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A Drumming Dance: A Study on the Effects of West African Dance on Motor Performance and Motivation among Collegiate Dancers

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A Drumming Dance: A Study on the Effects of West African Dance on Motor Performance and Motivation Among Collegiate Dancers

THESIS

submitted in part partial satisfaction of the requirements
for the degree of

MASTER OF FINE ARTS

in Dance

by

Darlisa Wajid-Ali

Thesis Committee:
Assistant Professor Dr. Kelli Sharp, Co-Chair
Assistant Professor Sheron Wray, Co-Chair
Associate Professor Dr. Jennifer Fisher

2016
DEDICATION

TO

Edwina Gloria Wajid-Ali

who always told me that the way out was to “get my education”

AND

James A. Wajid-Ali III

who always told me to “follow my dreams.”
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ABSTRACT OF THESIS

A Drumming Dance: A Study on the Effects of West African Dance on Motor Performance and Motivation Among Collegiate Dancers

BY:

Darlisa Wajid-Ali

Master of Fine Arts in Dance

University of California, Irvine 2016

Dr. Kelli Sharp, Co-Chair, Sheron Wray, Co-Chair

Changes in cardiovascular health, balance, agility, and motivation were assessed during a 6-week West African dance and live drumming intervention with collegiate dancers. The study measured cardiovascular health with the Accelerated 3-Minute Step test, balance with the m/r Star Excursion Balance test, and agility with the Illinois Agility test. Motivation was measured using the Classroom Life Measure, Motivated Strategies Learning Questionnaire, and the Rosenberg Self-Esteem scale. The intervention met for 55 minutes twice a week for six weeks; six (6) participants, 5 females, and 1 male, median age of 20 +/- 2 years of age, with 12.61 average years of dancing, completed the study. Statistical analysis using one-way ANOVA revealed no significant changes, but there were individual trends that suggest that improvements in cardiovascular health, balance and agility can occur after 6 weeks of West African dance training. Responses to questionnaires revealed that participants enjoyed what they were learning in class, and felt supported by the instructor and other students in the intervention. More research on a larger scale needs to be done to assess West African dance’s impact on physical fitness.
INTRODUCTION

This research is based on my avid interest in health and wellness, kinesiology, and injury prevention, which led to a research question that seeks to discover how the systems of the body work together and transform when practicing West African dance. Kariamu Welsh Asante notes that “the requisite tool of both dancing and drumming is the human body” (Welsh Asante, 1996). The body contains a complex arrangement of systems that allow for movement, including the muscles and bones that comprise the musculoskeletal system, and the thoughts, feelings and sense perceptions that occur in the mind. The goal of this study was to discover how West African dance improved physical and mental components of health within a collegiate dance population.

What is African dance? This question may draw forth a multitude of answers, images, associations and ideas depending upon a person’s experiences. The African continent has a history thousands of years old, with thousands of ethnic groups that each speak their own dialect, and practice their own unique cultural traditions. The richness and variety of various ethnic groups’ traditions have been preserved mainly through oral tradition, and although ancient sculptures, carvings and texts have been discovered, the details about each group’s practices tend to remain an illusive memory that comes to life through gesture and language (Tierou, 1992).

Scholar Kariamu Welsh Asante isolates what she considers dominant qualities of African dance commonly found in various forms across the continent, defining them through seven distinct categories, also known as ‘senses:’ (1) Polyrhythm, (2) Polycentrism, (3) Curvilinear, (4) Epic Memory, (5) Texture, (6) Repetition, and (7) Holism (Welsh Asante, 1996). According to Welsh Asante, the characteristics and details
of each dance are unique, but these seven ‘senses’\(^1\) tend to be present in most African dance forms. This intervention\(^2\) included the movements, terms and traditional dances found in the West African regions of Guinea, Ghana, Senegal and the Ivory Coast. The senses outlined by Welsh Asante provide the lead researcher a framework to understand and analyze the qualities of the movements the lead researcher incorporated.

**Research Question and Basic Methodology**

I hypothesize that West African dance can drive certain physiological changes within the body over a period of time. The goal of this study was to determine how the use of a West African dance intervention, accompanied by live drumming, could change cardiovascular health, balance, agility, and motivation among collegiate dance majors. This project seeks to assess if West African dance is a feasible and aesthetic way to address current concerns with health, wellness and injury prevention among dancers.

Six college dance majors, 20 +/- 2 years of age with an average 13 years of dance training, participated in a 6-week West African dance intervention that included a pre-testing session, 55-minute classes that met twice a week, and a post-testing session. Cardiovascular endurance was measured using the Accelerated 3-minute Step test, balance was measured using the m/r Star Excursion Balance test, and agility was measured using the Illinois Agility test. The Classroom Life Measure, Motivated Strategies Learning Questionnaire and Rosenberg Self-Esteem Scale were administered during the third week to assess the participants’ feelings in the classroom due to pedagogical choices, preferred learning styles, and perceptions of self-worth and

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1 ‘Senses’ is a term used by Welsh-Asante to describe certain qualities of African dance, and does not refer to a feeling or inference (Welsh Asante, 1996).
2 Intervention in this paper refers to the pre- and post-testing sessions and the 6-week dance workshop.
confidence. Physiological changes among collegiate dancers were analyzed after a 6-week West African dance and drum intervention in order to discover West African dance’s potential health and physical fitness benefits for the dance population.

**Why West African dance?**

West African dance’s movements and cultural values align with current concerns for health and wellness in Europe and America, especially with the rise of Africanist dance as a tool to address disease and low levels of fitness. Dance forms such as jazz and Argentine Tango have resulted in improving balance and gait difficulties among the elderly (Alpert et al., 2009) and individuals with Parkinson’s disease (Hackney et al., 2007). Exercising through tap dance, which is a blend of African and Irish movements, was shown to be as effective as running on a treadmill (Oliveira et al., 2010). Caribbean dance, which contains movements of the African diaspora, resulted in positive physiological changes in cardiovascular health (Di Blasio et al., 2009). Zumba, an aerobic exercise program that blends Latin and Afro-Caribbean movements, improved cardiovascular health among overweight and diabetic women (Krishnan et al., 2015). Dances that employed the use of the circle, a common characteristic found in West African dance, greatly improved mood among those suffering from depression (Koch et al., 2007). These studies reveal that Africanist forms, which are rooted in West African dance traditions, have been shown to improve physical health and motor performance in various subject populations.

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3 I follow Brenda Dixon Gottschild’s use of the term “Africanist,” which according to her, refers to diasporic forms that have roots or origins in Africa (Gottschild, 1995).
An interest in how someone’s sensorimotor systems and mood are affected by music has led researchers to investigate the physiological effects of drumming. Most recently, researchers Vinesett et al. discovered improvements in exercise tolerance, stress reduction, feelings of group support, and beneficial spiritual experiences through a modified Congolese dance and drum ceremony conducted with people suffering from chronic illnesses (Vinesett et al., 2015). Psychologists Monteiro et al. give accounts of African drum and dance rituals used to heal trauma within African diasporic communities (Monteiro et al., 2011). Scholar Amegago explains that the process of a particular African village’s drum therapy involves matching the right drum tone to stabilize and soothe an upset individual, such as when a drummer, seeking to re-balance someone feeling hysterical, finds a pleasing deep bass tone and repeats it in a rhythmic pattern until the person is calm again (Amegago, 2014). The studies mentioned above reveal how the mental and emotional benefits of West African drum music have been studied and used within different scientific and cultural communities in order to explore the drum’s potential therapeutic benefits. While this intervention did not measure the drum’s effect, this study is part of a larger field of inquiry that is looking at how West African dance can impact health.

West African music contains the element of groove, which has been shown in the studies mentioned above to drive physiological changes that motivate movement within the body. Within West African dance, live drumming is a common accompaniment that features motivational qualities of groove. Ethnomusicologist Jeff Pressing analyzes how what he calls Black Atlantic rhythms, which are Africanist musical forms rooted in African traditions, have a propensity to inspire movement due to the presence of groove,
defined as rhythmic patterns that repeat (Pressing, 2002). Neuroscientists Vuust et al. elaborate further that the pleasure derived from musical rhythms containing groove enhances the brain’s ability to perceive and react accordingly to these sounds through movement (Vuust et al., 2014). Physiological changes due to groove have been discovered by researchers Stupacher et al., who found that participants experienced more brain activation, which resulted in responses through body movement, when listening to high groove music compared to low groove music or noise (Stupacher et al., 2013). Groove was present in this West African dance intervention through the use of the popular West African hand drum known as the djembe5 (Amegago, 2014). Music with high groove has been shown to create more motivation at a sensorimotor level, which is why the incorporation of live drumming in this study was chosen in order to motivate dancers.

Afrocentric6 values such as acceptance, tolerance, and autonomy have been present within West African dance interventions aimed to heal trauma (Monteiro et al., 2011), reduce stress (West et al., 2004), dismantle distorted perceptions of body size and shape (Kerr-Berry, 1994), and educate marginalized youth (Banks, 2014; Bellinger & Ph, n.d.). The studies mentioned above look at the mental and emotional benefits of West African dance, however there remains a low amount of literature on the relationship between West African dance and physical fitness within the dance population. Therefore, more research in West African dance can expand knowledge of how this particular form

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5 “Djembe” literally means to “gather in peace” from the language of the Malinke people, and reflects the cultural value of music as a positive and healing communal practice (Amegago, 2014).

6 “Afrocentric” here refers to a philosophy that places the human being at the center of all existence, in contrast to Eurocentrism’s focus on power and hierarchy (Hoskins, 1992).
can address current concerns about physical fitness, mental and emotional health, and injury prevention within the professional and student dance populations.

**West African dance training for collegiate dancers**

The research mentioned above assesses West African and Africanist dance’s effect within a largely non-professional dance population, and while much of American concert dance has been shaped by Africanist traditions, there still remains a relatively low amount of literature addressing the ways in which West African dance can address current physiological concerns within the dance population. The movements, music and cultural practices incorporated into this specific intervention were inspired by the codification and pedagogical practices of dance techniques in America and in Guinea, which included movements and music from traditional West African dances such as Sorsonet and Lamba, elements of call and response between the dancer and the drummer, as well as movement phrases that contained minimal repetition, which were initiated on one particular side of the body, usually the right side, and then was repeated with all initiations occurring on the left side of the body. This specific intervention was designed to drive changes in college dancers’ motor performance and motivation.

In order to address the low amount of literature on the physiological effects of West African dance within the dance population, outcome measures were chosen to define the distinctions of West African dance technique: cardiovascular endurance, balance, and agility. Fast twitch muscle fibers, which require short bursts of high energy, are activated in West African dance movements over an extended period of time, which causes a dancer’s heart rate to reach peak cardiovascular levels very quickly (Koutedakis
et al., 2009). Balance, which is linked with good postural support, requires core strength in the hip, quadriceps and hamstrings; these parts of the body are commonly used in West African dance’s polycentric spinal initiations that move the torso off the vertical axis and engage the body in single limb steps and jumps (Ambegaonkar et al., 2014). Agility, which can diminish the risk of musculoskeletal injuries, is strengthened by training in dynamic movements, rather than static or still movements (Phillips, 2005). Moving quickly and changing levels and directions through dynamic movements are integral qualities of West African dance, which tends not to feature static or still postures. The three outcome measures chosen for this intervention each address different qualities of physical fitness, which were chosen in order to best relate to the movement characteristics found within West African dance.

The physical demands that dancers experience has been compared to those of athletes, yet dancers’ physical fitness levels are relatively low and their injury rate is high when compared to athletes, causing researchers to investigate and address ways to improve dancers’ health and wellness (Koutedakis et al., 2004). The ability to have high levels of cardiovascular endurance is paramount, especially when, as researchers Twitchett et al. discovered, low levels of aerobic fitness were responsible for the element of fatigue, which led to weak or improper muscle activation, resulting in many reported injuries among highly trained dance students (Twitchett et al., 2010). Researchers Ambegaonkar et al. determined that good balance leads to fewer musculoskeletal injuries; and they discovered that dancers have better abilities in some but not all areas of balance when compared to active non-dancers (Ambegaonkar et al., 2013). Research into injury prevalence among dancers was conducted by Russell, who reports that most dance
injuries occur in the lower extremities, most commonly in the ankle, which, as researchers Ambegaonkar et al. posit, can be avoided with developing more muscular strength in the limbs (Ambegaonkar et al., 2014; Russell, 2013). For dancers, muscular strength can be developed through stability training, which can improve agility and proper muscular activation (Phillips, 2005). Researchers McEldowney et al. discovered that stability is compromised during jumps when the quadriceps and hamstring muscles become fatigued, which creates a great deal of pressure on the other joints in the leg, including the knee and ankle (McEldowney et al., 2013). Hypermobility particularly in the hip is a commonly desired aesthetic quality within dance training, but can result in extreme joint laxity and poor muscular activation, which increases risk of injury (Day et al., 2011). Poor fitness levels in cardiovascular endurance, balance and agility have been linked with musculoskeletal injuries. West African dance contains movements that exhibit cardiovascular endurance, balance and agility, which speak directly to the physical fitness concerns within the collegiate dance population.

The goal of this study was to discover how West African dance affected changes in cardiovascular health, balance and agility, as well as enhanced motivation and self-esteem through a West African dance intervention featuring live drumming. This study provided an option for dancers to improve their physical fitness while also engaging in an aesthetic art form. Health, which involves both the body and mind, is an important topic for the dance community. Good health can lead to improved physicality, a professional dance career with less susceptibility to injury, and the development of self-esteem and mental acuity.
CHAPTER ONE
Fitness through the Aesthetics of West African Dance

This chapter will outline how West African dance contains elements that strengthen and transform dancers’ physical fitness through an artistic movement technique. Researchers have compared dancers to athletes, yet physical fitness remains secondary to aesthetic appearances (Koutedakis et al., 2004). Among the often varying definitions of what constitutes physical fitness, Koutedakis et al.’s definition is succinct and appropriate for this project, and is as follows: “Physical fitness may be defined as ‘the individual’s ability to meet the demands of a specific physical task…[which can] include aerobic and anaerobic capacity, muscular strength/power [and] joint mobility’” (Koutedakis et al., 2009). Researchers Mistiaen et al. suggest that many dancers tend to forgo non-dance fitness activities because they believe it could lead to a loss in desired physical aesthetic appearances, but they discovered this to be untrue after an 8-week long fitness training intervention with dancers, in which aesthetic appearances were not diminished (Mistiaen et al., 2012). Even though there may be no change in aesthetic appearance for dancers who cross-train, the environments in which cross-training can occur, such as the gym, are in contrast to the artistic space of the studio, which could impact motivation.

Cardiovascular health

Dancers who have optimal cardiovascular health move with “improved efficiency of movement, delayed fatigue onset, and reduced susceptibility to injury” (Rodrigues-Krause et al., 2015). Optimal cardiovascular health is defined here as “the ability to
perform prolonged exercise without undue fatigue,” and relates to the aerobic process of the heart’s ability to pump blood with less strokes, in order for the muscles to convert oxygen into energy needed for movement (Guzman, 1979). One way to measure aerobic capacity is to bring the heart rate (HR) to peak levels through physical activity, and then compare the resting heart rate (HR), known as the baseline, with the HR one minute after it reaches its peak, known as the recovery HR. The heart’s ability to closely reach its resting rate in a short amount of time is caused by a healthy parasympathetic response, which is the system responsible for maintaining a steady heart beat; this response can be improved with endurance training (Kenney, 1985).

Researchers Rodrigues-Krause et al. analyzed various studies on ballet, modern and jazz dance professionals and students, and discovered that the technique classes they took did not reach the oxygen intake levels found in their performances (Rodrigues-Krause et al., 2015). This analysis corresponds with Wyon and Redding’s 12-week study of professional dancers, in which they found cardiorespiratory levels reached in rehearsals to be lower than the levels found in their performances (Wyon et al., 2005). This suggests that technique classes and rehearsals, which tend to constitute most of a dancer’s physical training, are not adequately preparing the body to handle the cardiorespiratory demands of a performance. Within West African dance, cardiovascular endurance is generated in the dance through Welsh Asante’s sense of repetition, which includes “the intensifying of one movement, of one sequence, or the entire dance until [satisfaction] has been reached…time is a factor, but enough time rather than a set amount of time” (Welsh Asante, 1996). The repetition of movements was featured in this
intervention, in which warm-up sequences and choreographic sequences flowed without stopping or resting.

A dancer’s muscle fibers can be identified by two properties of a muscular contraction: slow-twitch fibers, which allows for long-lasting endurance, or fast-twitch fibers, which allow for quick bursts of energy (Koutedakis et al., 2009). West African dance engages movements that require quick bursts of energy that are repeated over a longer period of time. The traditional Guinean dance Sorsonet, features a basic step whereby the legs jump in a triplet, and the arms circle in a double count. The speed of the movement requires a burst of energy in order to achieve the aesthetic quality, however, this same movement can be repeated between 8-10 times, depending upon when the drummer gives the call to start the next movement. The speed of this movement quickly brings the HR to peak levels, and the duration of the movement requires a high level of oxygen intake in order for the parasympathetic system to continue sending energy to the muscles in order to avoid fatigue. Koutedakis et al. reveal that highly energetic fitness exercise must occur for at least 20 minutes in order to create improvements in aerobic capacity (Koutedakis et al., 2004). While movements in West African dances can be sculptural and processional, the movements taught in this particular intervention required a great deal of energy bursts for 45 out of the 55 minute class. The HR quickly reaches and maintains peak levels due to the activation of fast twitch and slow twitch muscles over a prolonged period of time, which is a characteristic of West African dance movements.

Researchers Bronner et al. have developed an Accelerated 3-minute step test to specifically address the rigors of dance training and cardiovascular health (Bronner et al.,
Bronner et al.’s variation of the YMCA step test increased the stepping tempo from the original 96 beats to 112 beats per minute, and reduced the duration from the original 6 minutes to 3 minutes. The increased tempo and decreased duration was thought to better resemble the intermittent nature of many dance performances, since dancers tend to need shorter bursts of high energy, rather than prolonged endurance (Angioi, Metsios, Koutedakis, & Wyon, 2009). The West African dance choreography taught in this intervention tends to last from 3 up to 10 minutes, which, due to the quality of the movement and duration of the music, demands high levels of energy and endurance. Bronner’s accelerated step test has been validated to be an effective way to test dancers’ cardiovascular health, as well as better resembling the tempo and duration found within this intervention’s movements.

**Balance through Postural Stability, Muscular Strength and Non-visual Awareness**

Balance is understood to be a combination of complex sensorimotor systems, which includes the body’s ability to maintain spinal alignment as it moves with and against gravity, as well as the body’s ability to readjust itself when something causes it to lose control of its center (Horak, 2006). Good balance is defined as strong postural support, and is measured by “the ability to stand with as little sway as possible” (Stins et al., 2009). Maintaining a steady and centered position with low amounts of sway in the lower extremities has been linked with core and hip strength (Ambegaonkar et al., 2014). While balance is frequently attained through visual cues, the development of bodily spatial awareness, known as proprioception, can also activate the sensorimotor systems of postural support (Fuentes et al., 2010).
Within West African dance, the body frequently shifts weight from two legs to one leg, which causes changes in the center of gravity as the base support becomes smaller, and results in adjustments of the body’s sensorimotor responses in order to maintain equilibrium (Riemann et al., 2003). This process of readjustment can be seen in movements such as the “pull-up” and the “rocking horse jump,” which quickly transition between single and double limb stances. Researchers Riemann et al. discovered that the ankle is the dominant source of corrective action when the body is balancing while standing on one leg, but as the task becomes more challenging, the knee and hip become involved in correcting and maintaining balance (Riemann et al., 2003). Balance, particularly in West African dance movements, involves more than just standing still, and instead requires constant sensorimotor adjustments that engage postural support as the body moves and shifts weight dynamically through space.

Balance is achieved through muscular strength in the lower extremities and the core, and the movements found within West African dance activate muscles associated with postural stability. While conducting a study within the female collegiate athletic population, researchers Ambegaonkar et al. discovered that while core endurance did not have much effect on postural support, better balance and less postural sway was achieved by the subjects who had stronger hip flexor, extensor and abductor muscles, which includes the iliopsoas, quadriceps, hamstrings, and gluteus muscles (Ambegaonkar et al., 2014). This intervention incorporated West African dance’s basic position known as dooplé, in which the torso is bent forward at the waist, the knees are also gently bent, and the feet are hip width apart in a parallel position, with the toes facing forward (Tierou, 1992). This position forms the foundation of the “pull-up,” in which one leg is raised
towards the chest and then lowered, and then repeated on the other leg. This step engages the iliopsoas and quadriceps as the working leg raises, and the hamstrings as the working leg lowers, while also activating the lower abdominals and gluteus muscles in order to stabilize the bent standing leg and maintain the torso position.

Building strength in the muscles needed for balance can occur through both dynamic and static movements, and, as researcher Amiri-Khorasani et al. discovered, while dynamic movements resulted in higher levels of controlled balance, static movements also created improvements in balance (Amiri-Khorasani, 2015). The lead researcher of this intervention observed that yoga was incorporated into other West African dance classes at two national conferences in Washington, D.C. and LA, as well as during a university class, and incorporated it into the warm-up segment of this particular intervention in order to build muscular strength for postural support. Standing poses such as the Tree Pose, King of the Dancers Pose, and Standing Big-Toe Pose, all which required balance on a single-limb that activated the erector spinae, hamstrings, quadriceps, iliopsoas and gluteus muscles. Warrior I, Warrior II and Extended Side Angle Pose were lunge balances with a flexed or extended spine, and were used to activate the quadriceps, hamstrings, abdominals and upper back muscles (Kaminoff, 2007). Yoga balances, which were used in this West African dance intervention, have been shown to activate and strengthen muscles in the core and lower extremities that are linked with postural support, and can address the high prevalence of lower limb injuries within the dance population.

Yoga also relates to Welsh Asante’s sense of holism, which understands the all parts are connected to the whole (Welsh Asante, 1996). Yogic principles denote the
importance of connecting the breath with the movement or position in order to attain a deeper mind-body connection (Kaminoff, 2007). By incorporating the static movements of yoga in contrast to the dynamic movements of West African dance, the lead researcher sought to isolate certain muscular activations, as well as bring attention to breath and mind-body centering. Graduate student Allison Eckardt examines how Ghanaian music and dance is taught in American classrooms, noting that the Ghanaian musicians she interviewed said, “the Americans are not Africans.” By this, they meant that the ability to absorb the cultural nuances of the music and dance forms are different when one grows up constantly surrounded by it, versus someone who interacts with it for the first time, for only a couple hours a week in the studio (Eckardt, 2008). The lead researcher understood that West African dance technique takes a considerable amount of time to learn, and the incorporation of yoga into the intervention was an approach meant to isolate and drive the musculature and mind-fullness present within West African dance technique for this short intervention with collegiate dancers.

Researchers Mueles Perez et al. assessed that dancers heavily rely on visual cues from the mirror to maintain balance, which can be problematic since the mirror is not present during performances, and factors such as stage lighting can impede a dancer’s ability to see (Mueles Perez, et al., 2014). They say it is therefore important for dancers to develop a sense of balance without only using visual cues. This intervention’s West African dance movements included the “rolling thunder,” “cut turn,” and “rocking horse jump,” all of which require dancers to move the spine off the vertical axis while maintaining a stable base support in the legs, while also moving the head up and down, or side to side. These movements are aesthetically pleasing when the head is fully involved,
which requires a dancer to shift the eyes away from the mirror. When vision is taken away, a dancer’s ability to sense where the body is in space is known as proprioception (Fuentes et al., 2010). Researchers Hutt and Redding discovered that dancers who incorporate balance exercises with an emphasis on proprioception and a de-emphasis on visual cuing performed better on eyes-closed balance tests (Hutt et al., 2014). Balancing without the visual cue of the mirror occurs when a dancer performs on stage, and activates the body’s proprioceptive abilities. A majority of the West African dance movements used in this intervention required the head to tilt up and down, or side to side, shifting the visual focus away from the mirror.

This intervention measured balance in collegiate dancers using a modified Star Excursion Balance Test (SEBT). Batson examines the validity of the SEBT with pre-professional university dancers (20.1 +/- 1.4 years) in order to determine sensitive and efficient dance-specific approaches to measuring balance. Through analysis of subjects completing three different variations of the SEBT, Batson determined that mSEBT(1) appeared to have the least movement variation because subjects were directed to move quickly (Batson, 2010). Since Batson determined that using the SEBT with the variation of speed is a valid approach to testing balance, this intervention used the speed SEBT in order to better assess dancers’ balance after training in West African dance movements that incorporated single limb balances at a quick tempo.

**Agility, Motor Recruitment, and Dynamic Movement**

Agility “has been defined as the ability to maintain a controlled body position and rapidly change direction without a loss of balance, body control, or speed,” the benefits
of which include muscular coordination and reduced risk of injury (Raya et al., 2013). Researchers suggest that in order to protect the skeletal system, the proper activation of muscles, known as motor recruitment, can be developed through motor learning, and not simply through isolated strength training (Phillips, 2005). When a dancer is learning new movement, he or she initially experiences a high level of perceived effort, which leads to an over-activation of muscles; however, over time, as a dancer becomes more familiar with the movement, less perceived effort and less muscular force is used to accomplish the task (Phillips, 2005).

Static movements involve motionless positions that are held, while dynamic movements consist of shifting the center of mass between the limbs, and require more balance and neuromuscular control (Daneshjoo et al., 2012). West African dance movements frequently contain fast movements that change direction rapidly, and tend not to incorporate stillness or static poses. Researcher Amiri-Khorasani discovered that dynamic movements improved both dynamic and static balance and stability more effectively than static movements among female soccer players (Amiri-Khorasani, 2015). In contrast to stability, hypermobility is defined as “excessive range of motion,” and is a desired aesthetic quality of many dance forms; however, hypermobility increases risk of musculoskeletal injury because the muscles at the joint are loose and cannot activate properly with the necessary strength (Day et al., 2011). Flexibility is a desired aesthetic of West African dance, as seen in the Senegalese fan kick known as the “tabelouwah,” and the movements frequently shift directions quickly. In this intervention, dancers were given the metaphorical image of dancing on a “hot floor” in order to evoke the speed and muscular activation needed to accomplish the desired aesthetics of the movements. The
qualities of agility relate to Welsh Asante’s sense of texture or dimensionality within African dance, which she defines as “the extra-shape vibration that happens in the movement of the waist and hips,” and leads to spiraling motions (Welsh Asante, 1996). The quick changes in direction and level of the torso, found through texture in West African dance, is a component of agility. Raya et al tested the validity and reliability of three different agility tests with active male members of the military, and concluded that all three tests are reliable ways to assess agility (Raya et al., 2013). The Illinois Agility Test was used in this project’s intervention in order to more effectively match the complex floor patterns and changes in directions that dancers frequently experience in class, rehearsal and performance. The Illinois Agility test demanded more shifts in weight and changes in direction than the other agility tests found in Raya, et al., which better relates to this intervention’s West African dance movements.

West African dance features movements that require cardiovascular endurance, balance and agility. Improvements in these areas have been shown to result in enhanced physical fitness, core strength and stability, muscular control, and injury prevention. Highly trained dancers have been compared to athletes, yet dancers’ levels of physical fitness are poor when compared to the athletic population. By examining West African dance through the senses of repetition, holism, and texture, the lead researcher examined whether physiological and motivational improvements can occur in collegiate dancers.
CHAPTER TWO
Live Drumming and Motivational Relationships

There are various reasons that influence a dancer’s degree of motivation, including stimulus from an internal experience, such as an enjoyable process, or from an external environment, such as the pursuit of a reward, goal or accomplishment. The external environment of the classroom can shape the learning process, while the sounds and rhythms of drums can influence the movements of the body (Janata, et al., 2012; Niemiec et al., 2009). According to psychologists Ryan and Deci, “people whose motivation is authentic (self-authored)…have more interest, excitement, and confidence, which in turn is manifest both as enhanced performance, persistence, and creativity, and as heightened vitality, self-esteem, and general well-being” (Ryan et al., 2000). This chapter will reveal how music can impact motivation among collegiate dancers, with attention given to the relationship between African drums, Africanist musical patterns, and the communal learning environment.

Drumming motivates the community

West African drums, particularly the djembe,7 have been used to enhance the social relationships of a community. Many American public parks, such as the Malcolm X Park in Washington, DC, provide space for weekly or monthly public drum circles, where people regularly gather and play the drums (Ichile, 2006). According to ethnographer Modesto Amegago, “the word, dje is the verb for ‘gather’ and be translates as ‘peace’” (Amegago, 2014). This drum’s name reveals the purpose of the djembe as an

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7 The djembe is a popular hand drum in West Africa and America, and it traces its history to the Malinke people of Guinea, Ghana, Gambia and parts of Mali (Price, 2013).
instrument for summoning people together in harmony. During this project’s intervention, a djembe drummer was present for each session. Interactions between the drummer and the dancers included a welcoming greeting and closing personal thanks that emphasized West African traditions of community. The three tonal sounds of the djembe, known as bass, tone and slap, are meant to reflect the pitches of the voice, and when played in rhythmic patterns, these sounds are known as “drum language,” which means that a person who understands this language can hear the drum “speak” (Price, 2013). Dancers in this intervention were taught to recognize the certain tones that form the drum’s call as the cue to start the movement. This process, known as call and response, follows what scholar Begho describe as a leadership/followship relationship, whereby the leader is the drummer who makes the call, and the dancers actively agree to support the call by following (Begho, 1986). The role of drums in this West African dance intervention was defined by a cooperative relationship between the drummer and dancers, which reflected the tradition that drumming and dancing events are meant to be peaceful and communal occurrences (Amegago, 2014).

Social interactions are an important factor to consider when assessing the participant’s experiences in a learning or exercise environment. Researchers Patrick et al. analyzed the role that peers have on an individual’s experience in the dance classroom environment, revealing that most students cited satisfaction with their social interactions as a driving force for their continued enjoyment and participation in a dance class (Patrick et al., 1999). In order to engage student participation and answer a question on

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8 When translating the Itsekiris’ language (Nigeria), Begho reveals that “call” or sin’erin, is interpreted as “lead a song,” and “respond” or gbe’erin, means “save” or “support a song.” This translation exposes the importance of a “leadership/followship” relationship, in which the leader may be in charge, but needs the cooperation and support of the followers (Begho, 1986).
the complexity of the polyrhythms, this project’s intervention included an exercise where the dancers drummed for each other: one person played a rhythmic pattern on a buffalo drum, and the other dancers improvised West African movements to the drum rhythm. Everyone had a chance to play the drum for the group more than once. While this exercise was partly a lesson in musicality and improvisation, it was also developed to create a relationship within the group that follows the leadership/followship components of cooperation and support driven by the drum’s call and response techniques.

Researchers Gu et al. assessed the relationship between group cohesion and motivation among college students during an aerobic dance class, and discovered that the variances between group cohesion and physical activity suggest that improved communal support could motivate students’ participation in group activities, such as dance (Gu, Zhang, & Smith, 2015).

**Groove motivates the dancing body**

Groove, which is the repetition of rhythmic patterns that contain polyrhythm and syncopation, is a defining characteristic of West African and Africanist music, and has been shown to stimulate movement responses from the body. Music scholar Jeff Pressing notes that African musicality, which often contains groove, can excite and induce cathartic feelings among those listening (Pressing, 2002). In a study conducted by researchers Stupacher et al., participants who listened to high groove music experienced more brain stimulation and motor system engagement in their limbs versus when they listened to low groove music or noise (Stupacher et al., 2013). In this intervention, the

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9 In West African dance traditions, dancers often drum expertly, and drummers may be skilled at dancing. There is flexibility and interchange between the roles of dancer and drummer (Begho, 1986).
drummer was instructed to improvise a repeated rhythmic pattern during the warm-up in order for the dancers to “get in the groove.” Being “in the groove” has been described as the pleasurable experience that occurs when the body and the brain align with the timing of the music (Janata et al., 2012). Music with groove, a defining characteristic of this intervention’s musical structures, has been shown to activate higher levels of brain stimulation and sensorimotor responses than other forms of music.

Elements of groove include polyrhythm and syncopation, which can lead to complexity in the music, and result in different responses from the body (Vuust et al., 2014). Drums have a strong capacity to create and sustain polyrhythms, which leads to musical and movement complexity. The presence of drums playing multiple rhythms may influence the qualities of West African movements, which relates to Welsh Assante’s sense of polyrhythm and polycentrism, in which “dances are polyrhythmic in sound and polycentric in movement” (Welsh Asante, 1996). In this intervention, there were two drummers playing two different rhythms at the same time. One particular movement exercise incorporated the Malian rhythm known as Lamba, in which the bass drum, known as the dundunba, began with a syncopated groove that started on the last beat of the meter, also known as the “8.” Because the djembe gave the initial call, the dancer needed to differentiate between the polyrhythmic accents of the dundunba and the djembe, and understand where the downbeat fell in the meter. West African drum musicality, driven by polyrhythm and syncopation, incorporates complex rhythmic accents that can impact the body’s responses (Stupacher et al., 2013; Vuust et al., 2014).

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11 The dundunba contains three differently sized round drums that are tuned to three different pitches, and played with two sticks. It is most commonly used in dances from Guinea and Gambia (Amegago, 2014).
Motivation in a collegiate dancer’s classroom environment

Ethnographer Oyeja Cruz Banks, founder of The Dambe Project, developed West African educational experiences that incorporated live drumming and traditional dancing in order to “demonstrate the integral relationship between Guinean dance and percussive traditions,” which resulted in what she calls “spiritual capital,” a term that refers to “an enlivened spirit that stems from a deep relationship to music and communal ritual” (Banks, 2014). The relationship between what Banks describes as “a musical spirit alertness, and a suppleness and joyfulness in the body” connects with how intrinsic motivation, driven by the appreciation of the music, can affect physiological responses. Intrinsic motivation occurs when the willingness to participate stems from the enjoyment and pleasure derived from an activity, rather than for a reward or goal (Ryan et al., 2000). Pleasure derived from music, as discovered by researchers Seath et al., resulted in significant improvements in mood and reduced the perception of effort within a group of college students who incorporated music into their aerobic exercise, the results of which were not found within the control group that used no music (Seath et al., 1995). Due to the findings of Seath et al., in this current intervention, the group’s feelings of enjoyment were measured in relation to their motivation to learn, which was then correlated with physiological responses. While the response to music was not measured, the presence of West African drum music was an integral component incorporated into the dynamics of the intervention.

Researchers Niemiec et al. have determined that competence and relatedness are two important motivational factors that have been shown to drive intrinsic motivation and

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12 The Dambe Project is a West African dance education non-profit company based in Arizona that works mostly with high school students (Banks, 2014).
autonomy. Competence is defined as the student’s perceived ability to correctly complete a challenging task, while relatedness refers to the feelings of inclusion and support that occur between the teacher and the student; students who feel that a teacher cares about them have been shown to be more motivated to learn (Niemiec et al., 2009). In order to create a pedagogical structure that could drive feelings of competence and familiarity, the instructor incorporated what is here being called ‘linear movement equations,’ which are a phrase or sequence of movements, usually initiated by the right side of the body, that challenge and build skills in a particular technical area, and are then repeated with initiation on the left side of the body. These movement phrases are common in American university dance classes, including ballet, modern and jazz; however, they are not common in the traditional West African dance classes taught in the United States, particularly in urban cultural centers such as New York City and Washington, DC (Bizas, 2014). The lead researcher developed this movement approach to increase feelings of competency among college dancers. The vocabulary of West African dance may have been unfamiliar, however the ability to put together a string of movements, and then repeat it on the left side is a common task for college dance majors. Through encouragement and by using linear movement equations, this intervention sought to further motivate collegiate dancers to train in West African dance.
CHAPTER THREE
Methods

This study obtained consent from the university’s Institutional Review Board. All documents, protocols and procedures were approved in advance. During recruitment, IRB-approved flyers were posted in studios, cafes and other common areas around the department that were frequented by dance students. Emails were sent out through the dance department to all dance majors. IRB-approved Facebook posts and word of mouth interactions were also used to recruit participants.

Screening

Participants were recruited during the winter quarter, first week of January, through posted flyers, email and word of mouth inquiries. Those who were interested in participating were given an IRB-approved consent form that contained all the details of the study. The lead researcher obtained consent from all participants during a 15-minute private meeting with each individual, during which the participants were notified of all expectations. Once they gave their consent, they were screened for inclusion and exclusion criteria, and then filled out a Dancer History Form. Inclusion criteria included that each participant must be over the age of 18, and be currently enrolled as a Dance Major at the university. Exclusion criteria included any injury that limited full range of mobility, and participation in either the Fall Quarter African dance class or the Lead Researcher’s Fall Quarter African dance choreographic performance.
Pre-Testing

Each participant scheduled an individual 20-minute testing session with the lead researcher within 36 hours of the first workshop. In each session, the lead researcher administered each test in the following order: first, the Accelerated 3-minute Step test, followed by the Illinois Agility test, and finished with the m/r SEBT test. All three tests occurred in one of the dance department’s studios. The studio contained a Marley floor, and a mirror. Participants were instructed to wear athletic sneakers. The Accelerated 3-minute Step test and the m/r SEBT were both conducted facing away from the mirror. There was no music playing during the pre-testing sessions, and the only people present in the studio during the testing were the lead researcher and the participant.

Accelerated 3-minute Step Test

During the Accelerated 3-minute Step test, a Polar bluetooth heart rate monitor was attached to the solar plexus of each participant, and connected through the Polar Beat fitness app on an iPad. The participant’s resting heart rate was taken after a seated 30-second rest period. Next, the participant stood in front of a 12-inch step, and, per the instructions dictated by Bronner et al., was instructed to step up with the right foot, up with the left, then down with the right foot, and down with the left, placing the whole foot on the step (Bronner et al., 2014). The participant was instructed to time each step with the beat of the metronome, set at 112-beats per minute, with a duration of 3 minutes. 1-minute intervals were announced. No physical demonstrations were given, only verbal instructions, and there was no practice session. Participants were directed to face away from the mirror, and instead face towards the window. Errors for this test
included the participant failing to place the entire foot on the platform, not stepping in
time with the metronome, stopping the task, and/or the foot tripping on the edge of the
step. Immediately at the end of the 3 minutes, the participant’s peak heart rate was
recorded in the participant’s file. The participant was then instructed to sit and rest for
30-seconds. At the end of the rest period, the recovery heart rate was recorded in the
same file. See Appendix F for Standard Operating Procedures.

**Illinois Agility Test**

For the Illinois Agility test, 8 small orange cones were measured and placed in
the specific arrangement via the guidelines found in Raya et al., 2013. The participant
was instructed to start lying on the floor, and begin after the verbal cue: “ready, set,
go.” Each participant was told to run around each cone in an M-like formation as
quickly as possible. The timing of the test was recorded in seconds. No physical
demonstrations were given, only verbal instructions, and there was no practice session.
Fails were recorded when the participant did not complete the pattern properly, and
were instructed to restart. See Appendix G for Standard Operating Procedures.

**m/r Star Excursion Balance Test (m/r SEBT)**

For the m/r Star Excursion Balance test (m/r SEBT), a star-shaped grid was
created with tape on the floor. Using the standard measurements found in Batson,
2010, a square measuring 6x6 feet was created. The lead researcher measured 3 feet in
towards the center on all four sides. Tape was lined up across the center of the square,
creating a T-like pattern. Tape was then placed in the corners, and connected to the
opposite diagonal end, forming a X-like pattern. When this was completed, there were 8 spokes visible within the square.

Participants were instructed to stand in the center of the star, with their hands on hips and one foot off the floor, with the toes of the raised foot touching ankle, known as the ready position, or parallel coupé. The participant was instructed to straighten the leg and gently tap the toe of the raised foot as far as possible on the front-forward point on the star, then return to the ready position, and then tap, opening laterally, to the next point. Participants were instructed that the standing leg can bend, and each spoke should be tapped as quickly as possible, making sure to return to the ready position between each tap.

Participants started first with the right foot working, then switched to the left foot. Participants were instructed to extend front, then open laterally, then cross medially on each side. No physical demonstrations were given, only verbal instruction. There was no practice session. The timing of the test was recorded, as well as moments when the participant had to correct his or her balance, or performed failures. Failures were defined as moments when the working foot tapped outside the spokes of the star, the participant placed the working foot on the floor to regain balance, there was a wobble or repositioning of the standing leg, the working leg did not return to the ready position between each tap, or the working foot did not make contact with the floor. The test was administered only one time on each side if the participant completed the test properly. In the event that the foot did not return to the ready position between each tap, the participant was stopped and instructed to begin again. See Appendix H for Standard Operating Procedures for this task.
Dance Workshop

For the duration of six (6) weeks, the lead researcher led a 55-minute West African dance intervention twice a week. The sessions occurred every Monday and Wednesday from 3:00-3:55 p.m. See Appendix B for Dance Workshop Lesson Plans.

Checking in: Centering Activity

Each session began with a brief check-in, when the lead researcher would inquire into the emotional and physical well being of each student. Questions usually included, “How are you feeling today?” and “How is your body doing?” After the participants answered, the lead researcher would provide cultural context and historical facts regarding the healing and uplifting nature of West African dance traditions. The participants’ responses to the check-in portion of the intervention were written down in the instructor’s journal in private, an hour after the session ended.

Cardio and Balance warm-up

The movement session always began with a 5-10 minute cardiovascular warm-up. The lead researcher would start with breaths in and out, and then transition into shifting weight in the dooplé position. From there, the lead researcher would improvise low-impact movements within the West African style in order to get the heart rate up. These included shifting side to side, swinging the arms up and down, seen through the swing step, as well as stepping backwards and rotating the arms, seen in the rainbow step. As the heart rate rose, the lead researcher would incorporate higher-impact movements with slight jumps or hops, leg lifts and extreme torso releases. Footwork was also
incorporated. The lead researcher structured the phrases in short bursts of high intense energy, going between large, full-bodied movement, to easier less-demanding movements without stopping. The participants were challenged to fatigue the muscles, and then cool down through simple steps, only to move again at a high intensity. This would last for at least 5 minutes straight, with participants given the instruction “not to stop, and keep going,” even if it was a slower side-to-side step. The movements were matched with the drumbeats.

Yoga balances were also incorporated in the warm-up, which were accompanied by a slower drumming rhythm, and held between 10-30 seconds. Balances included phrases like Sun Salutations, which went through swan dives, lunges, Warrior I, II and III, Warrior Half-Moon, Tree Pose, and balances with quadriceps stretches, which then transitioned into the Dancer’s Pose. Some floor stretches were incorporated, which included lateral stretches in an open split position, however, the floor was not utilized too much during the stretching portion. The stretching balances on the standing leg were a frequent occurrence, and the Yoga portion of the warm-up lasted no longer than 5-7 minutes.

*Linear Movement Equations to drive Agility*

The lead researcher created movement phrases using West African dance vocabulary in order to focus upon one technical skill, shape, or quality, and the participants would then perform that phrase first on the right side, and then switch everything and perform it on the left side. The movement phrases went from one step to the next, such as the crescent moon jump would transition into the rocking horse, which
went into a cut-turn and finished with pull-ups. What the lead researcher of this intervention did was create a phrase for the participants to move through, and then at the end of the phrase, the drummer would give the call, and then the participants would begin again on the left side. In the beginning of the intervention, the phrases would be repeated between 2-3 times on each side, sometimes with a pause in between in order for the lead researcher to give further movement details, and sometimes with no break in order for the participants to try the phrase again. Towards the latter part of the intervention, the phrases would be repeated 1-2 times on each side, with fewer corrections given.

**Vocabulary Terms used in the study**

Alphonse Tiérou describes overarching principles of African dance and gives names to certain steps used within the traditions of the Masque dancers in the Ivory Coast (Tierou, 1992). The lead researcher borrowed two of these terms, known as dooplé and kagnioule. All the other steps were given names created by the lead researcher, since the names of African dance steps vary and tend to be communicated orally, rather than through text (see Table 1. Also see Appendix B). These names were developed from previous African dance teaching experience, and drew from both the shape of the step and the feeling generated when performing it.

Other steps and movements were used, but did not have names. The participants were encouraged to offer ways to describe the movement. The lead researcher decided to give names to steps as a way to draw forth the expression and qualities of the movements, as well as to create a foundation for the participants to learn more effectively. In this college dance population, many other classes frequently use terms and movement concepts to
describe dance. The lead researcher gave names to steps that either evoked the task asked, such as the “kick-hop,” or it evoked an image that the body replicated, such as the “rainbow” step, whereby the arm arches from front to back like the arc of a rainbow.

<table>
<thead>
<tr>
<th>Vocabulary Terms</th>
<th>Related Outcome Measure</th>
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<tbody>
<tr>
<td>Dooplé</td>
<td>Agility</td>
<td></td>
</tr>
<tr>
<td>Kagniolé</td>
<td>Balance</td>
<td></td>
</tr>
<tr>
<td>Rainbow</td>
<td>Balance</td>
<td></td>
</tr>
<tr>
<td>Rolling Thunder</td>
<td>Balance</td>
<td></td>
</tr>
<tr>
<td>Pull-up</td>
<td>Balance</td>
<td></td>
</tr>
<tr>
<td>Kick-Hops</td>
<td>Balance, Cardiovascular</td>
<td></td>
</tr>
<tr>
<td>Crescent Moon Jumps</td>
<td>Balance, Cardiovascular</td>
<td></td>
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<tr>
<td>Rocking Horse</td>
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<td></td>
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<tr>
<td>Swing Step</td>
<td>Balance</td>
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<tr>
<td>Triple Swing Step</td>
<td>Balance, Cardiovascular</td>
<td></td>
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<tr>
<td>Tabelouwah</td>
<td>Balance</td>
<td></td>
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<tr>
<td>Cut-turn</td>
<td>Agility</td>
<td></td>
</tr>
<tr>
<td>Side Ponies</td>
<td>Agility</td>
<td></td>
</tr>
<tr>
<td>Sorsonet basic</td>
<td>Agility</td>
<td></td>
</tr>
<tr>
<td>Sorsonet basic with turn</td>
<td>Agility</td>
<td></td>
</tr>
<tr>
<td>Gather-throw seeds</td>
<td>Balance</td>
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</table>
Questionnaires

During week 3 of the intervention, the lead researcher administered questionnaires to assess the participants’ motivational responses to the classroom and the curriculum, and to investigate the group’s feelings of self-esteem. All surveys were administered through the online portal, Survey Monkey, and the responses were collected anonymously. The Classroom Life Measure (see Appendix C), Motivated Strategies Learning Questionnaire (see Appendix D) and Rosenberg Self-Esteem scale (see Appendix E) contained ten questions each. The Classroom Life Measure and Motivated Strategies Learning Questionnaire were both altered to address the particular intervention. The MSLQ was designed to ask questions about learning dance specifically, whereas the Classroom Life Measure was modified to include experiences “in this class” more often than the generic “in school.” All participants had no more than 5 days to complete the questionnaires.

Post-Testing

Each participant scheduled an individual 20-minute post-testing session with the lead researcher within 24 hours after the last workshop session. The tests were administered by the lead researcher in the same location, and in the same order as the pre-testing session, starting with the Accelerated 3-minute Step test, followed by the Illinois Agility test, and finished with the m/r SEBT test. Upon full participation in the study, and completion of the tests, the participants each received compensation in the form of a $10.00 Starbucks gift card.
Data Collection and Statistical Analysis

All data was collected and organized into individual files for each participant. Upon completion of the study, all data was de-identified. Files were kept in a private file cabinet in a locked room via IRB standards. Multiple group comparisons were made using one-way analyses of variance. Two-group comparisons were tested by Student's t-test. Analyses were performed using Graph Pad Prism.
CHAPTER FOUR

Results

The results indicate that even though there were very slight changes in motor performance, participants experienced positive interactions in the studio through this intervention, and were motivated to learn the content, which they considered relevant to their dance training. Individual trends were connected with the previous dance training and injury history of each subject. However, changes in cardiovascular health, balance (p = 0.3581), and agility (p = 0.9828) were not significant.

Demographics

Screened and consented participants included 7 dance majors, 6 of which completed the study. Emotional duress and lack of time was cited as the reason why 1 participant dropped out. There were 5 females, and 1 male, median age was 20 +/- 2 years of age. There were 3 Caucasians, 2 African-Americans, and 1 Filipino-American. The average years of dancing were 12.61 years. The majority of participants (n=5) reported having 0 years of West African dance training, while one (n=1) had previous West African dance experience totaling 6 years. On average, the participants had training in the following dance forms: jazz, hip-hop, contemporary/lyrical, ballet, modern, and tap (see Table 2). The average weight was 146 lbs or 66 kgs.

Table 2: Dance Training Experience (in years)

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>West African</th>
<th>Jazz</th>
<th>Hip-Hop</th>
<th>Contemp/Lyrical</th>
<th>Ballet</th>
<th>Modern</th>
<th>Tap</th>
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<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>9</td>
<td>15</td>
<td>8</td>
<td>2</td>
</tr>
</tbody>
</table>
Previous injuries in the back/neck, hamstrings and ankle had been experienced by three of the participants. Current injuries, experienced by three of the participants, involved chronic back pain and lower extremity injuries in the achilles tendon and hamstring. Sickness in the form of a cold or fever was not included in the injury history, however, one participant experienced a cough at the time of screening that lasted for the duration of the study and impacted that subject’s participation. However, all participants chose to participate with at least 60/70% full effort, which was what they reported performing in their other classes and rehearsals.

The location and context of the participants’ dance experiences was collected (see Table 3). A majority of the subjects claimed to frequently dance in a dance studio, while only 1 claimed to dance frequently in the theater. For these particular subjects, most of their dance experiences are occurring in classes or rehearsals, rather than in performance spaces. A majority of the subjects also responded that they frequently dance alone in their room or apartment, and not frequently at a social event or with family. The location and context of the participants’ dance experiences differ from the dance and drum traditions of many West African villages, in which dance experiences tend to be communal and social events held in public areas. Social interactions between dancers may be impacted by their exposure, or lack thereof, to dance as a communal occurrence.

Table 3: Location and Frequency of Dancing

<table>
<thead>
<tr>
<th>Where do you dance?</th>
<th>Frequently</th>
<th>Every now and then</th>
<th>Rare Occasion</th>
</tr>
</thead>
<tbody>
<tr>
<td>In a dance studio</td>
<td>5</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>In a theater/performance venue</td>
<td>1</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>At a party/club/social event</td>
<td>1</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>At home with family</td>
<td>-</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Alone, in your apt/room</td>
<td>4</td>
<td>2</td>
<td>-</td>
</tr>
</tbody>
</table>
Dance Workshop

The average rate of attendance was 91%. Only 1 participant, subject no. 4, had 100% attendance rate, attending all 12 session for all 55 minutes. Subject no. 1 missed 2 full sessions due to other dance performance commitments. Other participants missed full or partial sessions due to performance conflicts, sickness or personal emergencies (see Table 4).

Table 4: Attendance Rate for Total Sessions: This table shows the total amount of minutes each subject participated in during the intervention. Performance conflicts were the most common reason why participants had to miss time.

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Total Minutes (out of 660)</th>
<th>Attendance %</th>
<th>Reason why missed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>515</td>
<td>78%</td>
<td>Performance conflict, personal emergency</td>
</tr>
<tr>
<td>2</td>
<td>605</td>
<td>92%</td>
<td>Performance conflict</td>
</tr>
<tr>
<td>3</td>
<td>630</td>
<td>95%</td>
<td>Acute Hip Flexor Injury from Ballet class</td>
</tr>
<tr>
<td>4</td>
<td>660</td>
<td>100%</td>
<td>N/A</td>
</tr>
<tr>
<td>5</td>
<td>585</td>
<td>89%</td>
<td>Performance conflict, personal emergency</td>
</tr>
<tr>
<td>6</td>
<td>585</td>
<td>89%</td>
<td>Sickness</td>
</tr>
</tbody>
</table>
Motor Performance Tests

*Accelerated 3-Minute Step Test*

Cardiovascular endurance was measured by how close the recovery HR was able to match the resting HR. During the pre-test, the baseline resting HR was averaged among the group as 81.33 bpm, standard deviation of 13.54, and the recovery HR was an average of 124.0 bpm, standard deviation of 24.78. The standard deviation of the pre-test baseline shows some difference in the resting HR between participants, but the deviation during the pre-test recovery shows a wider gap, meaning that some participants did not recover as quickly as others. During the post-test, the mean resting HR was 81.50 bpm, standard deviation of 11.64, and the mean recovery HR was 120.0 bpm, standard deviation of 17.94. The post-test baseline and recovery rates have as smaller deviation than the pre-test rates, which shows that the some participants were better able to match the rates of the others. On average, the post-test revealed a slightly smaller distance between the resting HR and the recovery HR, which can indicate that cardiovascular endurance among the group marginally improved (see Figure 1).

![Accelerated 3-Minute Step Test](image)

**Figure 1: Baseline, Peak and Recovery HR Pre/Post Test.** This graph shows the mean HR among the group during the pre-test and post-test sessions. The baseline, peak and recovery HR were recorded.
The mean recovery rate during the pre-test was 124.0 bpm, with a standard deviation of 24.78. The standard deviation reveals that there was a large difference in the recovery rate, meaning that some recovered much better than others. The recovery rate during the post-test was 120.0 bpm, with a standard deviation of 17.94 (see Figure 2). The post-test standard deviation reveals that there were slight improvements among individuals in their recovery rate, however there is still a large gap between the lowest and highest HR. These two rates do not show significant changes, but the minimal difference does indicate that although slight, some change did occur between the pre-test and post-test sessions.

![Accelerated 3-Minute Step Test](image)

**Figure 2: Recovery HR, Pre/Post Test.** This graph shows the recovery heart rates of the pre-test and post-test sessions. There were slight differences between the pre-test recovery HR (124. bpm) and the post-test recovery HR (120.0 bpm). However, the changes are not significant.
When exercising, it is ideal for athletes to begin training at levels that are 40% their peak HR. As the training advances, athletes increase the intensity in order to raise the peak HR to higher levels above 70% (Grant et al., 1996). During this intervention, all participants reached 60% and higher of the peak HR, with one participant reaching 95% peak HR during the pre-test, and 90% peak HR during the post-test (See Figure 3). This test reveals that after 3 minutes of stepping at 112 beats per minute, participants were reaching extremely high HR levels. This denotes that during the beginning of this intervention, most participants did not have good cardiovascular health.

![Figure 3: Peak HR Percentage](image_url)

**Figure 3: Peak HR Percentage:** This graph shows the percentage levels of each participant’s pre and post-test peak HR. Ideally, athletes should start at 40% peak HR, then increase. However, during this intervention, participants began with levels at 60% or higher, denoting poor cardiovascular fitness.
The percentage of change in HR levels differed between the pre and post-tests. While some participants experienced improvements in their peak HR levels during the post-test performance of the step test, some participants experienced limited or worse results (see Figure 4). The graph below shows the amount of change when comparing peak HR levels shown in Figure 3. Participants 1 and 5 experienced negative results, with an -8% and -10% change in peak HR percentage, while participant 4 had a -0.7% change between pre and post test peak HR percent. Participant 2 had the largest change, with a 12% reduction in reaching peak HR percentage, denoting an improvement in cardiovascular capacity. Participant 3, who had the highest peak levels, also experienced a 5% improvement in HR levels. Participant 6 had a 6% improvement between the peak HR during the pre and post-tests. This reveals that some participants experienced improvements in their recovery HR after 6 weeks. One participant experienced very little change, while 2 other participants experienced a lack of improvement after 6 weeks.

![Accelerated 3-Minute Step Test](image)

**Figure 4: Pre-Post Heart Rate Percent Change:** This graph shows the percent change of the peak HR percentage between the pre and post-tests shown in Figure 3. Some participants achieved lower peak HR percentages on the post-test, which shows a positive improvement, while some reached higher levels of peak HR percentage during the post-test, denoting a negative improvement.
Illinois Agility Test

Agility was measured by how fast the participant was able to complete the course in seconds. When comparing the pre-test and post-test sessions, there were no significant changes (P value = 0.9828), but timing did improve during the post-test for 50% of the participants (see Figure 5 and 6). The pre-test mean score was 21.63 seconds, standard deviation of 0.97, and the post-test mean score was 21.61 seconds, standard deviation of 1.35. The standard deviation reveals that the participants’ scores were very close, although there were more differences between them during the post-test. The fastest scores were 20.00 seconds on the pre-test, and 19.76 seconds on the post-test, and were completed by the same participant, showing a slight improvement on an individual level. The slowest scores were 22.74 seconds on the pre-test, but that individual improved and did not receive the slowest score on the post-test. The participant who had 23.23 seconds on the post-test, had a slower score than the pre-test showing a negative improvement.
Figure 5: Group Trends, Illinois Agility Test: This graph compares the individual results as a group. The horizontal lines show the mean score levels, while each bullet point represents each subject’s performance.

Figure 6: Individual Results Pre/Post Test: This graph compares each individual’s results from the pre and post-test. Slight improvements among 50% of the participants can be seen.
**m/r Star Excursion Balance Test**

The SEBT test was modified from the standard procedures, and participants were directed to move as quickly as possible. Balance was measured by how fast the participants were able to complete the test correctly. By using one-way ANOVA, there was not a significant difference between the pre and post testing sessions (p value = 0.3581).

When comparing results of the pre-test with the post-test, the pre-test mean time on the right leg was 8.43 seconds, standard deviation of 1.63, and on the left leg, the pre-test mean time was 9.89 seconds, standard deviation of 4.88. While the right leg standard deviation reveals that the participants had similar scores on the right leg, there is a larger deviation that reveals more differences on the left leg during the pre-test. The post-test mean time on the right leg was 7.19 seconds, standard deviation of 1.57, while the post-test mean time was 7.02 seconds, standard deviation of 1.74 (see Figure 7). The standard deviation reveals that during the post-test, the scores between the right leg and left leg were much closer between participants, which reveals an improvement in equal balance between both legs, rather than one side more dominant than the other.
Figure 7: Group Mean Scores, Pre/Post Test: This graph shows the mean group scores for each leg during the pre-test and post-test. Improvements in speed can be seen in the post-test results on both legs, but no significant results were found with student t-tests’s.

When combining and averaging the scores of both legs, the pre-test resulted in 9.16 seconds for the group, and the post-test resulted in an average of 7.1 seconds (see Figure 8). These results reveal that the group improved on both legs during the post-test.

Figure 8: Average Scores for Combined Legs on Pre and Post Test: This graph shows the average scores of the combined right and left legs. The post-test shows improvement on both legs, but no significant results were found with student t-tests’s in the pre and post-testing.
Questionnaires

Classroom Life Measure

The Classroom Life Measure was modified to direct the participant’s answers towards what they were experiencing in the studio during this intervention, described in the questionnaire as the “class,” and what they felt in their university environment, described as “school.” The results from the Classroom Life Measure revealed that while participants had a positive experience within the studio, the participants also felt that the occurrence of negative experiences in school was sometimes true and sometimes false (see Table 5). The answers show significant approval of the teacher’s interest and care into each participant’s well being, as well as that the participants had mostly positive interactions with the other participants. This questionnaire also revealed that most of the participants frequently feel discouraged in their school environment, and tend to feel upset, even though most participants answered that they believe they are good students. This questionnaire reveals that there was a difference between the experiences found within the intervention and those found within the larger, university setting.
### Table 5: Classroom Life Measure Results

<table>
<thead>
<tr>
<th>Question</th>
<th>Completely False</th>
<th>False much of the time</th>
<th>Sometimes true and sometimes false</th>
<th>True much of the time</th>
<th>Completely True</th>
</tr>
</thead>
<tbody>
<tr>
<td>My teacher cares about how much I learn.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>My teacher cares about my feelings.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>My teacher likes me as much as she likes the other students.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>In this class, students like me the way that I am.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Other students in this class care about my feelings.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>I am not doing as well in school as I would like to.</td>
<td>1</td>
<td>-</td>
<td>4</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>I often get discouraged at school.</td>
<td>-</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>I have a lot of questions that I never get to ask in class.</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>I often feel upset at school.</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>I am a good student.</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>5</td>
<td>-</td>
</tr>
</tbody>
</table>

**Figure 9:** Group Responses to One Question of CLM: This graph shows the group responses to one question on the Classroom Life Measure. The results of this question reveal that a majority of the participants felt that there is inconsistency towards their perception of doing well in school.
Motivated Strategies Learning Questionnaire (MSLQ)

This intervention sought to understand the factors that motivate students to learn. Overall, most participants preferred challenging movement exercises and enjoyed the content of the intervention (see Table 6). A majority felt that what was being taught in the intervention would be useful in their other classes, and believed that it was important for them to learn. A majority felt only partially good compared to the other dancers, while half of the participants felt partially knowledgeable in the dance technique compared to the others in the class.

Table 6: MSLQ Results

<table>
<thead>
<tr>
<th>Question</th>
<th>1 (Not true of me at all)</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7 (Very true of me)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I prefer class exercises that are challenging so I can learn new things.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I am so nervous when dancing that I cannot remember what I have learned.</td>
<td>1</td>
<td>3</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>It is important for me to learn what is being taught in class.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>I like what I am learning in class.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>I think I will be able to use what I learn in this class in my other classes.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>Compared with others in this class, I think I'm a good dancer.</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>4</td>
<td>-</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Even when I do poorly on a step, I try to learn from my mistakes.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>3</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>I think that what I am learning in this class is useful for me to know.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>Compared with other students in this class, I think I know a great deal about this dance technique.</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Understanding this dance technique is important for me.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>4</td>
</tr>
</tbody>
</table>
Figure 10: Group Response to One Question of MSLQ: This graph shows that a majority of the participants believed that understanding West African dance technique was important to them. This reveals that despite feelings of incompetence, participants were engaged with the content of West African dance.
Rosenberg Self-Esteem Scale

This questionnaire was designed to assess how participants feel about their self-worth in order to gauge how self-esteem can motivate physical performance. All 6 participants responded, revealing that a majority of the participants are satisfied with themselves, take a positive attitude toward themselves, and believe they are able to do things as well as most other people (see Table 7). The results also reveal that at least half believe they think at times, that they are no good at all, and desire to have more respect for themselves. All participants agreed that they believe they have a number of good qualities, and a majority agreed that they are a person of worth compared to others. A majority of the participants do not feel like failures, and have much to be proud of. While the majority has a positive sense of self-esteem, only 2 participants strongly agreed that they take a positive attitude towards themselves and believe they are a person of worth.

Table 7: Rosenberg Self-Esteem Scale Results

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>On the whole, I am satisfied with myself.</td>
<td>2</td>
<td>4</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>At times, I think I am no good at all.</td>
<td>-</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>I feel that I have a number of good qualities.</td>
<td>-</td>
<td>6</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>I feel I do not have much to be proud of.</td>
<td>-</td>
<td>1</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>I certainly feel useless at times.</td>
<td>-</td>
<td>4</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>I feel that I'm a person of worth, at least on equal plane with others.</td>
<td>1</td>
<td>5</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>I wish I could have more respect for myself.</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>All in all, I am inclined to feel that I'm a failure.</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>I take a positive attitude towards myself.</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>I am able to do things as well as most other people.</td>
<td>1</td>
<td>5</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
Figure 11: Group responses from one question of Rosenberg Self-Esteem Scale: This graph reveals that a majority of the participants experience low self-esteem, feeling useless at times. While this question was not catered to their perception of usefulness within the intervention itself, it does reveal that in other areas of their lives, the participants do not feel a strong sense of autonomy.
CHAPTER FIVE
Discussion

Data collected from the pre and post-testing sessions were analyzed in order understand whether West African dance had an impact on motor performance and motivation among collegiate dancers. These results indicate that while the physiological changes were not significant, this intervention was shown to be a positive and motivating experience for collegiate dancers. The motor performance tests did reveal slight improvements in the post-test results when compared to those of the pre-test, most notably when comparing the combined scores of the right and left leg from pre to post. During the pre-test, the left leg was slower than the right leg, but the scores between the right and left legs were very close during the post-test, showing an improvement on both sides of the body. The agility test and the accelerated step test revealed a limited amount of change between the pre-test and post-test. This low amount of change could be due in part to the short duration of each session (55 minutes) compared to their other dance classes, which last approximately 1.5 to 2 hours. Koutedakis reveals that at least 20 minutes of intense exercise is needed to bring about cardiovascular improvements (Koutedakis et al., 2009). After the 10-minute warm-up, the lead researcher would spend about 15-20 minutes teaching new linear movement equations, allowing for the time to explain movements in detail, and for participants to repeat the phrase and ask any questions. This process is common in dance classes; however, this process might have also taken time away from moving at high intensity levels. The subjects’ physically
demanding class, rehearsal and performance schedules could also point to a reason why their levels did not change much, since most of the participants are dancing for at least 8 hours a day. Attendance was not 100% for everyone, and factors such as fatigue could have impacted participation. There was no control group in this study, which could have provided an important comparison to West African dance’s specific effects.

The questionnaires revealed that participants experienced feelings of relatedness and enjoyment during the interventions, but that they sometimes feel upset within the larger environment of school. The modified Classroom Life Measure revealed that the majority of participants believed it was completely true or true much of the time that the instructor cared about each student, as well as cared about how much they learned, and how they were feeling. When examining the participants’ experiences in the larger context of their school, the majority claimed that it is sometimes true and sometimes false that they often get upset at school, often get discouraged at school, and believe they are not doing as well as they would like. A majority of the participants responded on the MSLQ that they liked what they were learning, it was useful and important for them to know, and can be used in other classes, revealing that West African dance is relevant to collegiate dance majors’ experiences. Only 1 subject had any previous West African dance experience, and the other 5 had no West African dance experience, which may account for why a majority, on a scale of 1 to 7, gave scores of 3, 4, and 5 to rate if they thought they were good dancers compared to the others in the class, and if they thought they knew a great deal about the technique compared to others in the class. This reveals that feelings of competence were low. Competence can influence a student’s motivation, but other factors, such as inclusion and relatedness can support motivation (Niemiec et
al., 2009). Even though the feelings of competence were low, the intervention was
designed to drive other motivational factors that could counteract feelings of inadequacy
at performing the movement correctly, such as the check-ins and linear movement
equations. Future research could consider a longer intervention that might result in higher
feelings of competence due to more time to improve sensorimotor learning.

The majority of participants responded that they preferred exercises that are
challenging so they can learn new things. Even though 5 out of 6 participants had no
previous West African dance experience, the content of the intervention was relevant to
them, and they felt motivated to learn. The majority of participants in this study reported
on the Rosenberg Self-Esteem Scale that on the whole, they are satisfied with themselves,
and feel they have a number of good qualities. However, many of the participants
remained not strongly committed to an answer when ranking their self-esteem, answering
either “agree” or “disagree,” with very few answers given to the “strongly” categories on
both sides. Half of the participants agreed that they wished they had more respect for
themselves. The results of the Rosenberg Self-Esteem Scale reveal that the participants
had a sense of self-esteem that ranged in the middle.

While body image was not measured in this intervention, it is a prevalent theme
within the collegiate dance population. West African dance values aesthetic qualities such
as timing and movement dynamics, which differs from a ballet aesthetic that draws on the
shape and flexibility of the legs and torso (Ajayi, 2012). The relationship between self-
esteeem and body image was not looked at this particular study, however future research
could analyze these components within the aesthetic values found within West African
dance. However, the Rosenberg Self-Esteem Scale was not modified in this intervention
to speak directly to the experience, but to gauge participants’ general perceptions. A modified self-esteem scale that considers body image, as well as feelings of worth as they are experienced specifically in this intervention should be considered for future study.

These questionnaires were administered halfway through the intervention, during week 3. The lead researcher believed that three weeks would be enough time for the participants to have a sense of the intervention’s experience, and be able to speak on their perspective. However, with busy rehearsal schedules, and time taken in class to teach material, the lead researcher discovered that six sessions was a very short time to ask the participants to reflect on the experience when most of them were unfamiliar with West African dance vocabulary. When considering this study as a guideline for future research, it would be useful to administer the questionnaires at the end of the intervention. This might lead to different results regarding competence, since more time might lead to more familiarity with West African dance over time, as well as there may be a better opportunity for participants to reflect on the intervention as a whole experience from the first to last day when answering questionnaires at the end.

Why Fitness Matters

Cardiovascular health, balance and agility were three components of this project’s outcome measures that sought to address current concerns with physical fitness within the dance population. During the post-test session, one participant remarked, during the SEBT test, that balance was related to core strength. One particular subject discovered a new connection between balance and core strength, which was connected to this intervention’s movement exercises. Another subject, going through the Accelerated 3-
minute step test during the post-test, remarked “That wasn’t so bad,” remarking that it was easier to do the step test in that moment compared to 6 weeks earlier. Cardiovascular health has been shown to create “improved efficiency of movement, delayed fatigue onset, and reduced susceptibility to injury” (Rodrigues-Krause et al., 2015). Researchers Koutedakis et al. determine that in order to bring about improvements in aerobic capacity, a dancer should engage in high intensity exercise for at least 20 minutes (Koutedakis et al., 2004). Agility training leads to proper muscle recruitment and musculoskeletal stability, particularly through the use of speed and quick changes of direction, and results in muscular coordination and reduced risk of injury (Raya et al., 2013). Balance, activated by strength in the core and lower extremities, is needed for control and musculoskeletal stability during both static and dynamic movements (Ambegaonkar et al., 2014). Fatigue has been shown to reduce muscular activation, which increases risk of injury (Gribble et al., 2004; McEldowney et al., 2013), however further research needs to be done to assess how dancers can build cardiovascular endurance and stability in order to reduce how quickly their muscles become fatigued. Strength training alone is neither effective for stability (Phillips, 2005), nor aesthetically desired (Mistiaen et al., 2012). Enhanced physical fitness within the dance population is crucial to optimal physical performance and injury reduction.

What’s Happening in the Collegiate Dance Studio

During a check-in with the lead researcher, one participant relayed a story of the shame and embarrassment she felt in her morning ballet class: the instructor isolated her in front of the whole class and made her repeat a difficult turn, offering no
encouragement or corrections, and simply said “No, do it again.” During the same check-in, another dancer offered his thoughts, claiming, “That’s how the dance world is.” The idea that students should submit to authority even in the presence of abuse or embarrassment is in direct contrast with Afrocentric principles that value the human being, rather than hierarchy (Hoskins, 1992). Scholar Brenda Dixon Gottschild reveals that United States concert dance is rooted in both African and European traditions, and much of the dynamics and aesthetic qualities of American concert dance find roots in African traditions (Gottschild, 1995). Historically, university dance programs began under Physical Education departments, which changed when modern dancers entered and directed the curriculum to reflect concert dance ideals and processes (Hagood, 2000). Scholar Robin Lakes examines whether the pedagogical practices of prominent Modern dance pioneers such as Graham, Balanchine and Tudor, who used abuse, embarrassment, and psychological distress to elicit desired aesthetic qualities, still exist in today’s classrooms (Lakes, 2005). Feelings of support and positivity from the instructor have been shown to create relatedness, drive intrinsic motivation, and improve student achievement in the classroom (Klem et al., 2004). Researchers Quested et al. have revealed that autonomy within the classroom environment can empower and improve the well-being of dance students (Quested et al., 2010). Further research needs to assess the pedagogical approaches collegiate dancers most frequently encounter in their classes, with relationships drawn between how these approaches are driving intrinsic motivation, self-esteem and well-being.
How the music moves

This intervention did not measure participants’ responses to the music, however, the feelings of enjoyment cited in the MSLQ could point indirectly to pleasure derived from drums. One participant reported not feeling so well at the beginning of one session, but by the end of the warm-up, reported feeling much better, and that the drums were inspiring the change within. Music within West African and Africanist traditions frequently feature the stimulating element of groove. The physical components of this form should not be separated from an understanding of the musicality, as noted by scholar Amegago, who reveals that “there is hardly an African dance that is not accompanied by music” (Amegago, 2014). Researchers have revealed that drum ceremonies elicit positive emotions (Banks, 2014; Vinesett et al., 2015). An intervention of this design could include an assessment of the drum’s role in the participants’ experiences. Further research should also investigate whether the role of live music versus recorded music affects motivation.

Limitations

The biggest limitation to this study was the participant size, n=6, and no control group, which resulted in a low amount of data. A control group would have also provided the ability to draw group comparisons and understand if changes in motor performance and motivation were a direct result of West African dance specifically. Many dance

13 Amegago is referring to traditional dances that stem from masque dances as part of communal events (Begho, 1996). It should be noted that right now, there are contemporary dance artists in different regions of Africa who are experimenting with music, sound and dance, in order to deviate from centuries-old traditions and to explore contemporary themes of identity and dance-making (Frosch, 2008).
majors expressed interest in the study, but were unable to participate due to the demanding schedule of classes, rehearsals and performances. With such a small sample population, only individual trends could be assessed. Because of the small size, a control group could not be formed, and the effects of the intervention could not be compared to those who engage in the regular demands of a dance major’s physical training. The intervention also occurred in the afternoon, after most participants had at least one or two dance classes in the morning. This made it difficult to gauge whether this particular intervention was affecting their motor performance, or if the other classes were also impacting physical changes. The timing of the intervention had to be shortened to 55 minutes to accommodate the dancers who had to attend class immediately after the session. The university operated on a 10-week quarter system, which created a very limited time frame to conduct the study. By the time IRB approval was received, it was only possible to recruit participants and complete the study within the last 6 weeks of the quarter. This could have been avoided with earlier preparation time and an earlier submission of the IRB application. This study effectively serves as a pilot study, and therefore, in the future less time would be needed in the future to construct the outcome measures and testing procedures, and the IRB application could occur with minimal delay.

During the pre and post testing sessions, the lead researcher conducted all tests without the added support of highly trained research assistants or a video camera recording. Generating a list of supplies needed to conduct the entire testing sessions, rather than the lists with only the standard operation procedures for each test alone, could have resulted in more preparation. Because of this, there was some inconsistency in the
data collection. The fails of the Accelerated 3-Minute step test, which include not stepping the whole foot on the step, were not accurately recorded, and could have been better documented with video. The agility test timing was not recorded to the microseconds, which might account for the insignificant changes. The m/r SEBT was not analyzed by inches along the spoke, which is standard according to Baston et al., 2010. The lead researcher also conducted this study for the first time, and therefore, the testing protocol missed certain details, such as the microseconds on the timer, as well as recording each fail on the step test. Limited training was shown to be a major detriment to data collection. Multiple testing training sessions would have improved the lead researcher’s confidence and experience in collecting data, as well as been an opportunity to develop better procedural instructions. While the studies used to create the directions of each test stipulated the process, there were still many details that came up doing the test that were not necessarily revealed in the reading, such as how to record the timing of each trial, and how to measure each spoke in inches on the SEBT.
CHAPTER SIX
Conclusions

This intervention sought to contribute important information on how West African dance can improve physical fitness and well-being among dancers. The literature reveals that there is a great need for optimal physical and mental health in order for dancers to succeed. While changes in cardiovascular endurance, balance and agility were not very significant in this study, the slight changes that did occur reveal that West African dance can have an impact on physical fitness. The results also reveal that despite slight changes in motor performance, the participants found the experience emotionally supportive and contextually relevant to their practice.

Understanding a dancer’s cardiorespiratory demands can help prepare that person to participate fully in performances, which as researchers Wyon and Redding discovered, contains higher cardiorespiratory levels than those found during classes or rehearsals, and if left unaddressed, can increase the likelihood of injury (Wyon & Redding, 2005). In response to the concerns raised by Wyon and Redding, this current study assessed cardiovascular health and discovered that while some participants improved and some did not over the course of 6 weeks, there was a high prevalence of both poor recovery rates and dancers reaching close to peak percentage heart rates, revealing that the participants had extremely poor cardiovascular health at the beginning and end of the study.

Unfortunately, because cardiovascular health does not seem to appear as quite the overt aesthetic quality when compared to other physical qualities such as balance or agility, it can tend to be ignored as an important focus within a dancer’s technical training. However, when the focus of dance training shifts inward, rather than outward,
optimal performance can be understood to directly relate to good cardiovascular health, because it prolongs muscle activation and reduces fatigue, and allows for a longer period of full bodied movement (Rodrigues-Krause et al., 2015). In accordance with much of the literature on dancers’ cardiovascular health, this current study revealed that the majority of participants had low amounts of aerobic capacity, a weakness that was directly addressed because West African dance heavily relied upon cardiovascular endurance and highly engaged muscle activation in order to fully execute the movement. This study, if replicated in the future, would benefit from longer sessions in order to further drive changes in cardiovascular capacity. As researchers Koutedakis et al. revealed, aerobic changes best occur after at least 20 minutes of intense physical activity (Koutedakis & Jamurtas, 2004). Future studies on West African dance should account for the teaching time of the linear movement equations, which took time away from moving at high intensity levels, but was a necessary occurrence for the participants’ sense of competence and motor learning.

Training in dynamic and static balance can impact levels of physical fitness, as noted by researcher Amiri-Khorasani, who discovered improvements in balance in female soccer players after both static balance and dynamic balance training sessions (Amiri-Khorasani, 2015). In Amiri-Khorasani’s study, dynamic balance exercises were found to contain the most amounts of improvements, however static balance exercises did result in improvements as well. In order to isolate the muscular activation needed for single-limb balances, the lead researcher of this current study drew from Amiri-Khorasani’s findings, and incorporated both static and dynamic balance exercises in order to increase postural support through the use of yoga, which has been shown to activate
and strengthen muscles in the lower limbs and core (Longpre et al., 2015). The static balances used in this current study incorporated single-limb balances, as well as mind-body breathing techniques and vinyasa movement sequences as a way to drive bodily awareness (Kaminoff, 2007). The results from this study reveal that there were improvements in the average times of the SEBT post-test, but whether those changes were driven by static balances of yoga or dynamic movements of West African dance is difficult to gauge.

The choice to incorporate yoga came from a conversation with another West African dance teacher; however, the ability to isolate West African dance’s specific effects on physical fitness became complicated with the addition of another somatic practice. This raises the question of what qualities constitute proper West African dance training and codification. West African dance should not be diminished into a static and unchangeable form, but one that represents the traditions of the past and the full representation of the present. What, then, is authentic West African dance, and how is this form taught? Who determines whether the use of yoga does or does not constitute proper West African dance training, especially if Africanist forms are understood to be inclusive and evolutionary according to the needs of its practitioners?

When isolating the components of West African dance as a stimulus for improvements in physical fitness, it is important to consider how the elements of movement analysis can assist with the creation of a very clear and exclusive set of movement vocabulary that directly relates to the chosen outcome measures. A very specific and clear definition of West African dance, delimited to region, ethnic group, and cultural dance, could provide clear guidelines to assess specific physical effects of the
movement on the body. This current intervention included static balance as a form of cross training against the dynamic balances found within the West African dance form. This choice was inspired by another West African dance teacher who believed in yoga’s value to the process of training in West African dance. Therefore, yoga was considered less as an outside force, but instead as an integral component within West African dance training. This might encourage further discussion on how to codify the form, which can include whether or not yoga could or should be included, or whether codification is desirable or necessary. Future research into West African dance, however, may want to delimit the assessment of balance to movement that contains dynamic balances alone, without the incorporation of yoga, in order to isolate the form’s specific effects.

Agility, which relates directly to properly activating muscles during quick changes in direction, is an important component for both injury prevention and dance technique. A lack of stability, particularly in the hips, lower limbs and ankles, has been a major source of injuries for dancers, and can negatively impact their future health and career options (Loughlin et al., 2008; Simon et al., 2014). The results in agility from this current study revealed very little change between the pre and post-tests, which raises the question of how best to measure agility in dancers. As researcher Philips assesses, agility best occurs when the efficient use of muscles is activated by motor learning over time, rather than strength training (Phillips, 2005). A question that is raised after the completion of this study is whether or not the Illinois Agility test is the best way to measure agility in dancers. Even though the test contains rapid changes in direction, and requires the participant to move as quickly as possible, it does not contain any of the dynamic or single-limb balances that might constitute a dancer’s performance experience.
Future research into the components of agility as it relates to West African dance may want to modify the Illinois Agility test or consider another test that better suites the physicality that dancers experience in performances, which might include sudden stops, turns in place, as well as jumps. These considerations could lead to more nuanced results in agility improvement, as well as better resemble the motor learning skills present after 6 weeks of learning the West African dance movements.

Results from the questionnaires revealed that participants enjoyed what they were learning in class, however, because the results were collected anonymously, correlations between motivation and self-esteem and changes in motor performance could not be assessed. How a participant felt and how those feelings related to their physical performance would have enhanced the analysis of the relationship between West African dance and well-being. This occurred mostly as a mistake on the part of the lead researcher, and future studies should collect and then de-identify the data, rather than collect it anonymously.

Other scholars are currently calling for more West African and Africanist dance technique classes in higher education dance training programs (Amin, 2016; McCarthy-Brown, 2014). This intervention is in dialogue with these scholars, since this study revealed that the participants liked what they were learning and believed it was important for them to learn West African dance. While McCarthy-Brown and Amin investigate the institutional racism that prevents the frequency and credit-worthiness of West African dance, this intervention reveals the perspectives of the students themselves who believe this dance form is relevant to them. There is still opposition to West African dance as a valid and technical form, as noted by a college student who didn’t want to take a
Contemporary African class so she could continue working on her “technique” (Monroe, 2011). However, as Dixon Gottschild reveals, the American dancing body is already inscribed with African and European movement aesthetics, seen in such qualities like polycentrism, and youthful attack, but they are problematically “invisibilized” by institutions of power (Gottschild, 1995). Movement analyst Nelson reveals that Contemporary dance commonly features Africanist aesthetics such as spinal articulation and polycentrism (Nelson, 2013). Therefore, the 21st-century American dancer who seeks a degree in dance can find work professionally with training in Africanist forms. Professional dance companies that engage directly with West African or Africanist aesthetics include Urban Bush Women, Rennie Harris Puremovement, and Ronald K. Brown’s Evidence (Monroe, 2011). Dance professional Christian Vincent revealed through interviews with the industry’s top leaders that West African dance training provides the style and movement quality needed to succeed in the commercial dance profession, which commonly contains diasporic forms such as Hip Hop and Jazz (Vincent, 2015).

In conclusion, this intervention can serve as a pilot study for future research in West African dance as an option to improve physical fitness in dancers. Motivational factors, such as classroom environment, body image and influence of drums would greatly enhance the understanding of a dancer’s experience. A study of this kind would also benefit the sports population, particularly when thinking about how West African dance can improve agility. What this study reveals is that West African dance can, in fact, create changes in motor performance, and more research needs to be done to expand on the limited information that exists on West African dance’s physiological effects.
NEW: African Dance Science Research!

Having trouble holding that arabesque?
Do you find yourself out of breath at the end of a performance?
Is your petit allegro fast enough?

West African dance may be the way to improve and bolster your technique! Contribute to growing research and discover the gifts West African dance can bring to your technique and career marketability.

Darlisa Wajid-Ali, Lead Researcher and 2nd year MFA graduate student, will be conducting a 6-week West African dance workshop seminar during the Winter 2016 quarter. This study will occur at the University of California, Irvine’s Dance Department, and will contribute to Darlisa’s MFA thesis research.

All current UCI Dance Majors, undergraduate and graduate, are eligible to participate. The workshop will entail two (2) 1.5 hours classes per week (3 hours per week) for 6 weeks. Two (2) testing sessions, up to 20 minutes in length, will occur the day before and the day after the workshop. Participants will receive a $10.00 Starbucks gift card upon completion.

For additional info, please contact:
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African dance study
African dance study
dwajidal@uci.edu
Cardiovascular Warm-up:
- Duration: 3-10 minutes, no stopping or breaks. In the event of extreme fatigue, step side to side until dancers catch their breath.
- Begins with low impact movements, but the timing becomes doubled to increase HR. After the first 2 minutes, the movements should transition between slow speed and fast speed, low impact and high impact, low effort and full effort of movement quality.
- Start with 3 breaths in, 3 breaths out
- Stepping side to side, low impact shifts in weight between the feet to connect to the earth/floor.
- Torso articulation:
  - Spinal undulations up and down
- Arm and shoulder warm-ups
  - Rainbow steps: single arm R/L forward, single arm R/L back, double arm forward, double arm backward
  - Rolling Thunder
- Footwork:
  - 3-step turn
  - Syncopated triplet steps
  - Pull-ups: slow speed, fast speed
  - Kick hops: slow speed, fast speed
- Jumps:
  - Crescent moon jumps
  - Rocking Horse
  - Swing Steps
  - Triple Swing Steps
  - Tabelowah jump fan-kicks

Yoga Balance Stretch Sequences:
- Sun Salutations
  - Breath up, arms open up above the head, Swan dive to the floor, Raise the head, flat back, release, Right leg lunge, Left arm spiral up to ceiling, then lower, Torso raises and faces front, arms up to ceiling (Warrior I), Right heel drops, arms open to the side (Warrior II), Return to Warrior I, bring arms to floor, Left leg reaches back to right leg, body maintains plank position, Hips raise, Downward-facing dog (hamstring stretch), Transition to plank, chaturanga down to get torso to the floor, Small cobra spinal extension, torso lifts, then releases, Hips draw back to Child’s Pose, Tuck the toes, body makes a ball, straighten the legs, spine rolls up to vertical, Repeat on the left side. Repeat right/left at faster intervals.
- Standing leg balances, parallel feet
Hamstring stretch: hold right knee to chest with both arms, hold 15 seconds. Place first two fingers around right big toe, extend flexed leg to the front, torso is upright, left hand reaches to the back, head follows, hold 15 seconds. Right leg opens laterally to the right side, left arm reaches to the left, and head looks to the left, hold 15 seconds. Draw the right leg into Tree pose and hold 15 seconds. Quadriceps stretch: bring the knees together, right leg bends as right foot reaches to gluteus muscles. King of the Dancers pose: right hand holds onto the medial side of the foot, leg pushes out, foot reaches toward the ceiling, torso bends forward, left arm is straight and reaching towards the front. Repeat on the left side.

Right-side/Left-side Linear Movement Equations:
1. “Doople”
   - Drum rhythm: improvised 4/4 beat, moderate tempo

2. “Kagniole”
   - Drum rhythm: improvised 4/4 beat, moderate/fast tempo

3. “Swing Step”
   - Drum rhythm: Lamba, moderate/slow tempo

4. “Crescent Moon Jumps”
   - Drum rhythm: Samba, moderate/fast tempo

5. Choreography: “Sorsonet”
   - Drum rhythm: Sorsonet, 6/8 moderate tempo
   - All movements transition with a drum call
     1. Cadence, Sorsonet basic, Cadence, Sorsonet basic with turn, Elbow-arm cuts, “Raise the roof” arm pumps, triangle elbow spiral dabs, Cadence with arm swing and turn, Drum break (2x), Sorsonet twist, Rainbow single arm back, “Throw seeds,” pump back

Improvisation Exercises:
- “Follow the Leader”
- “The Offering”
- “The Cypher”
- “Vocal Jam Session”
- “Drum Jam Session”
APPENDIX C
Classroom Life Measure

Please circle the number that indicates your level of agreement with the statements below.
• If the statement is completely false, circle number 1.
• If the statement is false much of the time, circle number 2.
• If the statement is sometimes true and sometimes false, circle number 3.
• If the statement is true much of the time, circle number 4.
• If the statement is completely true, circle number 5.

1. My teacher cares about how much I learn.

2. My teacher cares about my feelings.

3. My teacher likes me as much as she likes the other students.

4. In this class, other students like me the way I am.

5. Other students in this class care about my feelings.

6. I am not doing as well in school as I would like to.

7. I often get discouraged at school.

8. I have a lot of questions that I never get to ask in this class.

9. I often feel upset at school.

10. I am a good student.
APPENDIX D
Rosenberg Self-Esteem Questionnaire

Description of Measure:

A 10-item scale that measures global self-worth by measuring both positive and negative feelings about the self. The scale is believed to be uni-dimensional. All items are answered using a 4-point Likert scale format ranging from strongly agree to strongly disagree.

1. On the whole, I am satisfied with myself.
2. At times, I think I am no good at all.
3. I feel that I have a number of good qualities.
4. I feel I do not have much to be proud of.
5. I certainly feel useless at times.
6. I feel that I'm a person of worth, at least on equal plane with others.
7. I wish I could have more respect for myself.
8. All in all, I am inclined to feel that I'm a failure.
9. I take a positive attitude towards myself.
10. I am able to do things as well as most other people.
APPENDIX E
Motivated Strategies Learning Questionnaire

Please rate the following items based on your behavior in this class. Your rating should be on a 7-point scale where 1 = not at all true of me to 7 = very true of me.

1. I prefer class exercises that are challenging so I can learn new things.
2. I am so nervous when dancing that I cannot remember what I have learned.
3. It is important for me to learn what is being taught in class.
4. I like what I am learning in class.
5. I think I will be able to use what I learn in this class in my other classes.
6. Compared with others in this class, I think I'm a good dancer.
7. Even when I do poorly on a step, I try to learn from my mistakes.
8. I think that what I am learning in this class is useful for me to know.
9. Compared with other students in this class, I think I know a great deal about this dance technique.
10. Understanding this dance technique is important for me.
Appendix F

Accelerated 3-Minute Step Test

Standard Operating Procedures

- Equipment needed:
  - Stopwatch or clock with a second hand
  - 12-inch bench, box or step
  - Metronome

- Procedure:
  1. Have subject sit for 10 minutes. Record resting heart rate.
  2. Set the metronome to 112 beats per minute.
  3. Subject should stand facing the step. Once the clock starts, subject should step up right foot, up left foot then down right foot, down left foot, in time with the metronome for 3 consecutive minutes. Each beat constitutes each step, totaling 112 steps per minute.
  4. If the subject needs to rest, he/she should remain standing, then continue. The researcher should notify the subject of the time after each minute.
  5. After 3 minutes, the subject should sit and rest for 10 minutes. After this time has passed, the researcher should take the subject’s heart rate for 10 seconds, and then multiply by 6, in order to find the recovery heart rate.

Sources:


APPENDIX G
Illinois Agility Test
Standard Operation of Procedures

• Materials:
  o 8 small/medium cones
  o 2-inch wide tape
  o Measuring tape (in meters)

• Construction: see picture. Measure to the following dimensions:

![Diagram of Illinois Agility Test course]

• Procedures:
  1. The participant began the test lying prone on the floor behind the starting line with his arms at his side and his head turned to the side or facing forward.
  2. On the “go” command, the participant ascended to his feet and ran or moved quickly forward to the first tape mark.
  3. Participants were required to touch or cross the tape mark with their foot.
  4. The participant turned around and moved back to the first center cone, where he weaved up and back through the four center cones.
  5. The participant then ran or moved as quickly as possible to the second tape mark on the far line. Again, participants were required to touch or cross the end-line tape marks with their foot.
  6. Lastly, the participant turned around and ran or moved as quickly as possible across the finish line.

• Notes:
  o The length of the IAT was originally set at 30 ft, which was increased slightly to 10 m for ease of test administration.
  o The IAT course was marked by cones, with four center cones spaced 3.3 m apart and four corner cones positioned 2.5 m from the center cones.
  o The time to complete each trial was recorded in seconds.
  o Disqualification was determined if the participant failed to run the course as instructed, failed to reach the end lines, failed to complete the course, or moved any cones.

APPENDIX H
m/r Star Excursion Balance Test (S.E.B.T.)
Standard Operation of Procedures

• Materials:
  o 2-inch wide tape
  o Goniometer
• Construct the star:
  o Make a 6.0 x 6.0 foot square
  o Create 8 lines that start from the center and reach to the edge, in a star shape. Using the goniometer, the angle between each line should measure 45°.
• Procedures:
  1. Only verbal instruction will be given, and the subject will not be given a practice round.
  2. The subject will stand in the center of the grid, with hands on hips, and one foot off the ground with toes at the ankle (coupe).
  3. The subject will be instructed to lightly tap the toe of the raised foot at each point, extending first to the front, then opening laterally, then extending medially.
  4. The subject will perform first on the right leg, then on the left.
  5. The subject should aim to complete the test as quickly as possible.

Source:

A Study on the Effects of West African Dance on Motor Performance and Motivation in Collegiate Dancers

Presented by Darlisa Wajid-Ali

Friday, May 6th at 7:30pm
Performance Studio 1100
UC Irvine Claire Trevor School of the Arts
Presenter’s Note

Tonight’s presentation of A Drumming Dance will reveal the discoveries I made in my MFA Dance research process here at UCI. This project centered on my avid interest in West African music and dance, and its relationship to the field of Dance Medicine and Science. The powerful vibrations of the drums frequently unravel and expand the deepest parts of my soul as I dance, which is what led me to my question: what does West African music and dance do, and how can it improve health and wellness? Both physical and mental changes were assessed during a six-week long West African dance workshop with college dance majors. The goal was to discover the complexities and nuances of the form in order to gain a deeper understanding and appreciation for it. As a practitioner of the form, I take care not to reduce West African dance to only measures that can be seen, because I understand that there is an immeasurable spiritual energy that surrounds it. However, my love and interest in kinesiology and the mechanics of the body expand when I can learn about these subjects through the multifaceted and dynamic movements of West African dance. I have learned many wonderful things that have deepened my knowledge and pedagogical practice of West African dance, and tonight is an opportunity to share it all with you!

Darlisa’s MFA Research Committee
Dr. Kelli Sharp – Co-Chair   Professor Sheron Wray – Co-Chair
Dr. Jennifer Fisher – Committee Member

Cast and Crew

Darlisa Wajid-Ali – Dancer
Julianna Cressman – Dancer
Carrie Cox – Dancer
Alyssa Mueller – Dancer
Elizabeth Mu – Dancer
Matt Olsen – Dancer
Anindo Marshall – Musician
Musician
Narayana – Musician

Mika Coronel – Stage Manager
Alison Tran – Sound Board
Kimberly Chavez – Light Board
Franchesca Sia – Crew
Solange Tadros – Crew
Akinyola Adabale - Videographer
Lighting Consultant: Ebony Madry
Costumes: Darlisa Wajid-Ali
Anindo Marshall, Gunta Liepina
PROGRAM

Field Day/Equate This
Walk around, play a game and participate!
Music: All of You – Sampology Remix, by Hermitude
Dancers: Darlisa Wajid-Ali, Elizabeth Mu, Matt Olsen

What’s In a Name
Music: Ancestor by The Association
Dancers: Darlisa Wajid-Ali

Agile Creatures
Agility = Stability + Motor Learning
Music: Anindo Marshall, William Marshall, Narayana
Dancers: Darlisa Wajid-Ali, Carrie Cox, Alyssa Mueller

Heart of the Matter
We contemplate the cardiovascular complexities of the heart.
Music: composed by Darlisa Wajid-Ali
Dancers: Darlisa Wajid-Ali, Julianna Cressman, Elizabeth Mu, Matt Olsen

A Person of Worth
What happens when motivation and self-esteem collapse and construct?
Music: Machine Work by Dan Romer
Dancers: Darlisa Wajid-Ali, Elizabeth Mu

Balance: More than Just Standing Still
Music: Snow and Light by Dustin O’Halloran
Dancers: Darlisa Wajid-Ali, Carrie Cox, Elizabeth Mu, Matt Olsen

Celebratory Conclusions
Music: Eye Nyam Nam ‘A’ Mensuro by Henrick Schwartz
Dancer: Darlisa Wajid-Ali

Drum Language and Sorsonet (finale)
Let’s celebrate with this traditional dance from Guinea!
Music: Anindo Marshall, William Marshall, Narayana
Dancers: Darlisa Wajid-Ali, Carrie Cox, Elizabeth Mu, Alyssa Mueller, Matt Olsen
Please join us afterwards for a reception, sponsored by:

Contributors:
UC Irvine Dance Department
Sy Mobley and Jorge Larrauri
Le Pain Quotidian

Special Thanks to:

My family: you are my light, my love, my rock and my joy. Thank you for your unconditional love and support!

My friends: Irvine would be a very boring place without you! Thanks for always being here to support me!

My cast and crew: This could not happen without you. Your talent and dedication are deeply appreciated. GO TEAM!

My committee: You are the reason for my growth and development in this process, and I am eternally grateful for your brilliant and luminous minds!

My cohort: It has been a journey of transformation, and I am so happy I got to spend each moment with each of you! WE’RE ALMOST THERE!

Yvette Adame: You are a superstar, and your support and quick responses made this process both smooth and enjoyable. You’re the best!

UCI Dance Faculty: Each one of you has left a special impression upon me in this journey, and I thank you for your gifts!

UCI Grads, Faculty and Staff: To those of you in the Drama, Music, Humanities, and African-American Studies departments and beyond, my mind has exploded and expanded thanks to your intelligence. Thank you for blowing my mind!
REFERENCES


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