due to a change in body language. ▪ An application of creative movement exploration and body language self-adjustment to their daily lives. <p>Formative Assessment: if individuals are performing different movements during the BrainDance, if they engage in partner discussion, and writing in their guided notes, I will know they are experiencing change and thinking about their ordinary life.</p>	<p>These assessments were created before refining the curriculum, a strategy called Backward Design. (Wiggins, G., & McTighe, J., 2005)</p>

*Guided Reflection Notes Questions

- What do you notice about moving expansive or big?
- What do you notice about moving contractive or small?
- What did you notice about tension and breath?
- Are there contexts or situations in your life where you feel particularly aware of your body postures, positions, and gestures? If so, what are those contexts or situations?
- If I told you that changing your body postures, positions, and gestures can bring about a change in your thoughts and feelings, what are your personal opinions and reactions to that idea?
- Today, did changing your body postures and position bring about any clear changes in your thoughts or feelings? Is it hard to tell?

**During both Phase II workshops, the flow of conversation led to an off-script introduction to research on the appropriateness hypothesis.

- During the first Phase II Focus Group: "The research shows, or one study shows that after people lost a race, lost a competition, those who were in a contracted posture felt better than those who were in an expanded posture after they lost. So in certain contexts, contraction or expansion can be more helpful. This could be comforting after you lose."
- During the second Phase II Focus Group: "Sometimes it can be better to just notice where we are rather than trying to change. There's research that shows people who won a competition displayed expansive behavior and felt good. And the people who lost when they expanded, that was not good, they felt bad. So when people that lost the competition contracted, they felt better. And I think that's an interesting point to bring up here. There are lots of different contexts you'll find yourselves in and lots of different body postures and the way that you contract can be comforting for you. The way you expand can be celebratory, so you can adjust your body language to kind of regulate how you're doing."

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