NATIONAL DANCE SOCIETY JOURNAL

Volume 3, No. 1, Summer 2018
ISSN 2473-0297 (print)
ISSN 2473-0300 (online)

Editor-in-Chief
Nancy Kane, PhD

Associate Editor
Sandy Weeks, PhD

Introduction
President’s Message .................................................. 1
By Christine Bergeron, MFA

Editor’s Message ....................................................... 2
By Nancy Kane, PhD

Articles
Teaching Children With Disabilities Creative Movement: A Color Wheel of Dance .................................................. 3
By Danielle Jay Kirschenbaum, PhD, 2017 NDS Dance Scholar Awardee

Dance Curriculum in Physical Education Teacher Education Programs: A Descriptive Profile .................................. 13
By Jenée Marquis, PhD, and Michael Metzler, PhD

DAFT Training vs. Plyometric HIIT on Cardiovascular Levels in Collegiate Dancers ........................................... 31
By Kali Taft, Amanda Alvarez, Brooke Griffin, Kadiedre Henderson, Carisa Armstrong, MFA, and Christine Bergeron, MFA

Join the National Dance Society ...................................... 36

Effectiveness of Pilates Training vs. Dance-based Plyometric Training on Dancers’ Vertical and Horizontal Jump .................................................. 37
By Carisa Armstrong, MFA, Christine S. Bergeron, MFA, and Tony Boucher, PhD, PT, ATC, LAT

Nutritional Strategies for Dancers and Performing Artists ................................................................. 45
By Rodney Gaines, PhD, and Beverly Duane, MA

The Impact of the Kenpa Dance Unit on Students’ Learning in Middle School Physical Education .......................... 53
By Yuji Ohnishi, MA, and Emi Tsuda, PhD

Features
2018 National Dance Society Award Recipients ................................................................. 62

Delta Eta Pi: An Honor Society ........................................... 65

Author Guidelines for NDSJ Submission .................................................. 66

Credits ................................................................. 68
As the current President of the National Dance Society (NDS), I am honored to present to you Volume 3, Issue 1 of the National Dance Society Journal. The purpose of the journal is for members of the dance community to share the work they are doing with dancers in the classroom and studio, through research in clinical trials, and within community engagement. I want to thank our journal editors, Nancy Kane and Sandy Weeks, along with many outside reviewers and Human Kinetics for their endless hours of work and their dedication to not only the NDS Journal but also to the organization as a whole. Through this issue you will see how NDS believes in “Dance for All” through the numerous articles and their diverse content.

Our organization continues to grow not simply in membership but in working with partner members, through our expanding initiatives and in our personal connections to each other and within the dance world. Our slogan “Dance for All” drives us and continues to move us forward. As I end my term as President, I want to thank the board of directors, council chairs, committee members and the membership for their dedication and hard work on continuing to serve NDS and the larger community. I am in consistent awe of the numerous abilities of our members and I have personally grown as a dance educator, as a writer, and as a leader through the many connections I have gained through this organization. I encourage each of you, whether you are new to the field or a veteran, to consider stepping up and contributing to your community and NDS. There are many ways to contribute. You can present at our annual conference, “Dance in Broad Perspectives,” write an article for our newsletter or journal, submit your choreography through our assessment program, or become a council chair, board member or committee member. We welcome all approaches to dance and value our members from a diverse background with numerous talents.
Welcome to the third year of the National Dance Society Journal. Our mission, Teachers Promoting Quality Dance for All, is evident in our selection of the six articles chosen for this volume. We work with authors in a mentoring approach to help bring them through the editorial process, and hope you will submit to a future NDSJ. Author Guidelines are included at the end of this issue, and we encourage you to visit www.nationaldancesociety.org to see past volumes. We feature peer-reviewed dance research and theory-into-practice applications geared toward dance professionals at all stages and in all areas of dance education, performance, production, and scholarly activity. Dance educators and those in dance-affiliated professions in P-12, higher education, and private studios, as well as performers and researchers, are welcome to contribute to the body of dance knowledge through the pages of the NDSJ.

In this third volume of the NDSJ, we feature six articles:

- Adapted dance educational techniques are lovingly described by 2017 NDS Dance Scholar Awardee Danielle Jay Kirschenbaum. Dance for All is our central philosophy, and this article provides a wealth of experience and insight.

- How well are physical education teacher training programs teaching dance and dance education skills? Jenée Marquis and Michael Metzler present descriptive information about dance courses in the nation’s PETE programs.

- How can dancers improve their cardiovascular fitness? Kali Taft and her colleagues and mentors tested two kinds of training programs to see which was more effective.

- To help dancers improve their vertical and horizontal jump abilities, Carisa Armstrong, Christine S. Bergeron, and Tony Boucher studied the effects of Pilates versus plyometric training. This contribution to the understanding of training methods has implications for dancers and also for other athletes.

- For dancers working toward peak performance in dance competitions, for dance educators who want to help their students meet nutritional goals, and for anyone who wants a better understanding of current views on nutrition, the article by Beverly Duane and Rodney Gaines answers your questions.

- Dance games can be part of educational dance activities. A study by Japanese researchers Yuji Ohnishi and Emi Tsuda on the potential of the Japanese Kenpa game to affect learning and behavior supports the inclusion of dance skill-based games in the physical education curriculum.

In my first year as NDSJ editor-in-chief, I can say it has been a joyful learning experience, and I have been fortunate to have had the extraordinarily talented Sandy Weeks as associate editor to ease my transition. Former editor-in-chief Judy Patterson Wright has never been more than a phone call away. The editorial review board members (see Credits page), the executive committee (executive director and past president Fran Anthony Meyer, president Christine S. Bergeron, and president-elect John Fracchia), and our publisher, Human Kinetics (for their professional staff, design, and layout) have and deserve all my gratitude for the hours and hours of help they have provided to this Journal and to me personally as I begin the journey of learning how to perform this awesome role of editor-in-chief. Please help NDS grow and serve more people by sharing your talents with this organization, including sharing your experiences and research with future NDSJ readers.
Teaching Children With Disabilities Creative Movement: A Color Wheel of Dance

By Danielle Jay Kirschenbaum, PhD, 2017 NDS Dance Scholar Awardee

Abstract

This article is about creative dance for children with disabilities. I am a dance teacher who is honored to have taught a variety of dance populations. Each time I taught dance to these wonderful children, I was reminded of a color wheel and its hues. Within this article, I explore the particular benefits a child with disabilities is offered through dance: the self-confidence, the discipline and sense of accomplishment of being able to move through space and time with force in measured rhythm. I explore the role of unconditional positive regard and resilience in bringing about favorable outcomes. This article examines how realistic goals and expectations for children with disabilities are set, and how learning domains and art processes help to define objectives for them. The section entitled dance teacher’s toolbox gives examples of devices available to the teacher such as accompaniment, linguistics, ideas, stories, and images. I have also included a description of how to begin a dance class through various options and examples: the magic circle, the hello dance, the name dance, and beginning movements such as the effort action of dab. The teacher can then review dance actions using words and movement so as to remember concepts, ending the session with a group hug. The article concludes with a survey of children with specific types of disabilities and the appropriate dance movements that can be of benefit. The teacher will find that it is a joy and a privilege to share dance with these children. The rewards are magical.

Introduction

Dance may be likened to a color wheel and its full range of hues offering something for everybody. The task of the dance teacher is to select those colors, and for the student, to find his or her particular hue. For an individual with disabilities, the search for that particular hue provides a flying start toward the self-fulfillment of creative dance. When selecting a specific pathway to creative dance, remember the color wheel and its hues can be very beneficial.

At first the student responds to more direction from the dance teacher, and later expands on the movement experience. As an art form, dance develops the body, mind, and spirit. Through movement the individual expresses an idea, a feeling, or a concept. The ability to move and control the body is a potent conduit for persons with disabilities to achieve a sense of self-confidence, pride, and accomplishment. The important objectives of communication and sharing may be achieved through the dance process. Freedom to dance is a joyful and wondrous experience. No one should be denied the opportunity to experience the gift of dance.

The purpose of this article is to have the dance teacher utilize creative dance for children with disabilities. It includes pre-school, elementary school, public and private schools, and dance studios, as well as dance therapy sessions. The use of unconditional positive regard and the idea of resilience
add to the strength of creative dance as a means for developing self-concepts and learning. The who, what, and how to teach a creative dance class must be structured according to the needs of individuals with specific disabilities.

This article presents the structure of the creative dance class for children with disabilities. Next, it focuses on the learning goals, which are based on the learning domains. Then the art processes, which are important to building an artful creative dance class, are considered in order to construct a creative dance class. The article next addresses the dance teacher’s toolbox, which contains a variety of devices such as accompaniment, linguistic, dance elements, stories, and the effort actions. Each tool has specific dance activities that are a part of building the components for each of the above categories. The last section addresses a variety of disabilities a teacher might encounter in a creative movement class. At the end, specific disabilities are discussed and techniques using creative dance as a means of self-expression are described.

**Unconditional Positive Regard**

Carl Ransom Rogers was an American humanistic psychologist and one of the founders of client-centered psychology and student-centered learning. His ideas were developed as a result of his counseling children with disabilities. Rogers (1951) purported that a person possesses within themselves a large capacity for self-understanding and altering behavior. This is achieved by using unconditional positive regard in a therapeutic setting. Unconditional positive regard relates to the acceptance of the child without any preconceptions of what they will do or say. This helps bring about a safe and secure dance environment. Rogers’ idea of self-concept is a gestalt of the perception of “I” and “me” and deals with the person’s relationship to others. According to Rogers, the theoretical base is the belief of unconditional positive regard. This is a means by which self-concept and self-identity flourishes (pp. 10-14).

When teaching a dance class, it is of the utmost importance that positive regard exist for your students. This idea of unconditional positive regard should be utilized in a creative dance class for all and especially for children with disabilities. This means the teacher creates a safe, trusting environment for the student. By use of this technique, you are able to expand positive regard and aid the student with the development of self-concept and self-identity. This helps fill the “I am” and promotes a positive atmosphere (Rogers, 1951, pp. 57-59).

**Building Resilience**

Psychological resilience describes a person’s ability to undergo stresses without acquiring a permanent mental dysfunction or negative mood. This view of resilience helps to ward off negative attitudes stemming from difficult problems. This process deals with the forming of resilience and developing coping skills. Strategies that deal with coping and problem solving are outwardly focused. Inward directed strategy focuses on emotions. Socially focused individuals are assisted emotionally by others. The main goal of humanistic psychology is to nurture the ability to survive and fulfill the individual’s potential, despite negative stresses and strains (Nwiran & Pennock, 2017, pp. 10-16).

Strengths-based Cognitive Behavioral Therapy (CBT) is another theoretical paradigm that builds resilience. According to Padesky and Moones (2012), resilience and positive self-image are fostered through the encouragement of positive behavior. This particular theory helps with difficulties ranging from depression and anxiety to chronic sleep disorders. Resilience encourages and helps the children achieve qualities related to the theory of unconditional positive regard. Properly applied and combined, these theories build an atmosphere of rapport with students and develop resilience. Students become stronger and more flexible in their activities and behavior. If a child has positive experiences about moving, that child will be immeasurably aided in creating and performing dance (Padesky & Mooney, pp. 19-24).
Learning Goals for Children with Disabilities

Creative dance for individuals with disabilities is a rewarding experience for the dance teacher as well as for the students. Foreknowledge of the characteristics of a group and awareness of special requirements are vital to devising new and exciting ways of sharing creative dance in a successful program. Preplanning with information about the group helps to set goals for the program or unit.

Goals for all children with disabilities are set and measured through learning domains and art processes. The dance teacher must know about the goals reached through learning domains and art processes embedded in teaching creative dance for children with different abilities. The teacher must have knowledge of the dance content and characteristics of the population so as to apply the former to the latter. The three learning domains are cognitive (thinking), psychomotor (physical), and affective (feeling or emotion).

Cognitive growth uses movement to language connections and language to movement connections. Words and dance express ideas, feelings, and concepts. Words, phrases, and sentences can convey a story. Physical growth employs range of motion, flexibility, co-ordination, and the ability to move different body parts, which will be specific for each child in the class. Affective growth deals with how the person attends, behaves appropriately, and recognizes the value of the lesson.

Art Processes for Children with Disabilities

According to the National Dance Education Standards (Meyer, 2010, p. 57), art processes include creating, presenting, performing, producing, responding, and connecting. Each is defined below:

- Creating relates to exploring the elements of an art. In dance this is also referred to as dancing which uses rhythm, space, time, and force.
- Presenting, performing, and producing utilize the combination of the art itself which focuses on the product. This is also known as dance making.
- Responding is the discussion of art, critiquing the artwork, journaling, writing, and evaluation. In dance, this also can be called dance appreciation that examines the dance as a whole while giving feedback.
- Connecting encompasses other art forms and other subject areas such as geography, mathematics, science, and history. This helps to bridge other essential areas to creative dance.

Art processes define the parameters of how to begin and categorize movements as a dance. The dance teacher uses the same vocabulary for individuals with or without disabilities. While working with the individual with disabilities, adjustment or alteration is a natural part of the processes. Each student’s unique characteristics give the dance teacher a challenge and a wonderful array of choices. The words are often the same, but the way in which they are presented or altered is vital to the success of the program.

Art processes are generally shared with the other arts such as visual, music, theater, and media. To the dance educator, it is important to give deep learning in the arts. Deep learning comes from the philosophical basis of each art form; the thinking, problem solving, and communication.

The dance process is an important part of learning dance as an art form. There are three categories of dance: dancing, dance making, and dance appreciation. Dancing is the physiological aspect of dance. Specific ways of dancing correctly insure the students’ safety. Rehearsing and practicing enable the child to learn movements. Dance making uses choreographic principals in developing a unified and logical progression of a dance work. Dance appreciation uses comprehension, analysis, and aesthetic principals to assess the value of a dance in relation to other dances. (Kassing, 2014, pp. 8-10). Understanding the goals of the art process provides the dance teacher with a real path toward
objectives of the dance process. This helps implement the standards of dance and aids in using those standards to create units and lessons for children with disabilities.

Planning the Creative Dance Class

Creative dance uses words ranging from chants to stories. Effort actions and action words help to provide a wide range of vocabulary to be used in the lesson plan. These words help to clarify structure and repetition, which are vital to the lesson plan. Learning ideas, concepts, and dance movements are the core of creative dance. The beginning of the dance class sets the stage for a successful experience.

Beginning Class: The Magic Circle

The magic circle is an awesome place to begin a creative dance class. Start with everyone on the floor, with legs in a comfortable or crossed legged position. The teacher should be a part of the circle. It gives everyone the opportunity to dance and see all of the individuals present. The hello and the name dance is the next section of the lesson. In the hello dance each person says “hello” with a movement and the salutation of hello. This “hello” is passed around the circle until everyone says and gestures “hello.” In the name dance the child says their name and moves to the rhythm of their name. The name and gesture is likewise repeated until all are introduced.

Body of the Class (Movement and Content)

The next section of class, the body, focuses on the major concepts the child will learn. After selecting the concepts for the specific class, begin by teaching the movement. Start by showing the movement in its elemental form. Say and do the movement. Using the specific action “punch,” which is strong, direct, and fast, say the word and demonstrate the action. Remind the child to use a lot of energy while doing the punch. Use direction: front, back, side, high, and low. Punch, hold, hold, hold. Punch, hold, hold, hold.

Ask the children to stand and walk through space, but remind each to use his or her self-space. Do not enter anyone else’s space. Walk, walk, walk, punch, and freeze. Walk, walk, walk, punch, and freeze. Punch and freeze, punch and freeze, punch and freeze, punch and freeze. Remember when you punch, you freeze and don’t move. Now you punch with your feet. Walk, walk, punch, and freeze, Walk, walk, punch, and freeze. Punch, punch, punch, and freeze, punch and freeze, punch and freeze, punch and freeze.

Now make a dance by doing the punches in place, side to side, punching up and down, then walk through space going forward. Punch and freeze, punch and freeze, hold, hold. Make sure everyone is dancing in their own way. You may have to stop and help a child keep on moving. Note: You may make the body of the lesson shorter or longer depending on the children. Make sure to use appropriate music.

The dance teacher has to be able to think outside the box for children with disabilities. Because everyone is different there must be a fluid dialogue of movement, feeling, and trust. The teacher devises movement problems so the students focus toward a specific result or an open-ended solution. Problems may range from simple to complex and may be covered in one class or extend through several succeeding ones. Prepare by over preparing. It is better to have more movement material than not enough. It is important to note whether dances are performed solo or in a group.

Ending the Class (Review, Reinforcement, and Closure)

The culminating activity provides the time for the teacher to review the vocabulary and the action punch so as to reinforce what’s been learned. Asking a student to identify a dance movement or to demonstrate it is best done at this time. This type of format provides a recurrent way of learning for children with disabilities. Providing additional avenues of doing a variety of movement in different situations and different ways is essential to learning.
It is often difficult to generalize concepts and dance movements with this population. The ending activity is performed in the same circle in which the class began. Each person grasps the next person’s hand or entwines elbows. The teacher leads with the phrase: “one, two, three, squeeze.” This is performed three times in a row. This gives the student the opportunity to receive and to get a group hug. The dancers are able to see the others in the circle. This provides a time to smile at the next person or at everyone. The class thus concludes with a memorable and happy feeling of the students toward each other.

The Dance Teacher’s Toolbox

Among the devices in the dance teacher’s toolbox are: accompaniment, linguistics, dance elements, story dances, and effort actions. These are devices used to elicit learning. The music can be recorded or with live instruments; words can be utilized to help and promote learning.

Accompaniment

Creative dance, according to Fleming (1976, p. 4), emphasizes moving and dancing rhythmically through space, time, and force. Songs and chants use words to reinforce the rhythm so as to help dancers practice and remember how they move. Songs have words that expand language and rhythm that make the experience memorable. Use of instruments to accompany the dancer’s movements facilitate sounds for and by the students. The various instruments used include bells, drums, gongs, maracas, wood and stick, chimes, and a variety of other devices.

Music is a form of rhythm that completes and enhances the dance experience. Classical music, children’s music, folk music and music of the day all offer their own unique opportunity for the teacher to employ. Different types of rhythm such as rock, swing, cha-cha, waltz and tango are dance steps to be utilized. The one caveat: music must remain in a supportive role and never overpower the dance movement.

Linguistics

Linguistics encompass words, songs, and poems that inspire the children toward new ways of dancing. Story dances are based on texts in books; teachers use them verbatim or rewrite them to fit the dance. Concepts such as the effort actions are springboards for expanding, affecting, arousing, and creating new dance movements.

Linguistic elements such as sounds, letters, words, phrases, sentences and stories develop verbal or nonverbal communication. The teacher must select concepts based on the individual’s ability to use them. Action words such as bend, stretch, and twist elicit movement. Letters can be used by themselves or in a word, such as forming the letter A with the whole body, including the arms and legs. For openers, use the letters A, B, and C and proceed from there.

Ideas, Images and, Stories

Starting with an idea, often a metaphor or simple analogy, offer an important guide for developing a unit and specific lesson plans. Below are some examples of cues that might be used by the teacher.

Actions:

• Make your hands in a ball.
• Stretch like a rubber band.
• Extend your arms high.
• Wave and sway like a tree moving in the wind, first slowly and then quickly while saying “Woosh.” This utilizes movement in conjunction with sound. The use of ideas reinforces moving in different ways.
An idea can be used as a starting point such as:

**Rain**
- The rain drops gently.
- Clouds roll in.
- The rain falls harder and harder.
- Finally the rain drops off gently, then stops.
- The clouds move away
- The big sun comes out, drying everything off.

**The Boat Ride**
- You are in a boat.
- The water is calm.
- The sky grows dark.
- The water becomes rough.
- You ride the waves hanging on to the boat.
- The boat goes up, then down then quickly side to side.
- Then the rain slows, dropping off gently.
- The water calms until it is once again still, the sun comes out.
- You are done with your water ride.

**Story Dances**
Story dances utilize books to advance ideas and create dances. The story describes the movement and gives the individual specific and/or descriptive dance movements. One such children's story is *Giraffes Can't Dance* (Andreae & Parker-Reese, 1999). This story is read to the students while pictures showing various animal characters dancing and moving dance like are described and displayed. One example is the waltzing warthogs stepping and swaying side to side, their feet move in a three quarter rhythm, holding hands and facing each other. The chimpanzees dance the cha-cha: forward, back step, step, step, side, other side, step, step, step. The lion does the tango: Step forward, walk, walk, step, step, and turn. The baboons do a Scottish reel. Children face each other with the right hand of one holding their partner’s left and going around in a circle, then grabbing both hands and spinning about once again. The rhinos do rock and roll: step, step, pull away, step, step, pull away. The giraffe then talks to a grasshopper, hears music and begins to dance finding his own steps. All are delighted.

The dance teacher may write the script selecting some or all of the characters depending on time constraints. The teacher selects the music and devises the steps. Each step is interpreted by the individual pupil. The dance may be facilitated by the dance teacher or the students may select from the various steps she has given them. Each individual can dance alone or with other dancers. Each experience can be the same or different from the next person’s but all are unforgettable. Reading a story adapted to dance will make it especially memorable.

**Effort Actions**
Effort actions are a wonderful way to expand the movement vocabulary of the student. Effort actions also stimulate space, time, and force. Students can dance these words in different ways. The eight effort actions are as follows: dab and flick, glide and float, punch and slash, wring and press (Laban & Lawrence, 1947, p. 8).
The following lesson uses the effort action of dab (Laban & Lawrence, 1947). Dab is light, fast and direct in path. Start with multiple circles drawn on butcher paper. All students are given a circle and magic marker. Use the effort action of dab. Dab inside the circle, the middle of the circle, and then dab the outside of the circle. Say dab while you are moving around the outside and then inside of the circle. Leave the butcher paper containing the drawn circle on the floor and collect the magic markers from the students. Have all the children come to the center of the room and find their own personal self-space. Make sure no one touches anyone else. Stand or sit and dab with your hands in front of you, to the side of you and behind you while repeating “dab, dab, dab.” Dab with one hand, then both. Dab your hands in space while walking backward, forward, then dab walking in a circle. Dab with various body parts. Dab, dab, dab your head, your nose, your cheeks, then your legs. Dab your shoulders, dab your elbows, your fingers, your thighs, knees, calves and toes. The following is a suggested refrain:

- “There’s a butterfly on my shoulder, (dab, dab, dab)
- There’s a butterfly on my knee. (dab, dab, dab)
- There’s a butterfly on my back (dab, dab, dab)
- There’s a butterfly on my head (dab, dab, dab)
- Oh there’s a butterfly in front of me.” (dab, dab, dab)

These examples give the teacher an idea of where to begin and how to progress starting from a magic marker and a circle to using various body parts to dab into space, and then use the dabs while walking through space. Dance teachers have many options for expanding the children’s dance movements. By providing a variety of ways to pique their interest in dance, the dance teacher gives the child with disabilities options for reworking new and old movements.

**Children with Various Disabilities**

Knowing the various details of certain populations is essential to the teacher planning units and lessons. The following is a brief synopsis of various disabilities with which children can be afflicted, as well as a few suggestions for creative dance.

**Children with Speech and Language Disabilities**

Generally, children with language and speech disabilities with or without hearing loss need to practice performing language skills through repetition of sounds and words. Songs, chants, and nonsense syllables reinforce sound production of words and sentences, along with a few movement suggestions.

- Start with a word such as high.
- Say the word and then dance the word by reaching up.
- Do this slowly then progress to a faster pace. “Low” and similar word/ actions, side to side, under over, around and through can be demonstrated.

Repetition and practice are essential language learning tools. Sign language aids with communication and learning concepts in different ways. Sign language also inspires new types of dance movements. Sign language can be employed in every age group and population.

**Children with Physical Disabilities**

Being able to dance in many ways is a vital part of creative dance classes. Finding and identifying the various body parts is primary to moving them. If a student is in a wheelchair, try using alternative types of movement, fingers, hands, elbows and shoulders to do the movement. If possible try to move the feet, ankles and toes by stomping, flexing, and extending the lower body parts. A person who uses a wheelchair or crutches can dance with whatever body parts that they are able to move.
Creating a dance with the eyes can provide an extraordinarily beautiful experience for the performer, as well as the viewer.

**Children with Behavioral Disabilities**

These individuals can vary from high energy and easily distracted to low energy and overly focused. They often act inappropriately in social situations with other individuals. They can be depressed or euphoric sometimes passing between the two states almost instantaneously multiple times. Exercises can be used to reduce their speed, help them focus, and redirect their energy to a positive path. Different relaxation exercises are important for those with behavioral disabilities as well as those without. Harnessing their energy in a constructive manner can be greatly aided by acquiring relaxation techniques. Relaxation is an important part of learning to move slowly and calmly.

Here are some relaxation exercises that can also aid the dancer. They are performed lying on the back.

- Move from the feet to the ankles, to the calves, to the thighs, to the hips to the shoulders, and finally to the head.
- The teacher says “squeeze this foot and relax.” Do this three times and go to the next body part.
- Repeat this exercise until all body parts are isolated.
- Then squeeze and relax the entire body, top to bottom. This is then done in the reverse order.
- Lying on the side, make yourself into a ball and hold this position for five seconds. Then stretch your body in the opposite direction by arching your back arms and feet, into a bow shape.
- Repeat this movement slowly five times.
- Lie down on the floor. Close your eyes and let your arms form an arc to the top of your head three times while still on the floor.
- Stretch your legs outward, up and return them to the floor.
- Lift your arms and legs and return them to the floor.

Roll over and lie down on your stomach with your arms stretched to your ears.

- Raise the upper part of your body and lift your legs up and down three times.
- Then lift both your arms and legs up and down three times.

The exercises must be done inhaling when you lift and exhaling when you release. Individuals who can control their breathing are far more able to clear their mind and truly relax their body.

**Children with Intellectual Disabilities**

Some children have intellectual disabilities. With dance these individuals can experience success through performing. The more they expand their movement vocabulary, the more their horizons expand. *Note: Performing the movements to music greatly enhances the experience.*

One activity is to have students dance in a serpentine line.

- Begin by having the children mimic the teachers’ movement. Make sure your verbal cues match your action, such as put your right arm in front of you or your left hand in front of you.
- Start the dance by walking in a serpentine line and then add your gestures. Push both hands in front of you and back.
- Do this until you feel the children can understand and follow.
- After the teacher guides the serpentine line sufficiently, ask an individual to come to the front of the line and demonstrate the movement so that other children may follow.
Here is another dance activity, using various body parts to heighten body awareness. Knowing all the body parts and how they move is an important part of the process of dance.

- Bring your right arm in and shake it, then your left arm, then both arms in and shake them.
- Bring your right elbow in to the center and bring it back. Bring your left elbow in to the center, then bring it back.
- Bring your right foot into the center, bring it back. Bring your left foot into the center, bring it back.
- Bring your seat into the center. Bring it out.
- Bring your head into the center. Bring it out.
- Bring your whole body in to the center. Bring it out.
- Shake shake shake.

Knowing your population’s strengths can help bring successes to your students. Being able to plan and implement creative dance lessons will also add to your own success. Try using what the children enjoy in the class and help to challenge them during the class.

**Conclusion**

The dance teacher uses the color wheel and its hues to help the individual to explore and experience new ways of moving. In order to establish a positive environment, there are two psychological theories that aid in teaching: unconditional positive regard and resilience. These theories support a favorable atmosphere for learning creative dance.

Learning goals for the individual with disabilities should include elements of the three learning domains that encompass cognitive, psychomotor, and affective skills. These domains provide a map for achieving goals. The next part is composed of four art processes that provide various designs for creative dance, i.e. creating dance, performing, responding and connecting.

I began by likening dance to a color wheel, with the teacher providing the color and each student selecting their hue. Each child is unique and beautiful in their own way. Creative dance can offer the child with a disability a wonderful color wheel of promise and possibility.

Creative dance is a useful, powerful and appropriate avenue in the education of children who are disabled. It is important to know how to structure your class, select the music, and practice teaching the class. Children with a variety of disabilities can improve and succeed through imitation and repetition. Your directions should be short and clear, making sure they hear and understand you.

Using creative dance for children with disabilities provides them with an outlet to express feelings, ideas, and emotions through dance. It gives the individuals a safe place to explore and express themselves. Specifically, a dance teacher brings unconditional positive regard for the students. Later the infusing of reliance helps to develop self-confidence, self-identity and body image.

By using creative dance for children with disabilities, the body and the mind find different means of self-expression and for relating to others. The structure of a creative dance class is vital to its success, as is the analysis of techniques, tools, and subject matter that allow children with disabilities to learn.

Creative movement encompasses dancing, dance making, and dance appreciation. By using these concepts, children are able to move effectively and efficiently. Through creative dance they explore, create, and communicate. The children engage in happy, productive and positive behavior, and they exude happiness through creative dance. Remember to utilize unconditional positive regard and resilience, and always wear a smile.
References


Abstract
The primary purpose of this study was to gather current descriptive information about dance courses in physical education teacher education (PETE) programs. A secondary purpose was to uncover institutional and personnel elements that act as facilitators to and/or inhibitors of dance instruction. A confidential, online questionnaire was created to gather the following information: participant demographics, PETE program general descriptives, a dance course matrix, and inhibitors and facilitators of dance instruction. Qualitative data were incorporated to triangulate the quantitative data and were gathered using semi-structured telephone interviews with self-selected participants from the questionnaire. Data collected via the questionnaire (n = 580, 17.9% return rate) revealed that a quarter of respondents neither offered nor required dance courses in their PETE program and 67.4% of institutions required at least one course that contained dance content. The top five dance content areas taught are rhythmic activities (88.9%), line dance (70.4%), folk/world dance (61.1%), creative dance (61.1%), and square dance (48.1%). Last, the questionnaire revealed that the strongest facilitator of dance instruction was instructor expertise (27.9%) and the strongest inhibitor of dance instruction was lack of curricular space (15.1%) which was corroborated by the interview data. Recommendations for future research include (a) adapting the questionnaire for P-12 physical educators and replicate the study at the P-12 level in order to learn more about current dance education practices in schools and (b) employing other qualitative data collection methods to further gather and analyze the opinions, beliefs, and values of dance education by P-12 and PETE students.

Introduction
Dance is a form of lifelong physical activity that can be practiced and enjoyed by everyone. Proponents of dance education within physical education (PE) argue that teaching dance can positively affect students in all three learning domains (Bolen, Heatherly, Ratliff, & McCulloch-Vinson, 2012; Pangrazi & Beighle, 2016). Within the psychomotor domain, research has shown that engaging in various forms of dance can improve children’s movement repertoire, develop coordination and balance, increase overall physical activity frequency in adolescents, and boost students’ flexibility, strength and overall fitness levels (Chen & Cone, 2003; Cone & Cone, 2003; O’Neill, Pate, & Liese, 2011; Pangrazi, 2016). More aerobic forms of dance and combining dance with technology, as with the case of exergaming, have the potential to increase daily physical activity levels and can promote weight loss or maintenance (Zan & Ping, 2014).

Cognitively, dance can foster creativity and self-expression, increase focus and self-awareness, promote quick decision making and critical thinking, offer a sense of ownership and autonomy, and even improve academic performance (Chen & Cone, 2003; Linthicum, 2009; Lorenzo-Lasa, R. Ideishi, & S. Ideishi, 2007; Pangrazi & Beighle, 2016; Ross, 2006). Also, integrating dance content with classroom subjects, such as science or language arts, can help motivate students and promote transfer of learning to other content areas (Linthicum, 2009; Wirszyla & Gorecki, 1998).

From an affective perspective, dance can help students learn cooperation, social etiquette, and respect for others. It can increase confidence, improve listening skills, and deepen appreciation for others, particularly in learning multicultural or folk dances (Bolen et al., 2012; Lorenzo-Lasa et al., 2007; Pangrazi & Beighle, 2016; Ross, 2006; Ward, 2013). Last, from a critical lens, teaching dance in PE...
can open avenues for class discussions on gender issues, cultural competency, and social justice (Gard, 2003; Ward, 2013).

In the 1930s, dance education within the P-12 school system became officially housed within the physical education curriculum through increased dance advocacy within the American Physical Education Association (Murray, 1968). The National Association of Sport and Physical Education, one of the associations of the largest professional association of health and physical educators within the United States, the Society for Health and Physical Educators (SHAPE America, formerly known as the American Alliance for Health, Physical Education, Recreation and Dance), has continued to incorporate dance standards into the National Grade Level Outcomes for P-12 PE (SHAPE America, 2013) and the National Standards for Physical Education (SHAPE America, 2008, 2013). These were created, in part, to assist physical educators in designing and assessing physical education program content.

In order to evaluate the current role dance content plays within P-12 physical education, researchers must first examine the current curricular offerings afforded to the development of dance content knowledge and pedagogical content knowledge in physical education teacher education (PETE) preparation programs. This examination provides a foundation by which researchers and educators can determine if future physical educators are being adequately prepared to teach this content area to their own students. The primary purpose of this mixed methods study was to gather current descriptive information about dance curricula in PETE programs, including program and faculty demographics; curricular space allotted to dance courses; content knowledge and pedagogical content knowledge found within dance courses; and the expertise of faculty who teach the dance courses within PETE. A secondary purpose of this study was to identify both personnel and institutional elements that act as facilitators to or inhibitors of dance instruction within PETE programs.

**Framework**

The curriculum of P-12 PE programs encompass everything from individual and team sports to physical fitness activities and recreational games. So how do PETE program administrators and professoriate decide what and how much content knowledge to include in PETE curricula? The National Standards for Initial Physical Education Teacher Education (SHAPE America, 2008) offer a starting point for planning and organizing a PETE curriculum within the scope of (a) scientific and theoretical knowledge, (b) skill and fitness based competence, (c) planning and implementation, (d) instructional delivery and management, (e) impact on student learning, and (f) professionalism. However, there are no guidelines for outlining specific content knowledge that future physical educators should acquire.

In his description of a knowledge base for teachers, Shulman (1987) defined content knowledge as “the knowledge, understanding, skill, and disposition that are to be learned by school children” (pp. 8-9). Content knowledge as it pertains to competencies of initial physical educators is addressed in Standard 2 of the National Standards for Initial Physical Education Teacher Education (SHAPE America, 2008). Standard 2: Skill-Based and Fitness-Based Competence states, “Physical education teacher candidates are physically educated individuals with the knowledge and skills necessary to demonstrate competent movement performances and health-enhancing fitness as delineated in the NASPE K – 12 Standards” (SHAPE America, 2008, p. 1). In P-12 PE content knowledge is not as easily defined as in other school subject areas and continues to be a source of debate in the field of PETE, as noted by Siedentop (2002). Shulman (1986) and Siedentop (2002) both noted the increased emphasis of pedagogical knowledge within teacher education programs and a lack of equivalent emphasis on content knowledge.

In Siedentop’s Keynote Address given at the C&I Academy Conference in 1989 (published in 2002), he asserts that PETE has “given up the historic content knowledge in our field, and, in doing so, have virtually eliminated the possibility of developing a serious body of pedagogical content knowledge for the teaching of physical education” (Siedentop, 2002, p. 368). The link between content knowledge
and pedagogical content knowledge is inextricable as pedagogical content knowledge is moot without content knowledge. Siedentop (2002) claims that the root problem facing PETE programs is that “the direct study of sport skill and strategy through experiential learning is not considered to be of sufficient academic quality to form the core of an undergraduate degree program” (Siedentop, 2002, p. 372). As a result, PETE programs have produced subpar physical education teachers who “are ill equipped to teach anything beyond a beginning unit of activity” (Siedentop, 2002, p. 372). Siedentop (2002) and others (see Rink, 2007; Vickers, 1987) have maintained in PETE that teacher understanding regarding content knowledge is notably lacking, and as a by-product teachers’ understanding of pedagogical content knowledge suffers as well.

In alignment with scholars of the previous generation, several current authors have come to the consensus that preservice physical educators need more content/subject matter knowledge, though there is debate over the format of preservice content knowledge courses (Ayvazo, Ward, & Stuhr, 2010). In 2013, Johnson wrote about the value of physical performance within PETE programs. He used John Dewey’s philosophy of experience to argue that the current “hierarchy of educational subject matter” values “mind over body” and “thinking over doing” (Johnson, 2013, p. 485). Johnson (2013) argued that “leaders do not need to emphasize theoretical knowledge over practical knowledge to improve the status of physical education in educational institutions” (p. 494). More recently, Johnson (2015) employed the concept of “lived body knowledge” by way of Maurice Merleau-Ponty’s philosophy of the lived body. Johnson (2015) argued that “lived body knowledge cannot be learned in lecture rooms” (p. 233) and that from this perspective the “scientific dimensions of physical activity are not superior to the practice of physical activity” (p. 234). Last, Johnson contended that the study of PE “includes study of both the objective body and the lived body engaged in physical activity” (p. 235).

The blending of content knowledge and pedagogical knowledge, coined pedagogical content knowledge by Shulman (1987), is “that special amalgam of content and pedagogy that is uniquely the province of teachers, their own special form of professional understanding” (p. 8). In his 1985 Presidential Address at the American Educational Research Association, “Those Who Understand: Knowledge Growth in Teaching” (originally printed in 1986 and reprinted in 2013 by permission of SAGE Publications), Shulman proposed a “missing paradigm” in research on teaching and teacher education which is “the content of the lessons taught, the questions asked, and the explanations offered” and is centered on how novice (and experienced) teachers transform their subject matter expertise into a form that students can comprehend (p. 5).

Building on Shulman’s initial framework of pedagogical content knowledge in general education, You (2011) outlined a body of pedagogical content knowledge for physical education. The six domains of pedagogical content knowledge in PE by You (2011) include (a) knowledge of PE as a subject, (b) knowledge of the PE curriculum, (c) knowledge of teaching methods in PE, (d) knowledge of students’ learning of physical activity, (e) knowledge of PE assessment, and (f) knowledge of instructional environments in PE.

According to You (2011), pedagogical content knowledge should guide “teachers and teacher educators in ongoing professional learning in physical education” and that professional learning “enhances teachers’ desire to continually improve their instruction in physical education” (para. 34). You, along with Siedentop (2002) and Rink (2007), agreed that a lack of disciplinary knowledge, or content knowledge, within PETE has led to an inadequate preparation of physical educators. Therefore, a lack of content knowledge within PETE creates a gap between pedagogical knowledge and meaningful, relevant pedagogical content knowledge within PE as expressed by Siedentop (2002) “You can’t have pedagogical content knowledge without content knowledge” (p. 368). The guiding frameworks for this study are thus a combination of Shulman’s knowledge base for teachers, focusing on content knowledge and pedagogical content knowledge, You’s (2011) theory of pedagogical content knowledge for PE, and the National Standards for Initial Physical Education Teacher Education.
Methodology

Selection of Participants
The participant pool for this study was purposeful and the sampling frame was a census of all departments during the academic year of 2016 in U.S. colleges and universities offering an accredited undergraduate and/or graduate PETE program that leads to initial teacher certification within that institution’s respective state. Non-probability sampling was used as this study only investigated college and university programs that contained these specifications. The sampling frame was obtained via an excel spreadsheet that was compiled in 2015 of all current program coordinators, department chairs, and/or primary contacts of U.S. PETE programs as part of a previous research study (identify study). The accuracy of the email addresses on the list was verified through the utilization of Email Checker (www.email-checker.net) which allows individuals to upload and validate .csv files of email addresses. The final authenticated email addresses (n = 615) composed the potential sampling units for the study. The final number of participants was 104.

Instruments
Two data collection instruments were employed for this study. One was an online questionnaire, and the other consisted of semi-structured interviews.

Online Questionnaire. The confidential, online questionnaire was designed to align with the research questions of the study and were also based on Shulman’s knowledge base for teachers, You’s theory of pedagogical content knowledge for PE, and SHAPE America’s Standards for Initial PETE. The questionnaire was developed using Qualtrics® software and was divided into five sections: (a) participant demographics, (b) PETE program general descriptives, (c) dance course matrix, (d) inhibitors and facilitators of dance instruction, and (e) an invitation to participate in a semi-structured telephone (or Skype®) interview. During the validation process of the questionnaire, it was determined that it should take participants no more than 20 minutes to complete the questionnaire in one sitting. The questionnaire was open for a period of three weeks (from the beginning of November 2016 until the Thanksgiving holiday). To reduce the likelihood of nonresponse errors, an introductory cover email was sent first to the pool of potential participants. Also, a series of periodic email reminders (once per week) was administered to the pool of potential participants within the sample frame.

Semi-structured Interviews. Prior to each questionnaire being submitted for reporting, participants were asked if they would agree to volunteer for a follow up, semi-structured telephone (or Skype®) interview with the study’s primary author to discuss the participant’s personal and professional experiences with and opinions of dance instruction within PETE. The inclusion of semi-structured interviews provided an opportunity to further examine the quantitative data and was also utilized as a method of triangulation for questionnaire responses. The fluidity and flexibility of a semi-structured interview allowed each interview to be tailored with probing questions to help gain depth, clarity, and/or elaboration during the interview (Merriam, 2009). A semi-structured interview style also allowed freedom to change the wording or order of questions as needed, thus permitting the interviewer to respond to unique situations as they arose within the interview (Merriam, 2009). Like the online questionnaire, the interview questions were subdivided into categories to ensure their alignment with the study research questions in particular the second question, how do institutional and personnel elements either facilitate or inhibit dance instruction in PETE programs? Interviews with participants ran concurrently within the timeframe that the questionnaire was open.
Analysis

Due to the mixed methods design of the study, quantitative analysis via descriptive statistics were run on the questionnaire data. Descriptive coding and theming were used on the qualitative interview data.

**Online Questionnaire.** Data from the completed questionnaire were downloaded into the Statistical Package for the Social Sciences® software. Each questionnaire respondent was assigned a number to maintain confidentiality of the participants. Then, descriptive statistics reports consisting of frequency counts and means were run to discover the demographic trends of (a) the questionnaire respondents themselves, (b) their respective institutions, (c) their PETE programs, and (d) the dance courses required and/or offered in their PETE program.

**Semi-structured Interviews.** Member checks were conducted after transcribing the interviews to ensure accuracy and consistency of data representation. All interviews were transcribed utilizing Transana® 2.60 software and analysis of the qualitative data was completed utilizing NVivo® Version 11 coding software. The analysis process for the interviews consisted of First Cycle coding utilizing Descriptive Coding followed by a Theming of the Data. The research questions of the study were used as a guide to help find key words to employ as Descriptive Codes. Then, Theming of the Data was employed to take the shorter codes developed during the First Cycle and expand upon them with an “extended thematic statement.” These themes were uncovered by extracting verbatim statements from the interviews which were tied to the Descriptive Codes, assigning a meaning to the statements by the primary author, organizing the meanings into themes, and then expanding on those themes in conjunction with the quantitative data. Thematic Analysis of the data provided a method by which themes were extracted post-coding that oriented to answering the research questions and that focused on participant perspectives and the phenomenon of study.

Results

**Questionnaire Data**

Results from the questionnaire data were separated into seven categories. The categories were (a) institutional demographics, (b) respondent demographics, (c) PETE program demographics, (d) curricular space for dance courses, (e) content of dance courses, (f) instructor descriptives, and (g) facilitators and inhibitors to dance instruction.

**Institutional Demographics.** From the original total potential participant pool, 580 programs were verified as offering initial teacher certification in PE during the academic year of 2015-2016 and had accurate contact information. The potential participant pool was thus reduced to 580 after the initial introductory email was distributed and updated PETE program information from several potential participants was received. A total of 110 participants responded to the online questionnaire. The total number of completed, returned questionnaires was 104, which gave a response rate of 17.9%. The calculated margin of error for that sample and rate was +/- 8%. While that appears high, it is likely that some of the emails were not actually received (i.e., were sent to spam) or were sent to people who were not currently in a PETE leadership position and not forwarded to appropriate other potential participants. Therefore, it was not possible to determine a truly definitive sample size and margin of error. Table 1 depicts the frequency of the geographic regions of questionnaire participants, which were determined by utilizing the six SHAPE America districts (Central, Eastern, Midwest, Northwest, Southwest, and Southern) as well as the overall percentage of respondents from the sampling pool in each SHAPE America district. Table 2 illustrates the enrollment size of the institution.
Respondent Demographics. Demographic information about the survey respondents included their highest educational degree completed (Table 3) and total number of years teaching in PETE (Table 4). It should be noted that a total of 19 survey participants volunteered to be interviewed (18.3%). However, due to time restrictions with the data collection period and various scheduling and communication conflicts with the volunteers, only eight questionnaire participants were interviewed for the study (7.7%). As is evidenced by the information presented in the above tables, the institutional characteristics of the questionnaire participants are representative across geographic regions, enrollment size, and institution type. Most questionnaire participants held a doctorate degree (78.8%) and have spent ten years or more teaching in PETE (76.9%).

Table 1

<table>
<thead>
<tr>
<th>SHAPE District</th>
<th>Participants by District (Freq. and %)</th>
<th>Total Participant Pool (Freq. and %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central</td>
<td>18 (17.3%)</td>
<td>95 (18.9%)</td>
</tr>
<tr>
<td>Eastern</td>
<td>8 (7.7%)</td>
<td>75 (10.7%)</td>
</tr>
<tr>
<td>Midwest</td>
<td>16 (15.4%)</td>
<td>117 (13.7%)</td>
</tr>
<tr>
<td>Northwest</td>
<td>9 (8.6%)</td>
<td>26 (34.6%)</td>
</tr>
<tr>
<td>Southwest</td>
<td>8 (7.7%)</td>
<td>40 (20.0%)</td>
</tr>
<tr>
<td>Southern</td>
<td>43 (41.4%)</td>
<td>225 (19.1%)</td>
</tr>
<tr>
<td>Unknown</td>
<td>2 (1.9%)</td>
<td>2 (0.0%)</td>
</tr>
<tr>
<td>Total</td>
<td>104 (100%)</td>
<td>580 N/A</td>
</tr>
</tbody>
</table>

Table 2

<table>
<thead>
<tr>
<th>Institutional Enrollment Range</th>
<th>Frequency</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 5,000</td>
<td>41</td>
<td>39.4%</td>
</tr>
<tr>
<td>5,001 – 10,000</td>
<td>18</td>
<td>17.3%</td>
</tr>
<tr>
<td>10,001 – 15,000</td>
<td>11</td>
<td>10.65%</td>
</tr>
<tr>
<td>15,001 – 20,000</td>
<td>11</td>
<td>10.65%</td>
</tr>
<tr>
<td>20,001 – 25,000</td>
<td>4</td>
<td>3.8%</td>
</tr>
<tr>
<td>25,001 – 30,000</td>
<td>7</td>
<td>6.7%</td>
</tr>
<tr>
<td>&gt; 30,001</td>
<td>10</td>
<td>9.6%</td>
</tr>
<tr>
<td>Unknown</td>
<td>2</td>
<td>1.9%</td>
</tr>
<tr>
<td>Total</td>
<td>104</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 3

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Frequency</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor’s degree</td>
<td>1</td>
<td>1.0%</td>
</tr>
<tr>
<td>Graduate or professional degree</td>
<td>16</td>
<td>15.4%</td>
</tr>
<tr>
<td>Doctoral degree (PhD or EdD)</td>
<td>82</td>
<td>78.8%</td>
</tr>
<tr>
<td>No response</td>
<td>5</td>
<td>4.8%</td>
</tr>
<tr>
<td>Total</td>
<td>104</td>
<td>100%</td>
</tr>
</tbody>
</table>
PETE Program Demographics. Respondents indicated that 92.6% of PETE programs are accredited by an agency that is recognized by the U.S. Department of Education. Over half of programs (66.3%) offered dual teacher certifications in health and physical education, 30.4% only offered certification in physical education and 3.3% offered separate certifications for physical education and health education. The mean program enrollment was 44 students. The vast majority of credit hour allocation for PETE programs was by semester (96.7%) and the total number of major hours (defined as credit hours that are taken once a student is accepted into the PETE program) was mostly under 120 credit hours (67.5%) with the remainder of programs requiring between 121 to 180 major hours (32.5%). The number of tenured faculty members within PETE programs ranged from zero to seven with the majority of programs (81%) having between one to four tenured faculty members and the mean number of tenured faculty at 2.2. The number of non-tenured faculty members ranged between zero to eight with 84.2% of programs having between zero and four non-tenured faculty and the mean number of non-tenured faculty falling at 2.4.

Curricular Space for Dance Courses. Results from the questionnaire showed that a quarter of respondents’ programs (25.8%) neither offered nor required dance courses. Six institutions (6.7%) offered dance courses to PE majors, but did not require them. Last, 67.4% of institutions required at least one course that contained dance content in their PE program. Of the 52 programs with any dance content at all, the clear majority (94.2%) required only one dance course in their PETE program. The credit hour allocations for the courses ranged as follows, 0.5 hours (one program), 1.0 hour (14 programs), 2.0 hours (18 programs), 3.0 hours (18 programs), and 4.0 hours (one program) with the mean course hour allotment at 2.09 credit hours. In alignment with the mean number of courses offered, data employed from the first three courses in the matrix found that 72.7% of PETE programs utilized a full semester on dance content, 14.6% of programs spent a full quarter on dance content, and 12.7% of programs spent a partial semester on dance content.

<table>
<thead>
<tr>
<th>Table 4</th>
<th>Questionnaire Participants by Total number of Years Teaching in PETE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Years</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>&gt; 1</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>11-15</td>
</tr>
<tr>
<td></td>
<td>16-20</td>
</tr>
<tr>
<td></td>
<td>21-25</td>
</tr>
<tr>
<td></td>
<td>26-30</td>
</tr>
<tr>
<td></td>
<td>&gt; 30</td>
</tr>
<tr>
<td></td>
<td>No response</td>
</tr>
<tr>
<td></td>
<td>Total</td>
</tr>
</tbody>
</table>
**Content of Dance Courses.** In order to determine the focus and content of dance courses two aspects were asked about in the questionnaire; the content knowledge covered in the course and the pedagogical content knowledge covered in the course. Again, taking responses from the first three courses in the matrix, the data showed that 69.2% of programs with any dance content at all offered four or more content areas within a single dance course (see Table 5). 13.5% of programs focused on one dance form only per course, 7.7% of programs covered two dance topics in one course, and 9.6% of programs covered three dance content areas per course. It is clear from the data that rhythmic activities, line dances, folk/world dances, creative dance, and square dance dominate the curricula. The data also revealed that instructors incorporated several different types of pedagogical content knowledge, student learning activities, pedagogical strategies, and student assessments within each dance course offered, as is evidenced by Tables 6 through 9.

### Table 5

**Frequency of Dance Content Knowledge**

<table>
<thead>
<tr>
<th>Dance Content Knowledge (CK)</th>
<th>Frequency</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rhythmic Activities</td>
<td>48</td>
<td>88.9%</td>
</tr>
<tr>
<td>Line Dance</td>
<td>38</td>
<td>70.4%</td>
</tr>
<tr>
<td>Folk/World Dance</td>
<td>33</td>
<td>61.1%</td>
</tr>
<tr>
<td>Creative Dance</td>
<td>33</td>
<td>61.1%</td>
</tr>
<tr>
<td>Other</td>
<td>29</td>
<td>53.7%</td>
</tr>
<tr>
<td>Square Dance</td>
<td>26</td>
<td>48.1%</td>
</tr>
<tr>
<td>Fitness Dances (i.e. Zumba)</td>
<td>19</td>
<td>35.2%</td>
</tr>
<tr>
<td>Ballroom Dance</td>
<td>17</td>
<td>31.5%</td>
</tr>
<tr>
<td>Hip Hop</td>
<td>15</td>
<td>27.8%</td>
</tr>
<tr>
<td>Jazz</td>
<td>10</td>
<td>18.5%</td>
</tr>
<tr>
<td>Modern/Contemporary</td>
<td>10</td>
<td>18.5%</td>
</tr>
<tr>
<td>Ballet</td>
<td>9</td>
<td>16.7%</td>
</tr>
<tr>
<td>Electronic Dance Games (i.e. Dance Dance Revolution, etc.)</td>
<td>7</td>
<td>13.0%</td>
</tr>
<tr>
<td>Tap Dance</td>
<td>4</td>
<td>7.4%</td>
</tr>
</tbody>
</table>

### Table 6

**Frequency of Dance Pedagogical Content Knowledge**

<table>
<thead>
<tr>
<th>Dance Pedagogical Content Knowledge (PCK)</th>
<th>Frequency</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Writing lesson and/or unit plans</td>
<td>34</td>
<td>89.5%</td>
</tr>
<tr>
<td>Writing student learning outcomes</td>
<td>27</td>
<td>71.1%</td>
</tr>
<tr>
<td>Learning about the history of dance and/or dance appreciation</td>
<td>15</td>
<td>39.5%</td>
</tr>
<tr>
<td>Learning theories of dance education</td>
<td>11</td>
<td>29.0%</td>
</tr>
</tbody>
</table>

**Instructor Descriptives.** Certain parts of the questionnaire focused on instructor characteristics, specifically the academic rank of the person who taught the course, where are they located within the institution, how long they have been teaching the course, and how they acquired their content knowledge and pedagogical content knowledge for teaching the course. Of the 47 participants who answered these questions, 51.1% of courses were taught by full time faculty or the department chair, 29.8% of courses were taught by an Adjunct Faculty member, 10.6% of courses were taught by Clinical Instructors, and 8.5% of courses were taught by Graduate Teaching Assistants. Of the respondents that answered where the instructor was situated within the university system, 71.7% of instructors were located inside of the PETE program at their institution, 17.4% of instructors were located outside of the institution completely, and 10.9% of instructors were located inside of the institution but outside of the
PETE program. Instructor experience in higher education ranged from less than one year to over 25 years, with a mean of 9.2 years. The formal training of course instructors was found to be both varied and comprehensive with all instructors listed having obtained their content knowledge and pedagogical content knowledge in dance from multiple sources. Tables 10 and 11 illustrate the frequencies of course instructors’ formal content knowledge and pedagogical content knowledge acquisition.

### Table 7
**Student Learning Activities**

<table>
<thead>
<tr>
<th>Learning Activity</th>
<th>Frequency</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual and/or group skill practice</td>
<td>46</td>
<td>88.5</td>
</tr>
<tr>
<td>Peer teaching</td>
<td>39</td>
<td>76.9</td>
</tr>
<tr>
<td>Viewing multimedia (videos, PowerPoint, etc.)</td>
<td>34</td>
<td>65.4</td>
</tr>
<tr>
<td>Listening to lectures</td>
<td>30</td>
<td>57.7</td>
</tr>
<tr>
<td>Reading from textbook or instructor selected readings</td>
<td>27</td>
<td>51.9</td>
</tr>
<tr>
<td>Taking notes</td>
<td>23</td>
<td>44.2</td>
</tr>
<tr>
<td>Field experiences</td>
<td>20</td>
<td>38.5</td>
</tr>
<tr>
<td>Self-teaching</td>
<td>17</td>
<td>32.7</td>
</tr>
<tr>
<td>Journals/writing prompts</td>
<td>9</td>
<td>17.3</td>
</tr>
</tbody>
</table>

### Table 8
**Pedagogical Strategies Employed**

<table>
<thead>
<tr>
<th>Pedagogical Strategy</th>
<th>Frequency</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructor demonstrations</td>
<td>43</td>
<td>86.0%</td>
</tr>
<tr>
<td>Student demonstrations</td>
<td>40</td>
<td>80.0%</td>
</tr>
<tr>
<td>Lectures</td>
<td>36</td>
<td>72.0%</td>
</tr>
<tr>
<td>PowerPoint</td>
<td>27</td>
<td>54.0%</td>
</tr>
<tr>
<td>Videos/animations</td>
<td>25</td>
<td>50.0%</td>
</tr>
<tr>
<td>Online programs/apps</td>
<td>9</td>
<td>18.0%</td>
</tr>
<tr>
<td>Guest speaker/demonstrations</td>
<td>9</td>
<td>18.0%</td>
</tr>
</tbody>
</table>

### Table 9
**Assessments Employed**

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Frequency</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive knowledge test/quiz</td>
<td>42</td>
<td>80.0%</td>
</tr>
<tr>
<td>Skill/technique test</td>
<td>35</td>
<td>67.3%</td>
</tr>
<tr>
<td>Individual and/or group performance (live)</td>
<td>28</td>
<td>53.9%</td>
</tr>
<tr>
<td>Student created dance</td>
<td>23</td>
<td>44.2%</td>
</tr>
<tr>
<td>Choreographic rubric</td>
<td>17</td>
<td>32.7%</td>
</tr>
<tr>
<td>Peer assessment</td>
<td>13</td>
<td>25.0%</td>
</tr>
<tr>
<td>Self-assessment</td>
<td>11</td>
<td>21.2%</td>
</tr>
<tr>
<td>Student portfolio</td>
<td>9</td>
<td>17.3%</td>
</tr>
<tr>
<td>Individual and/or group performance (recorded)</td>
<td>9</td>
<td>17.3%</td>
</tr>
<tr>
<td>Research project/presentation</td>
<td>4</td>
<td>7.7%</td>
</tr>
</tbody>
</table>
Facilitators and Inhibitors to Dance Instruction. The second research question asked for participants’ opinions (via a Likert scale matrix) on the degree to which various personnel and institutional factors either inhibited or facilitated dance instruction at their institution. According to the results, the top three facilitators to dance instruction were expertise of instructors (27.9%), perceived value of content by faculty (25.6%), and curricular space and equipment/facilities tied as the third strongest facilitator (20.9%). The top three inhibitors were curricular space (15.1%), expertise of instructors (10.5%), and state requirements and/or regulations (8.2%).

Interview Data
The qualitative data for this study were first coded using Descriptive Coding. The data were then organized into themes, and subsequent meaning and interpretation was generated from those themes. During analysis, several patterns emerged from the interview data that did not fit within the confines of the research questions and the purpose of this study, and were not analyzed for this study. Table 12 depicts the resulting descriptive codes, their corresponding themes, and a sample verbatim statement taken from the interviews that align with the corresponding code and theme.
### Table 12

<table>
<thead>
<tr>
<th>Codes</th>
<th>Themes</th>
<th>Sample Interviewee Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curricular space</td>
<td>Curricular space means to provide (or greatly reduce) access to content and knowledge through manipulation of the variable of time.</td>
<td>The total number of credits for students graduating in our K-12 program has changed over the years. And so at one point, I believed that the students are required to take this basic one-credit activity social dance class prior to teaching the methods of teaching dance or rhythms course. And then at one point, the one credit activity class prerequisite went away. (Interviewee 3, November 1, 2016)</td>
</tr>
<tr>
<td>Content Knowledge (CK)</td>
<td>CK is one's body of understanding of a sport, game, dance, or other skillful activity that is gained through the physical experience of performing that activity.</td>
<td>So our students only really get an overview that sort of evident on one it's what I hate which kind of...I hate sort of multi-activity curriculum but in many ways it's just that for them...you know the idea behind it, I think the premise behind it is that if you expose to a lot of activities they'll find something they like. And my caveat to that is they don't have a chance to learn anything to know if they like it. (Interviewee 7, November 11, 2016)</td>
</tr>
<tr>
<td>Pedagogical Content Knowledge (PCK)</td>
<td>PCK is the difference between a dance expert and a dance educator for future physical educators.</td>
<td>I'm a firm believer in having students do presentations on that. And I feel like the more presentations they do on all content area, they get better about being able to do it in front of a group... And I think that's a big, big key, is getting up in front of the group and being okay with either not doing it perfectly or practicing until you get it done well. (Interviewee 5, November 2, 2016)</td>
</tr>
<tr>
<td>Instructors</td>
<td>Instructors are challenged with getting students to “buy into” dance content and get them out of their comfort zone.</td>
<td>She takes them from basic bunny hop all the way up to samba, rhumba, different types of dances, group dances, and she doesn't take no for an answer. By golly, they're gonna have the grade forms, they're gonna have whatever because she's worked so much in that area... And she's very positive about that and she's very excited about that and the kids buy into it. (Interviewee 1, November 1, 2016)</td>
</tr>
<tr>
<td>Facilitators</td>
<td>Facilitators mean that dance as a content area is supported and valued and is thus made accessible to students.</td>
<td>I think if you have a really strong proponents for dance in your higher education and you have people who have expertise and the experience that way you’re more than likely going to get it in the program and I just think it's critical. (Interviewee 6, November 9, 2016)</td>
</tr>
<tr>
<td>Inhibitors</td>
<td>Inhibitors are having one's “hands tied” by lack of time, expertise, and/or support.</td>
<td>The biggest problem once again comes to credit hours and that is where the issues... will come. Sometimes your hands are just tied. (Interviewee 1, November 1, 2016)</td>
</tr>
</tbody>
</table>
Discussion
This study was designed to examine content knowledge and pedagogical content knowledge for dance education within PETE programs. The last such study was conducted almost 25 years ago by Mehrhof and Ermler (1992). Therefore, this discussion focuses on (a) the comparison of the results of this study with Mehrhof and Ermler’s results, (b) how dance education as it stands today aligns with Shulman’s (1987) knowledge base for teachers and You’s (2011) concept of pedagogical content knowledge for physical educators, and (c) an examination of how PETE programs are preparing future physical educators to meet SHAPE America’s National Standards for Initial Physical Education Teacher Education (2008) in dance education. The ensuing discussion is organized by the sub-research questions of this study on curricular space, content, the dance course instructors, and the facilitators and inhibitors of dance education within PETE.

Curricular Space
In Mehrhof and Ermler’s (1992) sampling of 245 institutions of higher education on the dance content covered within preservice PETE programs, 69% of the institutions required some form of dance content knowledge and pedagogical content knowledge. The results of this study revealed that there has not been a significant change in terms of the percentage of institutions that require or offer dance courses in their PETE programs (74.1%). The results of this study also indicated that the mean number of credit hours allocated for dance courses are exactly equal to Mehrhof and Ermler’s results at 2.09 credit hours. To put it simply, nothing has changed regarding the time spent on dance instruction today in PETE.

Despite concerns voiced by PETE professionals (cf. Locke, 1977 and Griffey, 1987), PETE programs have been folded into the body of “Kinesiology” and in ensuing years, many PETE programs have subsequently reduced or eliminated subject-specific content knowledge courses in favor of topics such as motor learning, biomechanics, exercise physiology, sport history, and the like (Siedentop, 2002). According to Siedentop (2002), the major issue with incorporating so many sub-disciplines of kinesiology in the PETE curricula is that “the discipline of kinesiology is not taught in schools and, therefore, that discipline cannot logically serve as the content knowledge base for pre-professional preparation in physical education” (p. 374). As the profession has continued to distance itself from sport knowledge and skill and the experience of sport and physical activity, the consequence has been that PETE is better equipped to “prepare teachers who are pedagogically more skillful than ever, but who, in many cases, are so unprepared in the content are that they would be described as ‘ignorant’” (Siedentop, 2002, p. 369).

The more curricular space that is dedicated to the disciplines of kinesiology and other non-pedagogy/theory-based courses, less space is available for content knowledge and pedagogical content knowledge for PE as a discipline in and of itself. A common theme that ran through all the interviews was the lack of adequate curricular space for teaching more dance-based content knowledge. All the interviewees expressed frustration over the continued struggle to find more credit hours to accommodate all of the curricular requirements necessary to meet university and department requirements, national standards, and teacher certification regulations. Scientific and Theoretical Knowledge (Standard 1) of the National Standards for Initial PETE states that “physical education teacher candidates know and apply discipline-specific scientific and theoretical concepts critical to the development of physically educated individuals” which includes physiological, biomechanical, and motor development theories among others (SHAPE America, 2008, p. 1). However, Standards 2 through 5 have a heavy emphasis on the skillful demonstration of content knowledge, utilization of pedagogical knowledge and pedagogical content knowledge in content planning, implementation and delivery, as well as student management and assessment. Can the issue of curricular space be rectified such that all of the above Standards are met satisfactorily in all content areas of PE within the span of a four-year program?
Content

Turning to the content of dance courses within PETE (both content knowledge and pedagogical content knowledge), the current study gathered much more descriptive data than the previous study (Mehrhof and Ermler, 1992) due in part to its methodological design. Like Mehrhof and Ermler’s results where the most frequently taught forms of dance were folk (61.2%), square (58.4%), social (48.6%), basic rhythms (45.3%), and aerobic (37.6%), this study showed that folk dances, rhythmic activities, and square dances still hold a prominent place in the curriculum; even though fitness dances did not make the top five curricular choices in this study, it was the sixth most popular choice. It is unclear as to whether social dances in Mehrhof and Ermler’s study included line dances as we know them today and so an accurate comparison between those results cannot be made. However, one of Mehrhof and Ermler’s (1992) recommendations for PETE programs was to include a stronger focus on children’s creative dance and rhythmic activities at the elementary, which is illustrated in the results of this study. Whether or not this spike in the teaching of rhythmic activities is due in part to Mehrhof and Ermler’s recommendations remains to be seen.

The previous study also touched on pedagogical methods utilized by course instructors. Mehrhof and Ermler (1992) found that 56.7% of instructors employed skill development as a method, 58.0% reported teaching of curricular methods, 42.4% utilized skills tests and 32.2% of instructors reported dance appreciation as an instructional method. In addition to pedagogical strategies employed, this study also addressed the type and amount of pedagogical content knowledge, student learning activities, and assessments utilized in dance courses. As can be seen from the Results section, not only did the instructors in this study make use of the techniques outlined above, they also employed field experiences, peer teaching, individual and group performances, lesson planning and assessment writing among other pedagogical strategies.

Content knowledge as it pertains to competencies of initial physical educators is addressed in Standard 2 of the National Standards for Initial PETE (SHAPE America, 2008). Standard 2: Skill-Based and Fitness-Based Competence states, “Physical education teacher candidates are physically educated individuals with the knowledge and skills necessary to demonstrate competent movement performances and health-enhancing fitness as delineated in the NASPE K – 12 Standards” (NASPE, 2008, p. 1). In P-12 PE content knowledge is not as easily defined as in other school subject areas and continues to be a source of debate in the field of PETE, as noted by Siedentop (2002). Shulman (1986) and Siedentop (2002) have both noted the increased emphasis of pedagogical knowledge within teacher education programs and a lack of equivalent emphasis on content knowledge. Shulman (1986) proposed a “missing paradigm” in research on teaching and teacher education and states:

*Mere content knowledge is likely to be as useless pedagogically as content-free skill. But to blend properly the two aspects of a teacher’s capacities requires that we pay as much attention to the content aspects of teaching as we have recently devoted to the elements of teaching process.* (p. 5)

According to You (2011), pedagogical content knowledge for PE should guide “teachers and teacher educators in ongoing professional learning in physical education” and that professional learning “enhances teachers’ desire to continually improve their instruction in physical education” (para. 34). Comparing the results of this study with You’s (2011) concept of pedagogical content knowledge, it can be argued that due to the overabundance of courses required for PETE programs coupled with stringent regulations of major credit hours dance courses, when required, include as many different styles of dance as possible. The hope is that an exposure curriculum will spark students’ interest in at least one form of dance that they can then go on to initiate as a unit of instruction in their future classrooms. As pointed out by one interviewee, the unintended result of this strategy is that students fail to actually learn the content adequately enough to gain the confidence to teach it. However, despite the perpetual issue of curricular space and its detriment to content knowledge courses in PETE, the curricula of the dance courses themselves regarding the various forms of pedagogical content knowl-
edge covered, the student learning activities, and assessments employed by instructors all support You's tenets, particularly knowledge of PE as a subject, knowledge of PE curriculum, knowledge of teaching methods in PE, and knowledge of PE assessment.

Therefore, while the time spent on content knowledge development in dance can still be considered insufficient, especially given the number of dance styles included in each course and the lack of dance course requirements within programs, the instructors in those courses are making the best with this limited time by incorporating a wide variety of strategies for teaching and learning that directly relate to attaining subject matter specific pedagogical content knowledge. The interviewees noted the importance and emphasis on peer teaching and other field experiences where students had the opportunity to utilize their pedagogical content knowledge to gain confidence and become more comfortable with teaching the subject matter. The instructors of these courses play a large role in how dance content should be addressed in order to best prepare future physical educators to effectively teach this subject.

**Instructors**

Mehrhof and Ermler's study (1992) examined only two variables regarding the instructors of dance courses; their confidence level and the amount of professional preparation in dance content. Among the PETE faculty responsible for conducting the dance courses at their institution, 85% reported feeling confident in their ability to teach dance and 50% of them had 10 or more semester hours of professional preparation in dance. This study covered more dimensions including the various sources of content knowledge and pedagogical content knowledge obtained by dance course instructors as well as their position within their institution and their amount of teaching experience in dance courses. It was difficult to compare these results from those gathered by the previous study as the variables do not align, however, it is important to note that previous and ongoing professional preparation, whether it is in the form of in-service development, attending conferences, having private instruction or taking higher education courses plays a key role in the comfort and enjoyment level of the instructor in teaching this content.

Four of the interviewees for this study spoke very highly of the dance course instructors at their institution. Three of the interviewees taught the dance courses themselves, and one interviewee did not have dance courses at their institution. All of the interviewees discussed the challenges faced by instructors with getting students to “buy into” dance content and getting students out of their comfort zone. All of the interviewees expressed how having a positive attitude towards dance along with clear expectations for students and having strong expertise in dance education was invaluable for dance course instructors. It was generally agreed that an extensive content knowledge background was a useful attribute in an instructor, but even more important is that instructor’s ability to connect content and pedagogy into praxis for their students. It is evident by the results of this study that the instructors of dance courses within PETE are demonstrating an extensive understanding of the learning processes for beginning teachers and are employing authentic and valid pedagogical methods, student learning activities, and assessments.

**Facilitators and Inhibitors**

In this study there was some overlap between the three strongest facilitators of dance instruction its three strongest inhibitors. All of the elements listed in the questionnaire had the ability to be chosen as either a facilitator or inhibitor independently; they were not mutually exclusive choices. A facilitator was defined as dance content being supported and valued and is thus made accessible to students. Several interviewees commented that dance is an essential component to P-12 PE because it is not only a lifelong form of physical activity that students will encounter long after leaving school (e.g., weddings, birthday celebrations, etc.), it also offers an aesthetic element and a dualism that straddles both the creative arts and physical education/activity realm. Holding such strong beliefs on the efficacy of the teaching and learning of dance helped the interviewees advocate for incorporating as much
dance content as allowable into their programs (as time constraints dictated). Unfortunately, in PETE there never seems to be enough time to accomplish it all.

Curricular space has long been an issue in PETE. (Ayers & Housner, 2008; Kim, Lee, Ward, & Li, 2015; Wiegand, Bulger, & Mohr, 2004), so it is not surprising that it played a role in the findings of this study. The theme of inhibitors is defined as having one's “hands tied” by lack of time, expertise, and/or support. Time (in the form of curricular space) appeared to be the primary driving force behind many curricular decisions as conveyed by all of the interviewees. In their 1997 article, Siedentop and Locke offered A Teacher Educator’s Guide to the Minimum Conditions Required for PETE. The three most critical variables in the guide (of which there were 10) were focus, faculty consensus, and time (or credits). According to Siedentop and Locke, the focus required for PETE “requires provision of both the content and the pedagogical knowledge required to teach a particular kind of physical education” (p. 31). The focus of a program should be on students obtaining content knowledge and pedagogical knowledge for PE, a sentiment that is also echoed in Standards 2 through 5 of SHAPE America’s Initial PETE Standards (2008) and as voiced as an important facet of an effective PETE program by interviewees. Faculty consensus is “enough to ensure program focus and cohesiveness. This requires that everyone accept the same line on program content, processes, and priorities” (p. 31).

As is evidenced by the results of the questionnaire and the opinions of the interviewees, being able to defend curricular decisions and advocate for change with the support of key stakeholders in the department is crucial in ensuring program focus. Last, time (or credits) “requires sufficient time to learn both content (sport and physical activity) and content-specific pedagogy” (p. 31). The key phrases within this definition are “sufficient time” and “content and content-specific pedagogy” which, in the case of this study, equated to sufficient time to learn dance content knowledge and pedagogical content knowledge. All of the interviewees lamented over the lack of space in their already over-crowded curriculum. A few of the interviewees offered dual certification in Health and PE in their programs, others required coaching, aquatics, or driver education classes in conjunction with the traditional PETE content, methods, and kinesiology courses.

Even though Siedentop and Locke’s article was written over two decades ago, it can be argued that these conditions (time, faculty, and focus) are just as relevant and as problematic to PETE in 2018 as they were in 1997. Siedentop and Locke state that an effective PETE program should be “defined by a limited conceptual framework” and “the conceptual framework should have a limited number of derivative themes and core abilities that all teacher candidates should achieve” (1997, p. 30). Revisiting the SHAPE America Initial PETE Standards (2008), it is clear that these “core abilities” have been defined and the argument can be made that the achievement of these standards and the content knowledge and pedagogical content knowledge present in them should drive the focus of a PETE program rather than other factors.

Limitations

There were four main limitations to this study that could have skewed both the quantitative and qualitative results. First, although forced validation measures were put in place when the questionnaire was built in Qualtrics®, some of the respondents were able to skip mandatory questions, which provided inconsistent frequency counts across questions. Second, since none of the questionnaire respondents acknowledged themselves as instructors of the dance courses within their department, questions they answered on the dance course matrix could have arisen from pure conjecture and therefore may not have been entirely accurate. Third, the interview participants were self-selected and as such they had a strong, and in this case positive, saliency to the topic being discussed. Last, no follow up phone calls or emails were made to the potential participant pool in an attempt to further reduce the non-response rate of the questionnaire aside from the automated reminder emails outlined in the study methodology.
Conclusion and Recommendations For Further Study

In summation, a mixed methods study was conducted to describe how dance education was addressed within PETE programs in the U.S. today, looking specifically at the following variables: curricular space, CK, PCK, instructor characteristics, and the various facilitators and inhibitors to dance instruction in PETE. After constructing, validating, and disseminating a comprehensive online questionnaire addressing the above research areas to a potential participant pool of 580 PETE programs with 104 returned questionnaires, (17.9% response rate), the data revealed that a quarter of PETE programs (25.8%, n = 23) neither offer nor require dance courses and that 67.4% (n = 60) of institutions require at least one course that contained dance content in their program. The top five dance content areas taught are rhythmic activities (88.9%), line dance (70.4%), folk/world dance (61.1%), creative dance (61.1%), and other (53.7%). Data also indicated that PE major students gain PCK from writing lesson plans (89.5%) as well as student learning outcomes and assessments (71.1%) and learning the history of dance and/or dance appreciation (39.5%) and theories of dance education (29.0%). Over half of dance courses (51.1%) are taught by a member of the Professoriate or the Department Chair and the tenure of dance course instructors is a mean of 9.2 years. The questionnaire also evidenced that the strongest facilitator of dance instruction according to participants is instructor expertise (27.9%) and the strongest inhibitor of dance instruction is lack of curricular space (15.1%), which is corroborated by the interview data.

Furthermore, interview data, gathered through eight semi-structured telephone interviews from self-selected questionnaire participants and subsequently analyzed through a combination of Thematic Analysis and a Phenomenological lens, served to bolster and further validate the data gleaned from the questionnaire. Six themes were formulated and interpreted from descriptive codes that aligned with the research questions. The purpose of these themes (outlined below) was to define and describe the phenomenon that is dance education within PETE based on the interviews conducted.

1. Curricular space means to provide (or greatly reduce) access to content and knowledge through manipulation of the variable of time, in the form of credit hours.

2. CK is one’s understanding of a sport, game, dance, or other skillful activity that is gained through the physical experience of performing that activity.

3. PCK is the difference between a dance expert and a dance educator for future physical educators.

4. Instructors are challenged with getting students to “buy into” dance content and get them out of their comfort zone.

5. Facilitators mean that dance as a content area is supported and valued and is thus made accessible to students.

6. Inhibitors are having one’s “hands tied” by lack of time, expertise, and/or support.

Recommendations in the following lines of inquiry can serve as a basis for future research efforts in dance curriculum for both PETE and P-12 PE:

1. Adapt the online questionnaire for P-12 physical educators and replicate the survey and interviews at the P-12 level. Such a study will provide researchers and P-12 PE faculty with insight into current dance education practices in schools. Such information could then be used by practitioners when planning their PE curricula.

2. To discover student-centered perspectives on the teaching and learning of dance in PETE and P-12 PE, employ other qualitative data collection methods such as field notes, participant obser-
vation, and focus groups. These methodological approaches will further flesh out opinions, beliefs, and values of dance education by various stakeholders and can assist PETE and P-12 PE faculty to address various misconceptions and stereotypes held about dance with their students.

3. Use the data gathered from the current study along with data collected from the first research recommendation as a method of triangulation. Such an analysis can reveal any significant gaps or bridges between university course work and P-12 PE teaching experiences in dance education. Any correlations found between the data points can be employed to theorize whether P-12 physical educators are utilizing the dance content knowledge and pedagogical content knowledge they learned in their programs.

References


Abstract

While dancers attend daily technique classes and rehearsals, they often struggle with cardiovascular endurance due to the anaerobic nature of dance training. This proves to be consequential during a dancer's performance season because they often are unable to maintain a healthy heart rate during lengthier dance works. The purpose of this study was to compare the effects of using the Dance Aerobic Fitness Test (DAFT) and plyometric high intensity interval training (HIIT) to improve overall cardiovascular endurance. The study participants were divided into a DAFT group, a plyometric HIIT group, and a control group. The aerobic (DAFT) and anaerobic (plyometric HIIT) groups participated in 30 minutes of training three times a week for three weeks while the control group did no additional training during the study. Results showed all three groups decreased in their maximum heart rate from the values from the pretest and the values from the posttest. For both the pre- and the posttest, participants performed the DAFT and the plyometric HIIT. The DAFT group had a 17.9% decrease in maximum heart rate in the DAFT and a 20% decrease in maximum heart rate in the plyometric HIIT. The plyometric HIIT group had an 11.1% decrease in the DAFT and a 1.6% decrease in the plyometric HIIT. The control group showed a 9.1% decrease in the DAFT and a 17% decrease in the plyometric HIIT. Although results showed a decrease in overall maximum heart rate, there was no significant difference between the three groups.

Introduction

Cardiovascular endurance in dancers is often one of the weakest physiological aspects of a dancer's health. Two types of cardiovascular training are aerobic training and anaerobic training. Aerobic training is associated with moderate, long-term levels of activity within the aerobic threshold. Anaerobic training is associated with high intensity, maximal, short bursts of activity.

Dance class alone is not enough to support the demands of a dance performance (Rodrigues-Krause, Krause, & Reischak-Oliveira, 2015) because many dance technique classes are structured anaerobically. The instructor teaches an exercise, the dancers perform the exercise, then there is a built-in period of rest while the next exercise is being taught, or corrections are being given by the instructor. This causes dance classes to be intermittent in nature. An emphasis on aerobic training is necessary to include in class to meet the physical and cardiovascular demands of rehearsals and performances (Wyon & Redding, 2005, p. 74).

The problem with an intermittent nature methodology of training is during performances dancers are expected to perform movements for a constant amount of time with no rest (Rodrigues-Krause, Krause, & Reischak-Oliveira, 2015). Not only can aerobic supplemental training be beneficial to cardiovascular health, it can also lessen the risk for injury (Rodrigues-Krause, Krause, & Reischak-Oliveira, 2015).

“As the demands of the choreography increase, many believe that there is a need to train dancers to be more able to cope with the new demands” (Redding & Wyon, 2003, p. 10). The goal of this research study was to evaluate methods for dancers to cross train outside of dance class and determine if one method was better than the other. The two different methods used considered aerobic and anaerobic supplemental training.
The first training method used in this study was the Dance Specific Aerobic Fitness Test (DAFT) (Wyon, Redding, Abt, Head, & Sharp, 2003) created at the Trinity Laban Conservatoire of Music and Dance. The second training method was a plyometric HIIT training using plyometric exercises that imitated the movements and design as closely as possible to the DAFT. The researchers studied the DAFT as well as a Ployometric Jump Training for Dancers method, created by the Harkness Center for Dance Injuries (“Plyometric jump training,” n.d.).

From both methods the researchers created the Plyometric HIIT training that was used in this study. Each of the five stages of the DAFT and the Plyometric HIIT training lasted for four minutes with one-minute break in between. The difference between the DAFT and the Plyometric HIIT trainings is the DAFT has a constant increase in tempo whereas the Plyometric HIIT is developed in a high intensity interval training style, alternating from high intensity to low intensity.

**Methods**

**Participants**

Fifteen female participants originally volunteered for the research study (age = 17-21, height = 157-177cm, mass = 51±74kg). Five participants withdrew because they missed training sessions, which left ten who completed the study. The participants were part of a university dance program and were enrolled in a ballet and modern dance class that met three times a week. Participants had no knee and ankle injuries and were asked to maintain their normal exercise regime through the duration of the study. The study was approved by the university’s IRB committee and all participants signed consent forms before beginning the study.

**Procedures**

This study spanned five weeks including pre- and posttesting for all participants. All research subjects participated in pre- and posttests which included a 30-minute test session of the DAFT on the first day of testing, and a 30-minute test session of the plyometric HIIT on the second day. Prior to the testing, and every training period, the research subjects had 10 minutes of rest in a comfortable sitting or lying position in order to obtain a more consistent resting heart rate. After each stage of the training, the subjects’ heart rates were measured and recorded manually by the subjects through palpation of the carotid artery. A two-minute recovery period took place after the fifth and final stage. Heart rate was recorded again after this rest period. The same testing protocol took place as part of the training sessions and the posttesting procedures.

The DAFT has five, four-minute stages with movements that increase in intensity with each stage. The movements in the DAFT consist of lunges, steps, spring hops, prances, and pliés. The progression of the intensity is achieved by increasing tempo of the music (spanning from 68-108 bpm), incorporating arms, and progressing to hops and prances instead of pliés and walks. “Intensity was increased at each stage either in terms of tempo, the size of movements or the inclusion of additional movements” (Wyon et al. 2003, p. 81).

The plyometric HIIT has five, four-minute stages with movements that vary from high to low intensity with each stage. Lunges, hops, and prances are movements used in the plyometric HIIT. All stages are completed using 20 seconds of activity and 10 seconds of rest. Stages 1, 3, and 5 are the quicker tempo stages (94-108 bpm) using different types of hops, and stages 2 and 4 are the slower tempo stages (68 bpm) using lunges.

Between each of the stages of the DAFT and HIIT, there was a one-minute of recovery before the next stage. Both the DAFT and the plyometric HIIT workouts are explained in further detail in the following tables (Table 1 and Table 2).
Table 1

<table>
<thead>
<tr>
<th>STAGE</th>
<th>TEMPO (bpm)</th>
<th>MOVEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>68</td>
<td>5 steps, lunge and recover. 4 sets of 2 pliés with 90° turn between each set. Repeat for 4 minutes.</td>
</tr>
<tr>
<td>2</td>
<td>78</td>
<td>5 steps, lunge and recover. 3 spring hops in a circle. 4 sets of 2 pliés with 90° turn between each set, arms moving between first and second position. Repeat for 4 minutes.</td>
</tr>
<tr>
<td>3</td>
<td>78</td>
<td>5 steps, lunge and recover. 3 spring hops in a circle include arm movements. 4 sets of hop plié with 90° turn between each set, arms moving between first and second position. Repeat for 4 minutes.</td>
</tr>
<tr>
<td>4</td>
<td>94</td>
<td>5 steps, lunge and recover. 3 spring hops in a circle include arm movements. 4 sets of hop, hop with 90° turn between each set, arms moving between first and second position. Repeat for 4 minutes.</td>
</tr>
<tr>
<td>5</td>
<td>108</td>
<td>5 springs, lunge and recover. 3 spring hops in a circle include arm movements. 4 sets of hop, hop with 90° turn between each set, arms moving between first and second position. Repeat for 4 minutes.</td>
</tr>
</tbody>
</table>


Table 2

<table>
<thead>
<tr>
<th>Stage</th>
<th>TEMPO (bpm)</th>
<th>MOVEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>94</td>
<td>Prance right and left 30 seconds and pony right and left 30 seconds. Repeat for 4 minutes</td>
</tr>
<tr>
<td>2</td>
<td>68</td>
<td>Step forward to lunge 30 seconds and jump switching lunges 30 seconds. Repeat for 4 minutes</td>
</tr>
<tr>
<td>3</td>
<td>94</td>
<td>Parallel pas de chat side/side 30 seconds and externally rotated changement 30 seconds. Repeat for 4 minutes</td>
</tr>
<tr>
<td>4</td>
<td>68</td>
<td>Step forward to lunge 30 and jump switching lunges 30 seconds. Repeat for 4 minutes</td>
</tr>
<tr>
<td>5</td>
<td>108</td>
<td>Changement turn 90 degrees 30 seconds and externally rotated jetés and coupé sauté alternating right and left 30 seconds. Repeat for 4 minutes</td>
</tr>
</tbody>
</table>

Research Design

This quasi-experimental study was a randomized controlled design with multiple trials. Participants were randomly divided into three groups; control (n = 3), DAFT group (n = 5) and plyometric HIIT group (n = 2). The DAFT and plyometric HIIT groups completed their respective training method, following the same protocol from the pretest for three weeks for 30 minutes, three times per week, with a day of recovery in between each training session and a two-day recovery between each week. The control group received no additional training, and those participants were asked to continue their normal routine through the duration of the study.
Results

After the five-week study, the average max heart rate improved in efficiency for both training methods, as well as the control group, in comparison between the pretest and posttest. The DAFT training group had an average decrease of 38 beats per minute (bpm) during the DAFT (17.9% decrease) and an average decrease of 40.8 bpm during the plyometric HIIT test (20% decrease). The plyometric training group had an average decrease of 21 bpm (11.1% decrease) and three bpm (1.6% decrease) for the DAFT and plyometric HIIT tests, respectively. The control group had an average decrease of 19 bpm for the DAFT (9.1%) and 34 bpm for the plyometric HIIT test (17% decrease). In the following figures, the graphs show a comparison of the maximum heart rates for all three groups in the pretest versus the posttest of the DAFT (Figure 1) and the plyometric HIIT (Figure 2).

**Figure 1.** Changes in max heart rate for the three groups when doing the DAFT in the pretest and posttest.

**Figure 2.** Changes in max heart rate for the three groups when doing the plyometric HIIT in the pretest and posttest.
Discussion

The results from this experiment show that the DAFT might serve as a better training program than HIIT for an improvement in cardiovascular fitness. The aerobic training had a greater improvement on max heart rate when compared to the anaerobic training of the plyometric HIIT. The DAFT group showed improvement in their maximum heart rate doing the DAFT, but showed a greater improvement doing plyometric HIIT with a 20% decrease in their maximum heart rate. Similarly, the plyometric group ended up having a greater decrease during the DAFT than in the plyometric HIIT. Both groups also performed better in the posttest in which they did not train. The control group showed a decrease in max heart rate in both the DAFT and the plyometric HIIT.

A limitation to take into account is that the participants in all three groups were taking modern and ballet technique classes three times a week throughout the duration of the study. Even though they were not doing any extra training, taking technique classes three times a week could have been a factor affecting the decrease of max heart rate.

Moving forward with this research, it would be beneficial to conduct more in-depth analysis of the recovery time to see if there is a more substantial change in cardiovascular endurance within the participants. This study examined the maximum heart rate achieved throughout the exercises, but the researchers did not analyze the recovery time of the participants. Perhaps the improvement happened in their recovery time, which was not part of this study. A decrease in max heart rate shows an increase in cardiovascular fitness, but an increase in cardiovascular endurance cannot be determined using only the max heart rate values. As for measuring the heart rate, the use of heart rate monitors instead of manual testing (palpation) could have been used to decrease human error.

Further studies should be conducted with a greater sample size to see if the same results are replicated. The statistical power is diminished due to the extremely small sample size.

Conclusion

In conclusion, after the five-week study, the biggest decrease in max heart rate in both aerobic testing and anaerobic testing was achieved with the intervention of doing the DAFT three times a week. The plyometric HIIT group saw an improvement in their max heart rate when doing aerobic testing, although not as much as the DAFT, and a small improvement in the anaerobic testing. The control group saw a small improvement in their max heart rate in both the aerobic and anaerobic testing.

Based on the initial results of this study, the DAFT has the potential to be beneficial as a training program for aerobic exercise for dancers. Performing any type of cardiovascular activity consistently over time could contribute to lowering the max heart rate, but the results of this study suggest that participating in the DAFT three times a week brings about more improvement in cardiovascular fitness than do performing the plyometric HIIT with that frequency or taking dance classes without additional cardiovascular training.

References


Join the National Dance Society
http://nationaldancesociety.org/join.html

Joining the National Dance Society is easy, with membership plans for professionals, associates, and students.

Professional Membership
Open to individuals involved in all aspects of dance as teachers, studio owners, performers, technical support, or artists.

$85.00/annually
$225.00/Long Term (3 Year)

Associate Membership
Open to individuals in professions supporting dance. This includes publishers, costumers, and other vendors. Please note: Associate members are unable to hold office or vote.

$75.00/annually
$195.00/Long Term (3 Year)

Extra benefit: Visit the NDS website’s store to order featured dance publications!

Student Membership
Open to individuals enrolled in a college-level degree granting program or in grades K - 12.

$50.00/annually
$120.00/Long Term (3 Year)

Lifetime Membership
Open to individuals otherwise eligible for professional membership.

$2,500/once
Abstract

The use of jumps in dance is essential to the art form and is one of the most spectacular aspects of a dancer’s performance. Increased jump height allows for more time in the air, which allows the dancer to achieve multiple beats or elongated suspension within their jumps. The purpose of this study was not only to contribute to the research on horizontal jump in plyometric and Pilates training but also to compare and contrast the two training methods. Dancers (n = 28) were divided into three groups: plyometric (n = 9), Pilates (n = 9) and control (n = 10) groups. The Pilates and plyometric groups received training on a series of exercises, which increased with duration and difficulty over five weeks. A significant difference (p = 0.004) was found for bilateral vertical jump from pre-intervention to post intervention but no differences (p = 0.87) were shown between the three groups. Results showed that there was overall improvement in vertical jump with both the right (p = 0.001) and left (p = 0.004) sides from pre-intervention to post intervention among all of the groups. However there was no significant difference between the three groups in the vertical jump. A significant difference between groups was seen on the right (p = 0.016) and left (p = 0.024) during the triple hop test. On the triple hop test, no significant difference was found between right take off (p = 0.085) or left take off (p = 0.07), regardless of group. The results indicated significant difference pre- and post-intervention, but without significant difference between the groups in the triple hop test.

Introduction

Dance is considered an athletic art form, which requires a great deal of technical training and physical fitness. The technical training is usually obtained through the repetition of skills during a regularly scheduled class focused on a specific genre of dance: ballet, modern, jazz, etc. One of the most spectacular and essential aspects of a dancer’s technical abilities is jumps. The height of the dancer’s jump allows for more time in the air, which allows the dancer to achieve multiple “beats” or batterie in ballet or suspension in modern dance. Jumping requires an athleticism that may not specifically be addressed in technical training therefore jump training could be addressed through a cross training method.

Plyometric training and Pilates are popular cross training methods used by athletes and dancers to achieve greater power in their movements. Research has linked plyometric training with increased vertical jump in non-dancers (El-Sayed, Mohammed, & Abdullah, 2010; Fatouros et al., 2000; Markovic, 2007). Brown, Wells, Schade, Smith, and Fehling (2007) focused their research on female collegiate dancers. This study found a significant increase in the participants’ vertical jump height when a plyometric training system was implemented. Plyometric training has also been shown to improve horizontal jump, such as a grande jeté in dance, even though this research is limited (Ozbar, Ates, & Agopyan, 2014).

Dancers have used Pilates training as a training method since its introduction to the United States in 1926. Research on the impact of Pilates training on dancers is limited despite the lengthy history between the two. In 2006, Bernardo and Nagle published a literature review looking at the benefits of Pilates on dancers. They found very few published research articles on the subject. Over 10 years
later, there has been little expansion in the published materials (Bergeron, Greenwood, Smith, & Wyon, 2017). One article was found regarding Pilates training in regards to increasing a dancer’s jump height. McLain, Carter, and Abel (1997) used a Current Concepts Reformer to train first and second year dance students for eight weeks. They found no significant variance between the experimental group and the control group in the supine jump height test. This study (training and testing) was only done in the supine position and did not look at the translation to a standing jump position for vertical jump height.

The limited research leaves many questions regarding the effectiveness of cross training methods on dancers’ vertical and horizontal jump. Plyometric training has been proven to increase vertical jump height and there is some suggestion that it can increase horizontal jump as well. However, the current Pilates research on the Reformer suggests that it is not a viable training method to increase jump height in a supine position. These two cross training methods have not been compared in regards to a dancer’s jump performance. Therefore, the objectives for this study were to see whether through training sessions in plyometric or Pilates exercises university dance students can increase vertical and horizontal jump height to improve overall dance technique and performance.

### Methods

#### Participants

Twenty-six female and two male participants (age = 20.0 ± 1.05, height = 164.8 ± 5.1 cm, mass = 62.4 ± 7.8 kg) completed the study. Forty participants originally volunteered for the study, however, eleven failed to show up for testing, training, or interventions so were withdrawn from the study. One participant suffered an ankle injury during the study so could no longer participate. The remaining twenty-eight participants were dance majors in a university dance program who were enrolled in a ballet and modern class; each class met three times a week. Participants were free from injury for the past six months and were instructed not to participate in any other jump training during the length of the study. The university’s IRB committee approved the study and all participants signed consent forms.

#### Procedure

The participants were randomly divided into three groups: a Pilates group (n = 9), a plyometric group (n = 9) and a control group (n = 10). Each participant was tested to obtain baseline measurements for vertical jump height and horizontal distance. These measurements included a vertec vertical jump test with take off on the right and left sides and bilateral take off and a triple hop test taking off on right and left sides to measure horizontal jump. The vertical and horizontal testing was repeated post study to measure any improvements in jumps.

The Pilates and plyometric group did one week of training to learn the exercises they would be doing during the five-week intervention study. They were taught the exercises and instructed on correct mechanics, alignment, and muscular engagement. The training sessions lasted 30 minutes and were conducted three times over a one-week period. After the training period, the two intervention groups performed a series of exercises, which increased in difficulty and were more dance specific as the study progressed. In order to keep the time and methods similar between the two intervention groups, participants were instructed to complete as many repetitions of an exercise as possible for 20-30 seconds while maintaining correct body alignment. The Pilates group was trained on a series of reformer exercises for 30 minutes three times a week over five weeks (see Table 1) by an experienced Pilates instructor with over 15 years of teaching experience. The reformer spring load ranged from one blue to three red, depending on the exercise, and was consistent among all the participants. An experienced fitness instructor trained the plyometric group on dance based plyometric exercises for 30 minutes three times a week over five weeks (see table 2). The control group did no additional jump training.

#### Testing Protocol
<table>
<thead>
<tr>
<th>Exercise</th>
<th>Spring Load</th>
<th>Time/Rep</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Week One</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt; position footwork</td>
<td>3 reds</td>
<td>20 sec</td>
</tr>
<tr>
<td>Prances</td>
<td>3 reds</td>
<td>20 sec</td>
</tr>
<tr>
<td>Feet in Straps: Extended frog</td>
<td>2 reds</td>
<td>20 sec</td>
</tr>
<tr>
<td>Jump Board: Italian changements</td>
<td>1 red/ 1blue</td>
<td></td>
</tr>
<tr>
<td><strong>Week Two</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt; position footwork</td>
<td>3 reds</td>
<td>25 sec</td>
</tr>
<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt; position footwork</td>
<td>3 reds</td>
<td>25 sec</td>
</tr>
<tr>
<td>Feet in Straps: Extended frog</td>
<td>2 reds</td>
<td>25 sec</td>
</tr>
<tr>
<td>Jump Board: Italian changements</td>
<td>1 red/ 1blue</td>
<td>10 ea. side (20)</td>
</tr>
<tr>
<td><strong>Week Three</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt; position footwork</td>
<td>3 reds</td>
<td>25 sec</td>
</tr>
<tr>
<td>Single leg knee stretch</td>
<td>1 red/ 1blue</td>
<td>30 sec</td>
</tr>
<tr>
<td><strong>Jump Board: Sauté 1&lt;sup&gt;st&lt;/sup&gt; position</strong></td>
<td>1 red/ 1blue</td>
<td>30 sec</td>
</tr>
<tr>
<td>Jump Board: Entrechat quatre</td>
<td>1 red/ 1blue</td>
<td>5 ea side (10)</td>
</tr>
<tr>
<td><strong>Jump Board: Assemblé</strong></td>
<td>1 red/ 1blue</td>
<td>5 ea side (10)</td>
</tr>
<tr>
<td><strong>Week Four</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt; position footwork</td>
<td>3 reds</td>
<td>25 sec</td>
</tr>
<tr>
<td>Single leg knee stretch</td>
<td>1 red/ 1blue</td>
<td>30 sec</td>
</tr>
<tr>
<td><strong>Jump Board: Sauté 1&lt;sup&gt;st&lt;/sup&gt; position</strong></td>
<td>1 red/ 1blue</td>
<td>30 sec</td>
</tr>
<tr>
<td>Jump Board: Entrechat quatre</td>
<td>1 red/ 1blue</td>
<td>8 ea side (16)</td>
</tr>
<tr>
<td><strong>Jump Board: Assemblé</strong></td>
<td>1 red/ 1blue</td>
<td>8 ea side (16)</td>
</tr>
<tr>
<td><strong>Week Five</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feet in Straps: frog</td>
<td>2 reds</td>
<td>20 sec</td>
</tr>
<tr>
<td>Single leg knee stretch</td>
<td>1 red/ 1blue</td>
<td>30 sec</td>
</tr>
<tr>
<td>Jump Board: Single leg jumps</td>
<td>1 red/ 1blue</td>
<td>30 sec</td>
</tr>
<tr>
<td>Jump Board: Entrechat quatre</td>
<td>1 red/ 1blue</td>
<td>8 ea side (16)</td>
</tr>
<tr>
<td><strong>Jump Board: Jeté</strong></td>
<td>1 red/ 1blue</td>
<td>8 ea side (16)</td>
</tr>
<tr>
<td>Exercise</td>
<td>Time/Rep</td>
<td></td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>------------</td>
<td></td>
</tr>
<tr>
<td><strong>Week One</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parallel prances</td>
<td>20 sec</td>
<td></td>
</tr>
<tr>
<td>Parallel tuck jump</td>
<td>20 sec</td>
<td></td>
</tr>
<tr>
<td>Scissor jump</td>
<td>20 sec</td>
<td></td>
</tr>
<tr>
<td>Double leg hop</td>
<td>5 reps</td>
<td></td>
</tr>
<tr>
<td><strong>Week Two</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bounding in place</td>
<td>25 sec</td>
<td></td>
</tr>
<tr>
<td>Parallel tuck jump front/back</td>
<td>25 sec</td>
<td></td>
</tr>
<tr>
<td>Parallel tuck jump side/side</td>
<td>25 sec</td>
<td></td>
</tr>
<tr>
<td>Scissor jump</td>
<td>25 sec</td>
<td></td>
</tr>
<tr>
<td>Double leg hop</td>
<td>10 reps</td>
<td></td>
</tr>
<tr>
<td><strong>Week Three</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bounding for distance</td>
<td>6 reps</td>
<td></td>
</tr>
<tr>
<td>Parallel pas de chat side/side</td>
<td>30 sec</td>
<td></td>
</tr>
<tr>
<td>Turned out changement vertical</td>
<td>30 sec</td>
<td></td>
</tr>
<tr>
<td>Parallel sissonne arabesque front</td>
<td>5 reps</td>
<td></td>
</tr>
<tr>
<td>Parallel sissonne arabesque side</td>
<td>5 reps</td>
<td></td>
</tr>
<tr>
<td>Single leg hop hop</td>
<td>5 reps</td>
<td></td>
</tr>
<tr>
<td><strong>Week Four</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bounding for distance</td>
<td>12 reps</td>
<td></td>
</tr>
<tr>
<td>Parallel pas de chat side/side</td>
<td>30 sec</td>
<td></td>
</tr>
<tr>
<td>Turned out changement vertical</td>
<td>30 sec</td>
<td></td>
</tr>
<tr>
<td>Parallel sissonne arabesque front</td>
<td>8 reps</td>
<td></td>
</tr>
<tr>
<td>Parallel sissonne arabesque side</td>
<td>8 reps</td>
<td></td>
</tr>
<tr>
<td>Single leg hop hop</td>
<td>8 reps</td>
<td></td>
</tr>
<tr>
<td><strong>Week Five</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jeté développé</td>
<td>6 reps</td>
<td></td>
</tr>
<tr>
<td>Turned out pas de chat</td>
<td>30 sec</td>
<td></td>
</tr>
<tr>
<td>Changement turn</td>
<td>20 sec</td>
<td></td>
</tr>
<tr>
<td>Turned out sissonne arabesque front</td>
<td>5 reps</td>
<td></td>
</tr>
<tr>
<td>Turned out sissonne arabesque side</td>
<td>5 reps</td>
<td></td>
</tr>
<tr>
<td>Turned out jeté, coupé, sauté</td>
<td>5 reps</td>
<td></td>
</tr>
</tbody>
</table>
The vertical jump was measured using the standing, bilateral take off, and moving vertec test, with take off on both right and left sides. Using a vertec measurement tool, subjects were instructed to take off either bilaterally or unilaterally and to tap the highest flag they could reach during the peak of their jump. For each test, participants were given three attempts and the average score was recorded.

The horizontal jump was assessed using the triple hop test with take off on both the right and left sides. Researchers instructed the participants to stand with the great toe touching the starting line and asked them to perform three consecutive hops forward on the same limb. The distance hopped from the starting line to the point where the heel struck the ground on the completion of the third hop was recorded. Participants performed the test three times on each leg and the average score was recorded. All tests (pre and post) were conducted by the same research assistants, who were trained on the testing methods prior to the study.

**Results**

The data were analyzed using IBM SPSS software. A repeated measures analysis of variance (ANOVA), with an alpha level of $p < 0.05$, was utilized for each dependent variable over the test sessions. A significant difference ($p = 0.004$) was found for bilateral vertical jump from pre-intervention (34.1”) to post intervention (36.2”) but no differences ($p = 0.87$) were shown between the three groups. Results also showed that there was a significant improvement overall in vertical jump (see figures 1 and 2) with both the right ($p = 0.001$) and left ($p = 0.004$) sides from pre-intervention (right – 32.3”; left – 33.6”) to post intervention (right – 35.5”; left – 36.9”). However, there was no significant difference in vertical jump between the Pilates, the plyometric or the control group. In the triple hop test, a significant difference between the three groups was seen on the right ($p = 0.016$) and left ($p = 0.024$) (see Figure 3). In regards to horizontal jump, there was no significance seen in the triple hop test on right take-off ($p = 0.085$) or the left take-off ($p = 0.07$) were found from pre to post intervention regardless of group.

**Discussion**

![Figure 1. Results of right leg takeoff test using vertec measurement. Error bars represent standard errors.](image)
Figure 2. Results of left leg takeoff test using vertec measurement. Error bars represent standard errors.

Figure 3. Results of horizontal triple hop using vertec measurement. Right leg take-off results shown; no significant difference was found between right take-off and left take-off in the pre to post intervention, regardless of group.
Jumping is one of the most virtuosic elements of dance and dancers frequently seek to improve their skills. Identification of successful cross training methods to increase vertical jump height and horizontal jump would be beneficial to dancers. In this study, the Pilates, plyometric and control group all improved in overall jump height. This might suggest that perhaps through participation in regular dance technique classes one can improve in jump height. However, beyond height alone, there are other aspects of jumping that apply to dancers including the amount of time spent in the air and the overall alignment of the dancer during the jump. These elements of a jump should be examined as well.

With regard to the amount of time spent in the air, El-Sayed et al. (2010) found an increase in what they termed “flying time” in volleyball players by implementing a plyometric training protocol. This can be directly related to a dancer’s loft or ballon. Brown et al. (2007) studied dancers in a plyometric training protocol and found a significant increase in what they called “aesthetic jump height”. Future research needs to be done to show the impact on the dancer’s ability to stay in the air.

Dance technique is heavily focused on the alignment of the body during all movements, including jumps. The two tests used in this study to measure height and distance, vertical height and triple hop test, does not take into account a dancer’s alignment when executing the jump. This could mean that a dancer improved in overall jump height and/or distance but sacrificed their alignment to do so. McLain et al. (1997) conducted their jump height testing in the supine position and looked at the dancer’s ability to maintain proper alignment during vertical jumping. Even though they were not able to make a correlation between jump height and pelvic alignment, this concern for alignment should be considered in future research studies. In addition since the study was looking to increase a dancer’s jump height, a test examining height while maintaining proper alignment during the execution of a dance specific jump would be useful.

Plyometric training and Pilates encompass a large variety of exercises and pieces of equipment that can be used in the training process. Perhaps a greater variance in jump height would be seen between the experimental groups and the control if there were a variance in the training protocol. For example, the use of the Exo® chair in Pilates training could have a larger impact on the power of the leg muscles thus increasing the vertical jump height. Plyometric training often uses boxes onto which the participant jumps up. Could this have increased the participants’ leg power leading to an increase in vertical jump height? Expanded research is needed to help address the number of variables available with these two training methods and how that can influence a dancer’s performance.

Conclusion

Although significance was seen pre- and post- testing in vertical and horizontal jump there was no significant difference between the plyometric, Pilates and control groups. Since the control group also saw improvement in jump height, it can be determined that additional training in either plyometrics or Pilates reformer training does not improve vertical or horizontal jump. However, since dance training was the one activity all three groups shared and overall jump improvement was seen with all three groups, dance training over a five-week period does appear to improve vertical and horizontal jump ability. More testing is needed to determine if dance training is the most effective way to increase vertical and horizontal jumps in dance.
References


Abstract

Professional dancers and other performing artists have a critical need for knowledge and insight that will enable them to maintain a level of health that will optimize their performance throughout a competitive or performance season. The article addresses nutritional strategies and practices that will assist dance performers in reaching and maintaining an ideal weight for performance and also assist the dancer in practicing ideal nutritional habits. It also suggests dietary habits that will lower the risk of eating disorders and poor nutrition.

Introduction

Dancers, like other athletes, are expected to perform routines that require endurance, strength, and power. Because of the financial costs faced by dancers in terms of time, travel, costumes, and trainers, among other items, it is appropriate for a dancer to pay equally close attention to what she is putting in her body. Her body is her instrument, and keeping her body at peak performance depends on more than dance aesthetics and routine and technical perfection; it is also important to pay attention to her nutritional practices and conditioning concerns. Dance educators pay great attention to performance routines and practice schedules, but another variable for success lies within the nutritional practices of dancers and their companies.

It has been estimated that it costs $100,000 to train and raise a single ballerina (Abrams, 2015). In many cases, dance programs teach technique (i.e., how to dance), but instructors are often baffled when trying to shape the “ideal” dance body to execute dance phrases with proper muscle mass, flexibility, strength, and endurance. Many dance educators resort to using scales to weigh the student, but cannot properly measure or evaluate the emotional mechanisms sometimes employed by dancers to cope with food restrictions or food addiction. Sound nutritional practices and dance education are critical to assure optimal dance quality in performances and to prevent injury. In order to perform at the highest standards in the industry, weight control and dietary practices play an important role in delivering high caliber performances.

Diet for dancers is a less popular topic in this era because of the abuses from the past and the anorexia and bulimia syndrome in the industry. But extra body weight may adversely affect the way a dancer performs his or her routine, and it may affect an entire team’s performance and ability to excel and place in competitions. With these pressures and mandates from the art of dance, some dancers may be subject to eating and training practices that are not healthy and may lead to eating disorders.

This article addresses nutrition strategies and practices that can assist dance performers in reaching and maintaining an ideal weight for performance and also assist dancers in practicing nutritional habits that will optimize dance performance throughout a competitive season. It also suggests ideal nutritional habits that can lower the risk of eating disorders and poor nutrition.

Psychological Factors

Dancers are subject to stress to fit the norms of body image in their careers. Research shows the hormonal activity needed to combat actual stress related to high-pressure careers slows down metabolism; this may cause food to remain in the digestive tract longer and to increase toxicity. Researchers have only recently begun to understand the role of the digestive tract in the regulation of hormones.
and brain chemistry (Hadhazy, 2010). The busy lifestyle of a dancer, its competitive nature, and the demands of rehearsal hours juggled with making a living often diminish one’s ability to relax and enjoy food in a relaxed environment.

A distorted self-image will often plague the dancer’s motivation to change bad eating habits. Human beings need to know that they have value as an individual merely because they exist and are alive, and not because they are trying to win a director’s approval and adoration. When a dancer finds intrinsic reasons to change her behavior based on her overall health, her love for herself, and her own personal value and self-worth, it will produce a long-lasting behavioral change toward food and food choices and put the dancer on a solid lifestyle alteration that will last her whole life (Deci & Ryan, 2000).

Essential components in any type of food restriction or addiction program are (a) dancer support groups, (b) healthy food choices, (c) relaxed breaks with the time necessary to properly digest, and (d) self-esteem training. Keeping a food diary and planning healthy food choices, are very effective. (Magee, 2008). Several studies have shown that people who keep food journals are more likely to be successful in losing weight and keeping it off. In fact, a study by Hitti (2008) found that people keeping a food diary six days a week lost about twice as much weight as those who kept food records only one day a week or less. A support group allows dancers to recognize what drives them to eat more than they need, or what prevents them from eating too much in some cases. It also brings awareness of how powerful food can be in controlling our lives, as opposed to our controlling the quantity of food we consume.

Teachers and educators usually promote sports nutrition education, but there is a fine line crossed at times and arts educators are not registered dieticians. It is important to check state laws, and to ensure that the educator remains within the scope of legal limits when providing any type of nutritional counseling to a dancer. The information given below includes suggestions based on sports and athletic models of nutrition administered by practitioners and researchers in the field of nutrition.

To begin a program of body assessments for nutrition, the coach and trainer should have his or her team or company provide a three-day dietary recall, and assist the individuals in analyzing their dietary records. There are many online food programs for analyzing one’s diet, such as nutritcounter.com, fitday.com, myplate.gov, and myfitnesspal.com. Choose one that allows analysis of both macronutrients and micronutrients. Upon making this request to your team, you would also want them to keep a daily food journal so they may keep up with patterns of eating during the competitive season. The programs allow the athletes to analyze their diets, and the information should be given to their trainers to place in their file. A simple system of weighing food used in food programs like Overeaters Anonymous®, and Food Addicts In Recovery Anonymous, is recommended. The Institute of Food Addictions explains why weighing food is important (Werdell, 2010):

1. Weighing and measuring simplifies portion control. There is no question of how much of each food to eat.
2. For the food addict who is weighing and measuring, it is always clear exactly what surrender means.
3. If the amount of food in your plan has the proper number of calories to be your ideal weight, you will eventually reach it and maintain this weight.
4. For those who sometimes – or always – have a distorted concept of food volume, weighing and measuring is like wearing glasses with the corrected prescription.
5. Weighing and measuring is a gentler and a much less expensive alternative to intestinal bypass surgery.
6. For volume addicts – who almost always want more food – weighing and measuring assures that you are getting enough to eat.
7. Weighing and measuring eliminates the need for an inner dialogue about how much is enough to eat on any given day.
One dancer has reported that by the age of 18, she was tipping the scales at around 188 pounds. (For her height, she should have weighed 140-145.) This was not too bad for a normal college freshman, but she reported that it was devastating for a girl who had to spend her whole day standing in front of a mirror in pink tights (Warnecke, 2017, para. 2). At both her heaviest and her lightest, she felt she was doing a disservice to dance because she was focused on her appearance above the movement. The world is just beginning to recognize dancers as athletes, and she wished to impart to dancers of any age or size that it’s not about altering their bodies to fit dance, it’s about altering dance to fit their bodies.

Staying at a strong and a competitive weight requires frequent meals and snacks. When a dancer goes too long without eating or restricts energy (calorie) intake, the body is forced to find an alternative source of energy to keep the body and brain working. Negative energy balance is when someone burns more energy than is available in the system. In a state of negative energy balance, the body reduces the amount of tissue that requires energy such as muscle. It actually lowers the metabolic rate and breaks down muscle in order to turn the amino acids into fuel. So starving the body results in less muscle, lower metabolic rate, and higher percentage body fat. The dancer is also more fatigued and has less energy to work.

**Hydration and Weight Loss**

Water is essential for all dancers whether they are trying to lose a few pounds or not. Water is the only substance that can truly hydrate the human body fully and enable the right and left brain to communicate with each other. This is critical for the dancer’s mental alertness as well as his or her integration of technical corrections, critical thinking, and creative decision-making, which is a part of the dancer’s creative process. Water is the key to any weight loss program because “drinking water may promote weight loss by lowering total energy intake and/or altering metabolism” (Stookey, 2008, para. 1).

A dehydrated brain actually shrinks due to lack of water, and has to work harder to accomplish the same as a hydrated brain. In fact, the brain activates coping mechanisms to maintain function in extreme dehydration, though this can only last so long (Robinson, 2014). So if dehydration can have such negative effects on our bodies, how much water should dancers really be drinking each day? According to TED-Ed video notes 2.5 to 3.7 liters of water for men, and 2 to 2.7 liters of water for women, are recommended based on average body weight of each gender (Borelli, 2015).

**Body Assessments**

Before suggesting any nutritional strategies, it is important to first take body assessments of the entire dance troupe. Looking at the industry, it may be important to look at the norms for bodyweight and optimal performance. Research indicates that dance performers typically have a certain bodyweight and body fat. In the beginning of the training season, the dance educator should gather measurements of bodyweight, percentage of body fat, height, girth measurements, and even performance assessments on the dance athletes. This should be completed early in the training process to make comparisons before, during, and after a competitive dance season. It is important to assess muscular strength, muscular endurance, flexibility, and some measures of power as well.

These measurements are essential to monitoring whether the dance athlete is increasing in performance, and diet is critical in helping to reach these performance goals. At the beginning of the school year or performance season, a coach or educator could work with a certified personal trainer or performance coach in getting various body and performance assessments. From these body assessments and performance assessments, individual and team goals can be set for the entire competitive season.

**Caloric Needs**

Due to the various shapes and sizes of each dancer, the caloric needs for each dancer will vary. Also depending on the daily and weekly schedule, the caloric needs may vary from day to day. Dance educators need to look at each person on the team, and develop individual calorie goals for each performer.
Some immediate factors to consider are the dancers’ current bodyweight, percentage of body fat, performance goals, activity levels, and availability of nutrition (i.e., whether the person eats at home or in a campus facility). The availability of foods may be inconsistent, so food preparation and supplemental strategies may need to be introduced into the plan.

In planning calorie needs, the dance educator will need to also look at the frequency, intensity, and duration of the training regimen or performance schedule (Kang, 2012). Calorie needs could vary between 2000 and 4000 calories a day. Depending on how many performances take place in a day and how many practices each week, caloric intake may need to be increased.

On the other hand, when there are times of low dance participation, the calories would need to be adjusted so weight gain does not take place. Since lean bodyweight is crucial for the success of a dancer’s performance, careful attention must be given to optimal calorie consumption daily, weekly, and monthly. Similar to other sports that have weight requirements like wrestlers, figure skaters, and gymnasts, dancers need to keep accurate food records and maintain discipline in the area of nutrition.

The caloric strategies for dance performers are not fixed or stagnant as a pond, but vary like the tide in a sea. Caloric intake should rise and fall depending on the levels of daily and weekly activity. Demands for nutrition may be higher during the pre-competition period and during the competitive season. Attention must be paid to all facets of nutrition, such as macronutrients, fluid intake, meal timing, micronutrients, and possible supplementation. There are numerous equations and formulas on predicting caloric needs throughout the day.

### Harris-Benedict Equation

The Harris-Benedict equation is one of the most popular equations for determining energy needs by nutrition and health professionals (Frankenfield, Muth, & Rowe, 1998). This equation takes into account a person’s sex, age, height, weight and level of physical activity. The equation for males is: $66.5 + 13.8 \times \text{weight (in kg)} + 5 \times \text{height (in cm)}; 6.8 \times \text{age}$. The equation for females is: $655.1 + 9.6 \times \text{weight (in kg)} + 1.9 \times \text{height (in cm)}; 4.7 \times \text{age}$.

The following basal metabolic rate calculation method may also be used by trainers to determine minimum caloric needs.

#### Calculate Basal Metabolic Rate for Women

1. **Step 1:** Weigh yourself and measure your height.
2. **Step 2:** Multiply your weight in pounds by 4.35.
3. **Step 3:** Multiply your height in inches by 4.7.
4. **Step 4:** Multiply your age in years by 4.7.
5. **Step 5:** Add the numbers you got in steps 3 and 4 and subtract the number you got in step 2. Add the resulting number to 655 to get your basal metabolic rate. Your BMR equals the number of calories you burn each day through basic functions.

#### Calculate Basal Metabolic Rate for Men

1. **Step 1:** Weigh yourself and measure your height.
2. **Step 2:** Multiply your weight in pounds by 6.23.
3. **Step 3:** Multiply your height in inches by 12.7
4. **Step 4:** Multiply your age in years by 6.8.
5. **Step 5:** Add the numbers you got in steps 3 and 4 and subtract the number you got in step 2. Add the resulting number to 66 to get your basal metabolic rate.
Multiply BMR by Activity Factor

**Step 1:** Write down the average number of days per week on which you get aerobic exercise, or keep an exercise journal for a more accurate measurement.

**Step 2:** Multiply your BMR by 1.2 if you get little or no exercise. Multiply your BMI by 1.375 if you perform light exercise on one to three days each week. Multiply your BMR by 1.55 if you get moderate exercise on three to five days each week. Multiply your BMR by 1.725 if you get vigorous exercise on six to seven days each week. Multiply your BMR by 1.9 if you get vigorous exercise every day and sometimes twice a day.

**Step 3:** Round the number you got in step 2 to the nearest 50 calories. This number represents an estimate of the number of calories you should eat each day to maintain your weight. (Porter, 2017)

Carbohydrate Needs for Dancers

Carbohydrates are probably the most under-utilized nutrients used by athletes. Many athletes believe that consuming too many additional carbohydrates will make them bloated and fat. This may be the case, but the body needs a certain amount of carbohydrates for daily function and activity. Carbohydrates play a vital role in energy needs. Like other athletes and performers, daily requirements are somewhere between 45-65% of the daily needs. If a dancer, who in her own right is an athlete, is looking to lose body weight, then he or she can stay closer to the 45% recommendation, and replace this with a higher percentage of protein in the diet.

Carbohydrates come in several forms: simple, complex, and fibrous. The dance athlete needs a combination of all three to sustain a healthy amount of carbohydrates in her diet, and she will need them for a peak dance performance. In the education of dance performers it is also important to let them know that there are four calories per gram in each carbohydrate, which is the same as protein and a little less than half that of a gram of fat. Simple carbohydrates are monosaccharides and disaccharides, and they consist of glucose, fructose, and galactose.

Dancers need a steady flow of carbohydrates throughout the day to sustain energy levels and maximize performance. Dancers may perform over a two-to-three-hour period during an evening performance or even practice rehearsals. Dancers would benefit by having the more complex carbohydrates during larger meals, such as breakfast, lunch, and dinner. It is important to have simple carbohydrates before a performance and/or during the performance to keep a steady stream of carbohydrates in the body.

Based on a 2000 caloric diet, 45 to 65% of carbohydrates would be 900 to 1300 calories. When dividing this by four, this means that a person on a 2000 caloric diet would need 225-325 grams of carbohydrates. These carbohydrates need to be consumed throughout the day to cause an even distribution of energy throughout the dancer’s schedule.

Some dancers may shy away from carbohydrates due to the myth that carbohydrates are fattening. They may also be under the impression that additional carbohydrates are going to hinder their performance. It is not so much the carbohydrates themselves that cause one to gain weight, but the quantity and quality of carbohydrates that are consumed that cause weight gain. These differences in quality are often measured in terms of glycemic load, or the measurement of the actual carbohydrates in a food, which is arrived at by multiplying the food’s glycemic index by the number of grams of carbohydrate it contains divided by 100.

Carbohydrates are divided into low glycemic and high glycemic index categories. Those carbohydrates that cause an abrupt rise in blood glucose are called high glycemic carbohydrates. Carbohydrates that cause a slower rise in blood glucose are called low glycemic carbohydrates. For example, carrots have a glycemic index of 131; although this appears quite high, the carbohydrate content is only four grams, and so the glycemic load is only about 5 (131 x 4 /100 = 5.24). This explains why a carrot is
much better than a bagel in terms of glycemic load, which is a better indicator of a food’s effect on blood glucose than the glycemic index alone (Lockhart & Hager, 2018).

Examples of low glycemic carbohydrates are green vegetables, sweet potatoes, nuts, fruits, and various wheat based products. Examples of high glycemic carbohydrates are white breads, rice, white potatoes, corn, starch vegetables, candies, cookies, and ice cream. It is highly advised that athletes or dancers do not consume these high glycemic carbs.

It is important for dancers to measure calorie consumption, and also to measure how many carbohydrates are being consumed in any single meal. Dancers should generally consume low glycemic carbohydrates during major meals, and use high glycemic carbohydrates before and during a dance concert to peak energy levels.

**Protein Needs for Dancers**

The next area that needs attention is a dancer’s level of protein consumption. Proteins, like carbohydrates, consist of four calories per gram, and protein needs should be based on the dancer’s bodyweight. When looking at percentage of the diet, protein typically makes up 15 to 25% of the total calories of the diet. Since dancing is more of an anaerobic performance, protein recommendations should be similar to other anaerobic athletes. Bodybuilders and powerlifters consume large amounts of protein with the expectations of putting on more muscle for the training. The goal of a dancer would be to reserve already hard earned muscle, and perhaps - if weight gain is the goal - to gain more muscle.

The lowest level of protein that anyone should take in should be .8g/kg. The recommendation for power athletes is 1.6-1.7g/kg and with 2g/kg being the maximum for anyone. For example, if you have a 120 pound dancer and you want her to consume 1.6 grams/kg:

\[
120\text{lbs} \times 0.45 = 54\text{ kg}. \\
54 \times 1.6\text{ grams of protein} = 86\text{ grams of protein}
\]

The dancer would need 86 grams of protein in order to meet the 1.6g/kg goal. Protein needs definitely vary depending on the bodyweight of the dancer, and also vary depending on the activity level of the dancer. Some dancers fear they would look too bulky eating an abundance of protein. Gaining the magnitude of muscle similar to bodybuilders and powerlifters requires high intensity weight training, which is not part of most training for dancers. But in order to protect his or her physique, protein helps to sustain muscle and add additional muscle to prevent injuries from dance. Protein needs can be met through plant and animal sources. Some examples of animal sources of protein are eggs, chicken, turkey, tuna, fish, beef, milk, etc. Some of the plant sources of protein are almonds, sunflower seeds, lentils, kidney beans, hummus, tofu, and Boca burgers. It is better to consume protein from natural food choices than to use a supplement. Supplements are not FDA regulated, and there is no guarantee that one will be getting what is on the label. Protein supplements are often a poorer source of protein, and do not have all the amino acids needed to make complete protein. If the dancer is vegetarian, then closer attention needs to be given to meal preparation. Proteins often take longer to prepare, and will require the most attention in preserving freshness to ensure the safety of the food throughout the day.

**Fat Needs for Dancers**

The last macronutrient that needs consideration is fat intake of the dancer. Although a high fat diet may be associated with cardiovascular disease and high cholesterol, fat is a major nutrient that is needed and essential for many body functions (Kang, 2012).

Lipid is the chemical term often used to describe fats and oils. One gram of fat contains nine calories, and the recommendation for fat in the diet is 20 to 35%. Lipids are broken into fatty acids, triglycerides, phospholipids, and sterols. In the body and in foods, fatty acids are the main form of lipids (Kang, 2012).

Fatty acids are further divided into saturated and unsaturated fatty acids. The saturated fatty acids
are mainly found in animal meat and dairy products. Vegetable forms of saturated fats include palm oil, kernel oil, and coconut oil. Unsaturated fatty acids do not contain hydrogen, and they consist of monounsaturated fatty acids and polyunsaturated fatty acids. The most common unsaturated fatty acid in our diet would be oleic acid. The most common polyunsaturated fats are found in corn, safflower, and soybean oil.

For weight issues, the dancer needs to pay attention to fat intake in the diet as well as observing “hidden fats” she may not be aware that she is consuming. Most processed foods have hidden fats in them. Lipids play a vital role in providing insulation and protection to the body so consuming the healthy fats is critical. Although being lean is a goal of the dancer, it is important that she maintain fat in her diet and also a body fat percentage that is healthy for her performance and body functions.

Lipids or phospholipids make up cell membranes and they also insulate and protect nerves. Dancers should make sure that their foods produce satiety, and should add healthy fats to their daily regimen. Fats are important to include during the main courses, but should not be used right before the performance or during performance because of the intestinal distress they may cause.

**Nutrient Timing for Dancers**

The timing of nutrition is essential for optimal performance. An initial step in increasing the success of nutrition is to try to consume smaller meals throughout the day, and dancers should eat prior to, possibly during, and after recitals. The same practices used before performance should be used during practices and rehearsals so the body can get used to nutrient intake throughout the day.

For performance, it is essential to follow nutritional practices that will be used during the performance week during the week before the performance week. By using this strategy, dancers can make changes to hydration levels and food intake if they notice a deficiency in energy or dehydration. As mentioned above, protein is not a factor on the day of performance.

Protein should be included in breakfast, lunch, and dinner, but if it is a late performance, protein may be omitted to prevent its lasting in the gut without being burned. For example, if the dancer has chicken for dinner three hours before her performance, that chicken with its fat content may cause her to feel heavy. It may be best to have the last protein meal four to six hours before performance or practice. Protein can be included after performance in a post performance meal.

Fats should be also consumed normally throughout the day, but they should be lessened as the dancer gets near practice time and/or performance time. Fats also will remain longer in the digestive system, so like protein, one may need to refrain from them four to six hours before an event.

Carbohydrates play an important role in nutrient timing. Carbohydrates should normally be included during the three large meals, and simple carbohydrates can be used all the way up until performance or practice. Carbohydrate beverages like watered down Powerade® and Gatorade® may be sipped during intermissions in the performance to sustain carbohydrate levels. A post-performance meal should include complex carbohydrates more than simple carbohydrates.

**Conclusion**

Today, perhaps more than ever before, the challenges of a professional dance career require a performer and her trainers to approach every aspect of her conditioning just as seriously as any other athlete would. Her body is her instrument, and keeping that instrument capable of peak performance requires careful monitoring of eating and nutritional patterns. She must be aware of her total caloric intake, level of hydration, body assessment, total caloric needs, nutritional timing, and her needs for the ideal levels of carbohydrates, proteins, and fats in her diet. She and her teachers, coaches, and trainers must also keep informed as to the latest scientific data and understanding with respect to each of these aspects of her conditioning. Only then will she be able to perform to the best of her ability while keeping her risks of injury and sickness to a minimum.
References

Abrams, A. (2015, August 20). Raising a ballerina will cost you $100,000: The high price of training is keeping ballet’s top ranks from being more diverse. Retrieved from https://fivethirtyeight.com/features/high-price-of-ballet-diversity-misty-copeland/


The Impact of the Kenpa Dance Unit on Students’ Learning in Middle School Physical Education

By Yuji Ohnishi, MA, and Emi Tsuda, PhD, Biwako Seikei Sport College, Otsu City, Shiga Prefecture, Japan

Abstract

This study examined the impact of a nine-day Kenpa dance unit on students’ learning in middle school physical education. “Kenpa” is an old Japanese game which consists of rhythmic combinations of hopping and jumping using circles drawn by stones or chalk on the ground, similar to hopscotch in the United States. A total of 45 third-year students (9th grade in the U.S. education system) participated in the study from a public middle school. The students had physical education twice a week for 50 minutes. During the unit, the students developed their own step patterns using three dance elements including space, time, and flow (Laban, 1960) and presented their performance to their peers at the end of each lesson. Two assessments that examined the impact of the unit on students’ learning in physical education were: (a) the assessment of students’ interactive and cooperative behaviors in physical education (Komatsuzaki et al., 2001) and (b) the students’ attitude measurement in physical education (Takada et al., 2000). The students took the first assessment at the end of each lesson (i.e., a total of nine times) and the second one prior to and following the unit (i.e., pre-and posttest). Overall, the students demonstrated an improvement in interactive and cooperative behaviors across the unit and a positive change in attitude toward learning the psychomotor domain after receiving the nine-day dance unit.

Introduction

Three goals identified in Japanese course of study in physical education (Ministry of Education, Culture, Sports, Science and Technology-Japan [MEXT], 2008) are:

a. Students develop enjoyment and value of participating in sports/physical activities/exercises and acquire knowledge and competence for engaging in quality lifelong physical activities.

b. Students enhance fitness levels by engaging in the regular physical activity, which leads to harmonizing psychological and physical development.

c. Students learn to engage in fair play, teamwork, taking responsibility, and a positive attitude toward participating in sports/physical activities/exercise with recognition of health and safety.

The course of study identifies eight content areas to achieve these goals: basic movement skills, gymnastics, track and field, swimming, ball games, martial arts, dance, and theory of physical education (MEXT, 2008). Content-specific goals are identified in each content area.

Dance has been included as a required content area in the first (7th grade) and second (8th grade) middle school physical education since 1998 (Ohnishi, Mita, & Okade, 2016). The content-specific goals include developing enjoyment in physical education, teamwork, and a positive attitude toward
learning different movement styles (MEXT, 2008). Three categories of dance identified in the course of study are creative dance, folk dance (including Japanese traditional dance), and contemporary rhythmic dance (MEXT, 2008). Among these three categories, contemporary rhythmic dance is the most adopted dance category in physical education because of its popularity through broadcast and social media (e.g., YouTube) (Murata & Matsumoto, 2004). The course of study indicates that the content of contemporary rhythmic dance aims for students "to learn characteristics of rhythmic patterns, and to combine and perform various movements with rhythms using the entire body." Further, “various movements” in contemporary rhythmic dance are defined as clapping, foot stomping, skipping, hopping, jumping, kicking, walking, running, twisting, turning, rolling, shaking, and bending (MEXT, 2008). Teachers are allowed to teach those various movements using different types of dance, such as hip-hop, jazz, cheerleading (no stunts), and samba.

The popularity of rhythmic dance can be seen in the number of written documents including textbooks, books for practitioners, and research articles. Ohnishi, Mita, and Okade (2016) conducted a review of the literature and found 72 written documents. Among 72 documents, 22 of them were textbook and books for practitioners, and 50 of them were research articles. However, among 50 of the research articles, a majority of them are conducted in the elementary age-band and only six studies examined the middle school age range (Ohnishi et al., 2016). Furthermore, among those six studies, no study assessed students’ learning outcomes using valid and reliable measures regarding the goals identified in the course of study (Ohnishi, et al., 2016). As such, evidence-based studies examined the efficacy of contemporary rhythmic dance in middle school physical education are lacking. Considering its popularity, investigating the efficacy of rhythmic dance relative to the goals in the course of study using valid and reliable measures is essential.

Dance is a required content area in Japanese middle school physical education, but few teachers are specialized in dance, and many teachers do not have any experiences in dance (Matsumoto & Terada, 2013; Nakamura, 2009). Hence a common approach to teaching dance is having students imitate a preexisting choreography using video-clips without providing any instruction. This is problematic because students’ learning is limited without any instruction (Rink, 2012). Considering the lack of teachers’ experiences in dance and the feature of the contemporary rhythmic dance identified in the course of study, Kenpa could be an appropriate content to be adopted.

“Kenpa” is a traditional and popular Japanese game among children. It is similar to hopscotch in the United States. Kenpa consists of the rhythmic combinations of hopping and jumping using circles drawn on the ground by stones or chalk. Kenpa does not require specific equipment, and it is a fun activity which individuals or a group of people can be creative to develop their own performance without having advanced dance skills and/or knowledge bases. As such, Kenpa could be an effective content to adopt for teachers who have little knowledge and experiences in dance. However, no study has been conducted to examine the efficacy of this content to meet the goals of dance identified in the course of study (MEXT, 2008). The purpose of the study was to examine the efficacy of the Kenpa dance unit on Japanese students’ learning in middle school physical education.

**Method**

**Settings**

The study was conducted in two third-year middle school physical education classes (9th grade in the U.S. education system) in a public combined elementary and middle school located in a central city in the Western part of Japan. The school provides continuing education from elementary to middle school. While providing continuing education from elementary to middle school is common in private schools, it is a novel approach in a public-school system in Japan. Children whose parents strive to provide quality education for their children tend to enroll in this school. The 9th-grade students had 50-minute physical education twice a week. Although boys and girls have typically separate physical
education classes, both boys and girls participated in the same classes in the Kenpa dance unit. The study was implemented from the end of October to the middle of November.

Participants

A total of 45 third-year middle school students (9th grade in the U.S. system) were recruited from two classes (Class A \( n = 23 \) [boys = 12]; Class B \( n = 22 \) [boys = 12]). The students learned a Japanese traditional folk dance (i.e., Soran-Bushi) before the Kenpa dance unit. Female students also had learned contemporary rhythmic dance. The male teacher who taught the Kenpa dance unit was not specialized in dance, but rather was a middle school physical education teacher with ten years’ experience.

Kenpa Dance Unit

The Kenpa dance unit was taught as a nine-day unit. Students received a total of 450 minutes of instruction (50 minutes x 9 lessons). Each lesson included three critical components to facilitate students’ affective learning outcomes: (a) a discussion with group members, (b) learning dance steps and practicing those steps, and (c) developing and presenting their own routines. All activities in the unit were implemented with a group of two to five students to facilitate students’ interactions.

According to Kumatani (2011), a relationship among group members is one of the critical factors influencing students’ learning in dance in physical education. Thus, letting students determine their group members at the beginning of a unit to have them work with their peers is recommended to facilitate students’ engagement in a unit (Kumatani, 2011). Hence, in the Kenpa dance unit, the teacher let students determine their group members—boys and girls were in separate groups—in the first lesson. In the rest of the unit, the teacher determined group memberships in which boys and girls were combined, based on the dynamics of the groups seen in the first lesson.

A typical lesson was structured with four critical components: (a) warm-up exercises with music, (b) introduction of the lesson using video clips, (c) working on primary tasks of the lesson, and (d) presenting their routines to the class.

a. **Warm-up exercises with music (5min):** Students typically engaged in different types of stretching for different body parts along with music (e.g., legs, trunk, arms, neck, and wrists).

b. **Introduction of the lesson using video-clips (5min):** Video clips were used to introduce the purpose of the lesson. The examples of video clips were famous artist’s music clips and TV commercials to attract students’ interest.

c. **Working on primary tasks of the lesson (30min):** Students worked on the primary tasks to achieve the goals of the lesson.

d. **Presenting their routines to the class (10min):** Students presented routines that they developed in the lesson with their peers.

The descriptions of the unit including goals and activities for each lesson are indicated in Table 1.

Instruments and Procedures

Two questionnaires were used to examine the efficacy of the unit on students’ learning outcomes. They were (1) the assessment of students’ interactive and cooperative behaviors in physical education (Komatsuzaki, Yonemura, Miyake, Hasegawa, & Takahashi, 2001) and (2) the students’ attitude measurement in physical education (Takada, Okazawa, & Takahashi, 2000).

Assessment of Students’ Interactive and Cooperative Behaviors in Physical Education

The assessment is a valid and reliable formative measurement that examined the effectiveness of the unit on developing students’ interactive and cooperative behaviors (Komatsuzaki et al., 2001; see
Figure 1). The assessment consists of five factors using the three-point Likert scale (Yes, Neutral, and No). Each factor consists of two questions (a total of 10 questions). The five factors are (a) cooperative achievement (Q. 1 & 2), (b) cooperative thinking (Q. 3 & 4), (c) positive interaction with teammates (Q. 5 & 6), (d) relationship with teammates (Q. 7 & 8) and (e) motive for collaborative activities (Q. 9 &10). The average of the two questions was calculated for each factor. The criterion score 2.5 was set to demonstrate the effectiveness of physical education lessons to develop the area of the outcomes (i.e., students’ interactive and cooperative behaviors (Komatsuzaki & Takahashi, 2003). The assessment was implemented after each lesson across the unit (a total of nine times). The data were analyzed for each factor, respectively. Cronbach’s alpha reported that reliability coefficient for the formative assessment was .75.

<table>
<thead>
<tr>
<th>Lesson</th>
<th>Objectives</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction of the unit.</td>
<td>Explain goals and contents of the Kenpa dance unit. Learn different rhythms using Kenpa steps. Challenge “Running man” (a fundamental dance steps).</td>
</tr>
<tr>
<td>2</td>
<td>Create your own steps along with the music.</td>
<td>Learn steps of a Kenpa dance. Create a four-step sequence with Kenpa steps with a tentative group of four students. Create and perform eight dance steps with a group of four to five.</td>
</tr>
<tr>
<td>3</td>
<td>Learn and use the element of space and add it to your dance steps.</td>
<td>Learn the element of space (direction) in dance. Add the element of space in the eight steps performed in the second lesson with a group.</td>
</tr>
<tr>
<td>4</td>
<td>Learn and use the element of time and add it to your dance steps.</td>
<td>Learn the element of time (rhythm pattern) in dance. Add the element of time in the eight steps performed in the third lesson with a group.</td>
</tr>
<tr>
<td>5</td>
<td>Learn and use the elements of effort and add it to your dance steps.</td>
<td>Learn the elements of flow (sharp and smooth). Add the element of effort in the eight steps performed in the fourth lesson with a group.</td>
</tr>
<tr>
<td>6</td>
<td>Learn and use the element of flow and add it to your dance steps.</td>
<td>Review the element of flow (sharp and smooth). Practice the eight steps dance with the element of effort in the fifth lesson with a group.</td>
</tr>
<tr>
<td>7</td>
<td>Learn and use new steps and combine those steps with your dance steps.</td>
<td>Learn new steps (e.g., smurfs, slide, and popcorn). Combine new steps and create 16-count dance step sequence, then practice it with a group.</td>
</tr>
<tr>
<td>8</td>
<td>Add formations and construction of the dance and dance with rhythm.</td>
<td>Review new 16-count step sequence. Create a 16-count step routine using the steps learned from the first to the sixth lessons adding formations and new steps with a group.</td>
</tr>
<tr>
<td>9</td>
<td>Complete your dance work and present it.</td>
<td>Finalize your dance work and practice it. Present it in class.</td>
</tr>
</tbody>
</table>

Table 1

Description of the nine-day Kenpa dance unit
Students’ Attitude Measurement in Physical Education

The students’ attitude measurement in physical education (Takada et al., 2000) investigated the impact of the unit on students’ perception toward learning in physical education. The measurement consists of 20 questions, and each learning domain consisted of five questions (Takada, Okazawa & Takahashi, 1999): (a) the attitude toward learning affective domain, (b) the attitude toward learning psychomotor domain, (c) the attitude toward learning cognitive domain, and (d) the attitude toward learning social behavior domain. This assessment was implemented prior to (pretest) and following the unit (posttest). The measurement used a three-point Likert scale (Yes, Neutral, and No), and the average of five questions was calculated for each of four domains. Cronbach’s alpha reported the reliability coefficient for the formative assessment was .83.

Data Analysis

The results of the assessment of students’ interactive and cooperative behaviors in physical education were analyzed using descriptive statistics. The separate analyses were conducted for each class. The results of the students’ attitude measurement in physical education were analyzed to examine the changes from the pre-to-posttest using SPSS ver. 23. In the first step, the one-sample t-tests analyzed at the domain level, and in the second step, the one-sample t-tests were run at the individual question level. The analyses were executed for a combined data of Class A and B.

Results and Discussion

Perceptions Toward Developing Interactive and Cooperative Behaviors Improved

Class A Results. The results of the formative assessment in Class A are reported in Figure 1. In all five factors (cooperative achievement, cooperative thinking, positive interaction with teammates, relationship with teammates, and motive for collaborative activities), the students scored above the 2.5 criterion even on the first day of the lesson (ranged 2.55-2.86). The results slightly increased as the unit progressed; on the last day of the unit, students scored above 2.9 in all five factors (range 2.93-3.00). However, one factor, cooperative achievement, was marked as 2.4 in the seventh lesson, which was below the 2.5 criterion. It was hypothesized that the content in this lesson, “learning new steps and combining those steps to dance,” was an advanced content lesson that challenged students’ ability to achieve success.

In addition, not only was the content challenging, but there was also not enough time for students to practice it. In this lesson, the students were expected to choose some steps from six new steps and create choreography for 16 counts. The content may have been too difficult for the students to complete in a limited amount of time (15 minutes out of 50 minutes were used to complete the task of choosing steps and creating a choreography). However, in the next lesson (the eighth lesson), the students learned how to change the formation and reviewed choreography learned in the seventh lesson. Thus, the students had more time to practice the same steps as the previous lesson. Consequently, the result of the cooperative achievement went back to above the 2.5 criterion (2.84).

Class B Results. The results of the formative assessment in Class B are reported in Figure 2. Similar to the results of Class A, in all five factors (cooperative achievement, cooperative thinking, positive interaction with teammates, relationship with teammates, and motive for collaborative activities), the scores were above the 2.5 criterion on the first day of the lesson (range 2.51-2.81). The results slightly increased as the unit progressed; on the last day of the unit, students scored above 2.9 in all five factors (range 2.85-2.95). The result of the cooperative achievement in the fifth lesson was slightly lower (2.74) compared to the same factor in other periods (above 2.8). The learning task in the fifth lesson was “adding the element of effort and modifying your steps.” The teacher intended to show movements using video clips to have the students recognize and understand the importance of using the
Figure 1. Changes in the Assessment of Students’ Interactive and Cooperative Behaviors in Physical Education in Class A (n=23).

Figure 2. Changes in the Assessment of Students’ Interactive and Cooperative Behaviors in Physical Education in Class B (n=22).
entire body to perform the steps and using the concept of flow (smooth and sharp) (Laban, 1960, pp. 99-100). However, too much time was used to watch the video clips and discuss it at the beginning of the lesson. Consequently, not enough time (i.e., 15 minutes) was left for the students to practice those movements. This might have impacted this low score in the factor of cooperative achievement. Additionally, the concept of effort might have been too abstract for students to fully understand.

**Students’ Attitude toward Learning Four Domains**

The second measurement examined students’ attitude toward learning four domains: (a) the affective domain, (b) the psychomotor domain, (c) the cognitive domain, and (d) the social behavior domain. The analyses were executed using the combined data of Class A and B (see Table 2).

<table>
<thead>
<tr>
<th>Table 2</th>
<th>The pre- and posttest results of the students’ attitude measurement in physical education (n=38)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Contents</strong></td>
<td><strong>Pretest</strong></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>Attitude in the affective domain</strong></td>
<td>2.62 0.31</td>
</tr>
<tr>
<td>Q3</td>
<td>Enjoyment</td>
</tr>
<tr>
<td>Q5</td>
<td>Value</td>
</tr>
<tr>
<td>Q12</td>
<td>Effort</td>
</tr>
<tr>
<td>Q8</td>
<td>Positive learning environment</td>
</tr>
<tr>
<td>Q16</td>
<td>Satisfaction</td>
</tr>
<tr>
<td><strong>Attitude in the psychomotor domain</strong></td>
<td>2.18 0.51</td>
</tr>
<tr>
<td>Q2</td>
<td>Skill development</td>
</tr>
<tr>
<td>Q7</td>
<td>Confidence</td>
</tr>
<tr>
<td>Q11</td>
<td>Perceived motor competence</td>
</tr>
<tr>
<td>Q13</td>
<td>Active participation</td>
</tr>
<tr>
<td>Q17</td>
<td>Motive to learn</td>
</tr>
<tr>
<td><strong>Attitude in the cognitive domain</strong></td>
<td>2.59 0.35</td>
</tr>
<tr>
<td>Q9</td>
<td>Working with peers</td>
</tr>
<tr>
<td>Q6</td>
<td>Planning strategies</td>
</tr>
<tr>
<td>Q10</td>
<td>Learning from peers</td>
</tr>
<tr>
<td>Q15</td>
<td>Receiving support</td>
</tr>
<tr>
<td>Q20</td>
<td>Active discussion involvement</td>
</tr>
<tr>
<td><strong>Attitude in the social behavior domain</strong></td>
<td>2.82 0.26</td>
</tr>
<tr>
<td>Q4</td>
<td>Following game rules</td>
</tr>
<tr>
<td>Q18</td>
<td>Stop being selfish</td>
</tr>
<tr>
<td>Q1</td>
<td>Honesty</td>
</tr>
<tr>
<td>Q14</td>
<td>Accepting win or lose</td>
</tr>
<tr>
<td>Q19</td>
<td>Following class rules</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>51.05 4.98</strong></td>
</tr>
</tbody>
</table>
The attitude toward learning the affective domain. Overall, students scored above 2.5 out of 3 in all five questions in this domain at the pretest, and thus, students had positive perceptions in the attitude toward learning the affective domain in physical education before they started the unit. After the unit, no statistically significant improvement was demonstrated. At the individual question level, a significant improvement was found in the one question asking about positive learning environment (Q.8). This might have been because each lesson was organized in a way to work as a group, and obtaining group cooperation was essential to completing the tasks across the unit.

The attitude toward learning the psychomotor domain. The results of the attitude toward learning the psychomotor domain were the lowest among four domains at the pretest (2.18). Further, in the question of perceived motor competence, students scored the lowest among 20 questions (1.58), which was the only one question scored below 2.0. These results indicate that students exhibited low levels of the attitude toward learning the psychomotor domain. After the unit, a statistically significant improvement was seen in the domain level, which was the only domain to show significant change. In the individual question level, significant differences were seen in two questions relative to the confidence of skill improvement (Q.7.) and perceived motor competence (Q.11). These findings indicate that the Kenpa unit successfully developed students' attitude toward learning the psychomotor domain. However, it is important to note that the score of the attitude toward learning the psychomotor domain was still the lowest among the four domains on the posttest.

The attitude toward learning the cognitive domain. In the attitude toward learning the cognitive domain, the students scored 2.59 at the pretest. In the individual question level, all the questions, except one, scored above 2.5 at the pretest; the students scored 2.18 on the question of active discussion involvement (Q.20). After completing the unit, a statistically significant improvement was found in the question of active discussion involvement. This might be because classes were structured in the way that it was essential for everyone to discuss as a group to complete the tasks. Furthermore, the sizes of the group were small (three to four students per group), and this may have provided opportunities for all the members of a group to engage in discussions.

The attitude toward learning the social behavior domain. The pretest result in the social behavior domain was the highest across the five domains (2.82). Further, in all questions in the domain, students scored above 2.5 at the pretest. The study school was a public school providing continued education from elementary to middle school. After receiving the unit, no significant improvement was observed at the domain level and the individual question level. Considering that the students scored high on the pretest, it was not surprising that no improvement was observed. There was little room left for the students to improve their scores at the posttest (i.e., there was a ceiling effect of the assessment). Collectively, the results of the attitude measurement in physical education demonstrated that the Kenpa unit was effective to improve students' perceptions in the attitude toward learning the psychomotor learning domain and some affective and cognitive learning domains.

There are two major limitations in this study. First, both assessments of students' learning demonstrated the ceiling effect. From the day one of the unit, students scored above 2.5 out of 3 points in many of the elements. Although the assessments were valid and reliable, developing assessments that are more sensitive to detect students' changes are essential. Second, the assessments used in the current study evaluated students' self-perceived attitudes toward physical education; there is no data on their actual performance. This limits the interpretation of the findings. Third, the number of the participants was small. Replicating the study with a bigger sample size is needed for generalizing the findings.
Conclusion

The purpose of the study was to examine the efficacy of the nine-day Kenpa dance unit in middle school physical education on students’ learning outcomes. The results showed that the nine-day Kenpa dance unit effectively increased interactive and cooperative behaviors among middle school students. In addition, the unit positively improved students’ attitudes toward learning within the psychomotor domain. However, it is important to consider the levels of difficulty of the tasks and available time for tasks in the future studies. In conclusion, the Kenpa unit was found to be an effective dance unit to improve students’ attitude toward learning physical education among middle school students.

References


Matsumoto, N., & Terada, J., (2013). The present situation and teacher’s under-conscious problems in dance area at junior high school in Japan during era man and women taking dance; focused in-service seminar reports PE teacher’s descriptions at Akita prefecture. The Memoirs of Faculty of Education and Human Studies, Akita University, 68, 25-34.


Nakamura, K., (2009). A research on the transition of the dance curriculum in junior high schools which obey the new guideline for physical education as compulsory and coeducational. Research of JAPEW, 26, 1-16.


Congratulations to our 2018 National Dance Society Award Recipients!

Be it pedagogy, advocacy, or promotion of dance, NDS members make important contributions to the discipline. The following awards recognize these contributions and encourage members to make nominations during the nomination period.

2018 NDS Award Recipients include the following categories:

- BJ Santos-P-12 Master Dance Educator of the Year in Physical Education
- Dr. Judy Patterson Wright-Dance Scholar Award 2018
- Society of State Leaders of Health and Physical Education-Dance Advocate Award 2018
- Ami Crist-Undergraduate Dance Excellence Award 2018
- Inez Howard-Dance Legacy Award 2018

P-12 Master Dance Educator of the Year in Physical Education 2018

BJ Santos

After naming her “Bette Jean” (no middle name), her mother decided to call her BJ. She teaches at a non-traditional Charter School campus – Murray High School and Community Public Charter School, in Albemarle County, Virginia. She received a BS in Health and Physical Education from the University of Virginia (Go Hoos!) and received an MS in Exercise Science from James Madison University (Go Dukes!). She has been a group exercise instructor since Jane Fonda wore legwarmers. Her most significant accomplishments involve her work at Murray High School; she has created a culture of physical activity and a safe learning environment for at risk students there. She is an active member of VAHPERD, having served as physical education chair and dance vice president, and is currently on the Awards Committee. She was awarded VAHPERD PE Teacher of the Year (2006) and VAHPERD and SHAPE Southern District Dance Educator of the year (2016, 2017). She was awarded two Golden Apple awards, which are regional community generated awards for excellence in teaching (2004, 2017). She was awarded the National Dance Society Ovation Award in 2017. She is a founding member of the National Dance Society, has served on the Awards Committee for two years, and is currently a member of the Dance Standards Writing Committee.
Dance Scholar Award 2018

Dr. Judy Patterson Wright

Judy Patterson Wright earned her PhD in 1981 in motor learning and motor development from the University of Illinois, Urbana-Champaign, where she focused on the learning process for sequential dance skills and how teachers may facilitate the learning process. She is an accomplished dancer and educator who has taught social dance at the junior high, high school, college, and community levels since 1971. Dr. Wright’s dance experience included tap, jazz, modern, ballet, social, folk, square, country Western, line, and aerobic dance. She specializes in ballroom, social, and line dance, in which she has extensive experience as a competitor, author, and instructor. She has taught 18 years at the college level at Walsh College in Ohio, the University of Illinois at Urbana-Champaign, the University of Tennessee at Chattanooga, Richland Community College in Illinois, and the Wright Way Dance Studio, which she co-owns.

In a career spanning 23 years as an acquisitions editor for Human Kinetics, Dr. Wright created the format for the Steps to Success Activity Series (of which her book, Social Dance, is a part) and pioneered over 125 books related to dance and exercise while remaining active in the dance community. Dr. Wright and her husband placed second overall in the UCWDC Silver Advanced Showcase Division at the world’s finals in both 1996 and 1997. They are the World’s 2009 UCWDC Couples Gold Combined Overall Champion. As Editor-in-Chief, she developed guidelines and coordinated the manuscript flow process for the first two volumes of the National Dance Society Journal.

Dance Advocate Award 2018

Society of State Leaders of Health and Physical Education

The Society of State Leaders of Health and Physical Education (Society) is a professional association whose primary members work in departments of education across the country. They supervise and coordinate programs in health, physical education, and related fields of the Whole School, Whole Community, Whole Child (WSCC) framework. Initially founded in 1926, the organization has a strong tradition of providing leadership at the state and national levels. Over the years, the Society actively participated with numerous national education, health, physical activity, and physical education organizations. The Society has also partnered with Federal agencies to support meaningful programming at the state, school district, and local levels. Some of the organizations include the former AAHE and NASPE, as well as ASCD, National Education Association, National Association of Directors of Chronic Disease Directors, and Active Schools. Some of the Federal agencies include the CDC’s Division of Adolescent Health and the School Health Branch; Health Resources and Services Administration’s, Maternal and Child Health Bureau and Stop Bullying Now! The Society is positioned to continue its leadership role to ensure that the nation’s children and youth receive the most effective education possible that will enable them to lead healthy, active, and productive lives. In the early to mid-2000s, the Society offered workshop
sessions at its Annual Meeting on strategies for building and strengthening dance education within the school curriculum. In 2016, the Society added to its long list of partner organizations the National Dance Society with a signed Memorandum of Agreement to work more closely on projects.

Undergraduate Dance Excellence Award

Ami Crist

Ms. Ami Crist is in the class of 2018 at Washington College in Chestertown, Maryland, and ever since her mom signed her up for her first class, she has not stopped dancing (even for a sprained ankle). Some of her best memories of dance have been with her mentor, Ms. Gloria Lang, whose impact on her dance career has been the most rewarding. It was she who directed Ms. Crist’s mainly adolescent troupe in a performance alongside Moscow Ballet’s company at the annual The Great Russian Nutcracker.

Ms. Crist considers herself lucky enough to have continued working with Ms. Lang all four years in Mercy High School’s dance troupe, which was voted the best high school level program in Baltimore. Dancing with the troupe enabled her to earn outstanding contribution awards all four years and the honor of the Adele and Felix Zajac Scholarship in her junior year. This award is dedicated to Ms. Lang’s parents.

At Washington College, Ami quickly joined the dance club and National Society of Dance, first under Nu Delta Alpha and then Delta Eta Pi. The dance honor society was a way in which she could give back a love of dance through community service first as a member, and now as the president. Though she strives towards a new future practicing medicine, the lessons of self-discipline, perseverance, and expectations of excellence that she learned through dance will stay with her even outside the studio walls in whatever challenge she is handed next.

Dance Legacy Award 2018

Inez Howard

Inez Howard is a native of Camden, South Carolina. She earned her Bachelor of Science degree in Health and Physical Education from North Carolina Central University in Durham, North Carolina and the Master’s Degree in Dance Education from Columbia University.

She completed further study in Dance at the University of Tennessee and American University. After forty years of service, she retired as an Associate Professor in the Department of Health, Physical Education and Exercise Science at Norfolk State University (NSU). Along with her teaching responsibilities at the university, she celebrated forty years as Director of the Norfolk State University Dance Theatre. From its inception, she served as the Director of the “Spartan Legion Marching Band Dance Live – Hot Ice” performance team. In her efforts to further the education of dance for young people in area schools and the immediate community around NSU, she initiated the Norfolk State University High School Dance Festival, The Urban Dance Academy, Liturgical Dance Workshops and nationally, the Black College Dance Exchange.

Mrs. Howard is widely known for her work with the Presentation of Debutantes sponsored by local professional groups, where young ladies are presented to society.

Among her many honors and awards are: Professor Emeritus, NSU; Outstanding Contributions to Theatre, Virginia’s College/University Dance Teacher of the Year; Keeper of the Flames, Woman of Excellence in the Arts; “Mouse-car” Award (a Walt Disney Award for Excellence in Dance); Attucks Theater Honors, Hampton Roads African American Sports Hall of Fame, NAACP Excellence in Education, Time Keeper of the Flame- A Legacy in Dance Award, and the YMCA Service to Youth Award.
Creative thinking is at the core of 21st century learning and as a dance educator, you are a key driver of creativity in your school. Delta Eta Pi, the NDS dance honor society, encourages academic excellence, dance technique, choreography, scholarship, and service to the community.

Starting a Delta Eta Pi chapter will amplify the innovation, skills, scholarship, and value that your dance program brings to your school.

Find out more at www.nationaldancesociety.org
Author Guidelines for NDSJ Submissions

National Dance Society Journal

Teachers Promoting Quality Dance for All

Manuscript Type

The National Dance Society Journal (NDSJ) is a peer-reviewed journal that publishes original reports of empirical studies, literature reviews, theoretical articles, applied research, methodological articles, case studies, and invited targeted articles. Manuscripts are accepted from National Dance Society (NDS) members and partner organization members: manuscripts may be co-authors provided that at least one co-author is an NDS member.

Style

In preparing manuscripts for publication in NDSJ, authors must closely follow the Publication Manual of the American Psychological Association (6th ed., 2010) for formats of numbers and measurement units, and all other style matters, including capitalization, punctuation, references, and citations (also see www.apastyle.org). However, Human Kinetics (the publisher) uses some in-house style requirements that modify APA slightly, which will be identified where appropriate.

Writing should be concise and direct. Communicate ideas using a “how-to” approach. Avoid unnecessary jargon and abbreviations, but if the spelled-out version of a title or term is cumbersome, an acronym or abbreviation can be used after the first reference of the full title or word. Avoid abbreviations in the title. Generally, manuscript lengths range between 5 and 15 double-spaced pages.

Submission

Authors should submit manuscripts electronically as a Microsoft Word or rich text (*.rtf) format. Do not submit the manuscript in a .pdf file. All submissions will be acknowledged within two weeks and given early feedback. Send inquiries to Nancy Kane: editor@nationaldancesociety.org.

Before submitting, authors should complete the Manuscript Submission Checklist (see below). Authors may be asked to provide photo-ready graphics and/or hard copy of the text. Authors are responsible for confirming the accuracy of the final copy, particularly the accuracy of references, and to retain a duplicate copy to guard against loss. Final review of the pre-published text is the responsibility of the authors.

Manuscript Review

Manuscripts are initially screened and reviewed by the Editor-in-Chief. Once deemed within the editorial focus for the NDSJ, each submission will be assigned an article number and guided through the editorial stages. Manuscripts will be peer-reviewed by 1-2 editorial review board members via a blind-review process. Manuscripts may not be submitted to another journal at the same time. Authors of manuscripts accepted for publication must sign a Transfer of Copyright to NDS.

Cover Letter

Authors should include a separate cover letter that lists (1) the title of the manuscript, (2) the date of submission, (3) the full names of all the authors, their degrees, their institutional or corporate affiliations, and (4) a statement that the manuscript has not been previously published (except in abstract form), is not presently under consideration by another journal, and will not be submitted to another
journal before a final editorial decision from NDSJ is rendered, and (5) the name of the primary contact person and complete contact information for correspondence.

Title Page

The manuscript must include a title page that provides the full title, a brief running head, three to five key words not used in the title of the manuscript, abstract word count, manuscript word count (inclusive of all pages except the abstract and the title page), and date of manuscript submission. Do not include author names on the title page. After the separate cover letter, the order of submission must be (1) title page, (2) Abstract, (3) Text, (4) Acknowledgments and/or Funding source, (5) References, (6) Tables, as appropriate, (7) Figure captions, (8) Figures/Graphics/Photographs

Text

The entire manuscript must be double-spaced, including the abstract, heads, text, references, and tables. Use a Times New Roman font and 12-point type with a minimum of one-inch margins. In Word, select Layout view then click number lines to add line numbers in the left margin. Align the text to the left margin, leaving a “ragged” right margin. Indent the first line of every paragraph. Center and boldface major heads with upper-lower case. Place subheads flush left and boldface with upper-lower case. If a third level head is needed, indent, boldface, initial cap first word then lower case as a paragraph heading ending with a period. A brief running head is to be included on the upper right corner of each page, and page numbers must appear on the bottom right corner of each page. In particular, Human Kinetics prefers a single space after each period (NOTE: this is a modification from APA’s style preference of two spaces after each period).

References

All material cited in text should be in the reference list. For formatting reference lists, follow the guidelines found in the Publication Manual of the American Psychological Association (6th ed., 2010), with one exception, do not indent second or third lines of the reference, for example:

Journal and magazine articles. Author, X., & Author, Y. (Year). Title of article. Journal Name Volume, (Number), XXX-XXX.


In text. Cite the Author, publication date in parentheses, e.g., (Jones, 2013). Or, with non-print sources, include a location, e.g., (Smith, n.d., para.1).

Figures and Photos

If figures are included, each figure must be numbered in consecutive numerical order according to the order of appearance in the manuscript. A figure should have a caption that is brief and self-explanatory, and that defines all nonstandard abbreviations used in the figure. Captions must be listed separately, on a page by themselves; however, each figure must be clearly identified (numbered), preferably as part of its filename.

Artwork should be professional in appearance and have clean, crisp lines. Hand drawing and hand lettering are not acceptable. Figures may use color. Shades of gray do not reproduce well and should not be used in charts and figures. Instead, stripe patterns, stippling, or solids (black or white) are good choices for shading. Line art should be saved at a resolution of 600 dots per inch (dpi) in JPEG or TIFF format. Photographic images can be submitted if they are saved in JPEG or TIFF format at a resolution of 300 dpi. Any figures or photos from a source not original to the author must be accompanied by a statement from the copyright holder giving the author permission to publish it, and the source and copyright holder must be credited in the manuscript.
Tables

When tabular material is necessary, it should not duplicate the text. Tables must be formatted using Microsoft Word's table-building functions. Do not use spaces or tabs in your tables as it creates problems when the table is typeset and may result in errors as shifting of columns may occur. Tables should be single-spaced on separate pages and include their brief titles. Explanatory notes are to be presented in footnotes, below the table. The size and complexity of a table should be determined with consideration for its legibility and ability to fit the printed page.

Manuscript Submission Checklist

Before submitting a first, or revised manuscript, the following criteria must be met:

- All sections are double-spaced with Times New Roman font and 12-point type
- Line numbers appear in left margin
- Page numbers appear in bottom right corner
- Brief running head appears in upper right corner
- Title page does not include author names or affiliations
- Title page lists three to five key words not used in the title of the manuscript
- Title page lists the abstract’s total word count, which should be no more than 250 words
- Typically, fewer than 5 tables/figures/photos, or more, if appropriate
- References are formatted according to guidelines found in the Publication Manual of the American Psychological Association (6th ed., 2010) without indenting second and third lines

Credits

Editor-in-Chief
Nancy Kane, PhD

Associate Editor
Sandy Weeks, PhD

NDS Executive Committee

Executive Director/Past President
Fran Anthony Meyer, PhD, CHES

President
Christine S. Bergeron

President-Elect
John Fracchia

Editorial Review Board

Lynne Edmondson, PhD
Ami Takisawa Haldeman, BA
Gladys Keeton, MEd
Mary Ann Laverty, PhD
Lisa Lewis, EdD
Jenee Marquis, PhD
Fran Anthony Meyer, PhD, CHES
Hannah Park, PhD
Meredith Sims, PhD
Karen Lynn Smith, MA
Katherine van den Heuvel, DPT
Sheila A. Ward, PhD
Judy Patterson Wright, PhD
Human Kinetics’ Interactive Dance Series includes *Beginning Tap Dance, Beginning Ballet, Beginning Modern Dance, Beginning Jazz Dance, Beginning Musical Theatre Dance, and Beginning Hip-Hop Dance*. These titles are the traditional dance courses taught through dance, physical education, and fine arts departments for general education students, dance majors, and minors. Each student-friendly text includes a web resource offering video clips of dance instruction, learning aides, assignments, and activities. The Interactive Dance Series offers students a guide to learning, performing, and viewing dance.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Beginning Tap Dance</em></td>
<td>Lisa Lewis</td>
<td></td>
</tr>
<tr>
<td><em>Beginning Ballet</em></td>
<td>Gayle Kassing</td>
<td></td>
</tr>
<tr>
<td><em>Beginning Modern Dance</em></td>
<td>Miriam Giguerre</td>
<td></td>
</tr>
<tr>
<td><em>Beginning Jazz Dance</em></td>
<td>James Rely</td>
<td></td>
</tr>
<tr>
<td><em>Beginning Musical Theatre Dance</em></td>
<td>Diane Dort Harris</td>
<td></td>
</tr>
<tr>
<td><em>Beginning Hip-Hop Dance</em></td>
<td>E. Mongell Durden</td>
<td></td>
</tr>
</tbody>
</table>
