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# What Are The Overall Benefits of Dance Improvisation, and How Do They Affect Cognition and Creativity?

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# **What Are The Overall Benefits of Dance Improvisation, and How Do They Affect Cognition and Creativity?**

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Presenting: May 7<sup>th</sup>, Graduating: May 22<sup>nd</sup>

## **Advisor Approval Page**

## **Abstract**

The purpose of this thesis is to define the terms improvisation, cognition, and creativity, and therefore find the direct correlation between all three, and how they can all be involved within dance. The main intention is to determine whether or not improvisational dance can positively influence one's creative mindset, thus improving the cognitive learning process. Furthermore, it is to discover if the development of a creative mindset can be established through dance improvisation at an early age. In this exploration, the majority of my research will come from the examination of previously conducted experiments, as well as guiding and observing an improvisation class of young adults, gaining insight simply from a dance teacher's perspective in order to explore the idea of cognition leading to creativity through movement. In addition to the bulk of my research, I will also take a look at a class of younger students when attempting to answer the sub questions proposed, regarding the similarities within the correlation of dance improvisation and cognition, based upon different age ranges. Constructed from gathered sources, as well as my own personal explorations, research has found that there is a direct positive correlation between improvisational dance and the development of creativity, primarily due to the cognitive comprehension, retention and exploration capabilities improvisation provides for the mind. The enhancement of creativity allows for the mind to discover new and unfamiliar information that furthers one's knowledge. This idea of creativity and the thinking/learning process stems further than just simply within the dance and arts realm. It can be influential within any part of society and can heighten the level of thinking and learning, as we know it.

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## **Introduction**

Improvisation is described as the art or act of creating and executing something without previous preparation. Within dance, improvisation is used for a multitude of reasons, ranging from the creation of choreography to simply releasing energy and emotion while spontaneously moving. The art of improvisation allows the mind to think, but not overanalyze what motions the body is producing. There is a comfortable balance between the mind's conscious awareness and the body's impulsive act. This balance allows for the production of creative movement that still has a purpose and stems from an original thought.

Cognitive thinking is a psychological term that refers to the use of mental skills and actions in order to perform tasks such as learning, understanding, remembering, reasoning, etc. (Learning Rx). It is based upon the thinking process that creativity can be established as well as transcended from the mind to the body. Similarly to how improvisation is original yet purposeful, creativity is unique to the mind, and launches meaningful new ideas. Cognition and the general learning process begins at an early age. Starting at just two years old, children are constantly learning due to their developing attention skills, and therefore acquire the early stages of their short and long term memories. With this in mind, the idea that a child's imagination serves as a laboratory for their creativity to develop and grow is established and furthers the idea that a child's creative thinking process begins just as early as the child's everyday thinking process.

This paper addresses the correlation between dance improvisation and the mind's thinking/learning process through cognition. It proposes the idea that dance improvisation advances the process and therefore allows for an expansion of the creative mindset. The primary

research question under examination is: What are the overall benefits of dance improvisation, and how do they affect cognition and creativity? This idea is primarily explored with young adults, although it is further explored with young children and proposes the sub questions: Are there similarities within the correlation of dance improvisation and cognition, based upon different age ranges? Furthermore, based upon the results of the research, should activities such as dance improvisation be implemented into primary education for children's benefits? This is simply an exploratory look into dance improvisation and the effects it has upon its participants. There has been previous research completed, though this paper has been written with the understanding that this is only preliminary work, and there is more extensive research to be done for further results.

## **Literature Review**

Self-styled American dance pioneer, Isadora Duncan (1877-1927), established the idea of improvisational movement as early as the late 1800s. Her emphasis on free forms of movement broke the structural technique used by classically trained dancers and caused the continuation of improvisational modalities by many of her successors (Taxidou, 2017). Duncan revolutionized Western concert dance in the early twentieth century with her bare feet, movement originated from breath, and genuine life thematic content. Duncan believed that the dance was an outlet for personal growth and revolution. Dance was more than simply an object of art or a form of appealing expression. Her dance is incredibly specific, as well as rooted in the “turn-of-the-twentieth century, white, middle, and upper class values” (Seidel, 2015). Isadora Duncan created activity and bias for the women of dance by challenging the male eye. Her

culturally diverse background and insight on the arts within varied civilizations allowed for her distinct break away from the traditional, relevant creation of movement during her time.

Experimental dancers and choreographers, William Forsythe and Steve Paxton, are two examples of artists who furthered the ideas of improvisational technique in the early to mid 1900's, recognized by Isadora Duncan (Vass-Rhee, 2010; Turner, 2010). Forsythe, director of both Ballett Frankfurt and The Forsythe Company, along with his ensemble ascertained improvisational techniques and staging practices that challenged the perceptual skills of both performers and observers. The methods and choreographic structures established stimulated the awareness of the "perceptual conventions" surrounding the art of dance (Vass-Rhee 2010). Paxton favored the "unique and personalized forms" of dance training (Paxton, 1972). His innovation surrounded the idea of eliminating the peripheral constraints, such as the hierarchical arrangement of power and the organizational implications that dominated both dance and society. From there, he would see where movement led him (Turner, 2010). Paxton therefore believed that one's consciousness would observe and learn from one's reflexes while moving. This innovative wisdom of what was simply seen as reflexive movement would develop into the "new ground for moving" and evolve into "spontaneous improvisation" (Paxton, 1993).

It was due to the exploration of movement by experimental artists such as Forsythe and Paxton that improvisation had continued to grow over time. Another influential element of dance improvisation history, which Steve Paxton was very involved in, is the Judson Dance Theatre, which was established in the early 1960's. The Judson Dance Theatre was a casually recognized "collective" of dancers and choreographers who portrayed joint diverse fluxes of "avant-garde choreography" (Banes, 1982). Here, artists exchanged techniques and thoughts in hopes to

explore, suggest and counter the idea of what dance is as an art form. Within the collective the artists were not held to one existing notion, instead they were encouraged to make an effort to expand upon diversity and freedom. The overall methodology of the Judson Dance Theatre gave support to themes and styles that furthered the concept of dance improvisation (Banes, 1982).

Fast forward to present day twenty-first century: improvisational techniques and modalities still exist and are practiced by various artists (Rivers, 2015). Ohad Naharin's technique, known as Gaga, is internationally known and serves as a "window into a whole aesthetic." Gaga technique was initially created as a series of rehabilitation exercises that Naharin shaped while he was immobilized for many months after a back operation. He used the technique to carefully examine his body, consider what each movement entailed, feel the ground under his feet, and "rediscover his animal instinct" (Schoonejans, 2000). The idea behind the Gaga technique is to channel one's wild and impulsive nature, thus tampering with a fine line between being "in and out of control" (Rivers, 2015). Within the Gaga language, are the elements of consideration of what the body is experiencing, an emphasis on breathing, as well as the revamping of technical and classical movement techniques that can apply to a wide range of people. This form of improvisational movement is engaging and allows a dancer to discover the different versions of one's self that aren't usually asked for in a technical class, according to Ariel Freedman, a former dancer and current international Gaga teacher.

Furthermore, William Forsythe's technique continues to be practiced as well. Jill Johnson, former Ballet Frankfurt dancer explains that improvisation is the education of the mind and body reacting to every moment. There are currently over one hundred and thirty prompts that were cultivated by Forsythe and are still used today as a curriculum for improvisation allowing

for an endless amount of possibilities for innovation and creation (Rivers, 2015). Crystal Pite, an influential contemporary choreographer, has dove into the world of ballet and incorporated elements discovered by improvisational experimentalists along the way. As a former member of Ballett Frankfurt, Pite admits that Frankfurt's "collaborative ethos" was what pushed her as an artist (Cappelle, 2017). Crystal Pite realized that William Forsythe was drawn to creative dancers who were willing to take risks. She therefore acted upon that realization and made sure to involve creative minds within her own choreography, in order to capture the "creative spirit" found within collaboration. Her works have an experimental and courageous side to them in hopes to get the dancers and audience members involved within the same world. Pite's style has an earthiness that is still rigorous, and confident. Her goal of the movement she produces is very similar to the goal of previous improvisational experimentalists. Crystal Pite wants the dancing to look as if it is being discovered for the very first time, while it is being danced. She wants the element of spontaneity within the movement that has already been created. Pite is keeping the idea of improvisation alive, and yet developing it into structured, choreographed movement. She envisions her movement looking impulsive and reckless, yet delightful at the same time (Cappelle, 2017).

There are a multitude of factors that can be utilized from the practice of improvisation techniques to help enhance a dancer's quality of creativity. Johnson believes that the new forms of personal expression will inspire a dancer and the understandings of the full range of motion created by their body will therefore expand upon the creative and technical resources that every dancer can utilize as an artist (Rivers, 2015). From here, psychological and cognitive levels of

learning and understanding come into play in order to understand the overall benefits of improvisation.

Cognitive psychology attempts to justify mental processes with the use of fundamental creativity (Sawyer, 2000). There are three distinct cognitive levels, each containing a number of specified key elements to the overall learning process. The first level contains Knowledge and Comprehension. Knowledge is described as the ability to simply recall previously learned information. Comprehension is therefore the next step of the process in which the mind has the ability to show an understanding of such information. An understanding could be expressed by either interpreting the material in a multitude of forms, stating the meaning, or by creating brief statements involving the material. The second level of cognitive learning solely consists of Application. Application is defined as the ability to use previously learned information in new and tangible circumstances. The mind must apply rules, concepts, principles, methods and/or theories. The final level, the third level, contains Synthesis and Evaluation. Synthesis is demonstrated by the ability to put together individual pieces of information to create a new whole. An example of this would be when a new plan of operation is pieced together, formed by specific steps that created a new idea. Evaluation is the ability to assess the value of information. The mind's final level of learning is completed by demonstrating the skill of gauging prior and new knowledge by measuring its worth in specific situations (Cognitive Levels of Learning).

Creative thinking has been expressed as one of human's most elusive abilities. Once a creative idea has entered conscious thought, it can be easily recognized, though it is more difficult to create with a purpose and explain how the initial creative idea was established (Runco, 2014). Overall, creativity is seen as the development of high-quality, novel ideas that are

valuable to both the originator and others (Sternberg & Lubart 1999). The creative process within cognitive psychology, in its simplest form, can be expressed in a two-staged model, which expresses the expansion of both divergent and convergent thinking (Łuczniak, 1988). These two distinct components of cognition expand upon one's creativity in general when it comes to formulating ideas. Divergent thinking is the process of establishing a multitude of solutions for one single problem. Convergent thinking, on the other hand, is the process of finding one single solution for a problem through analysis and deduction (Zmigrod, Colzato & Hommel, 2015). The relation between cognition and dance improvisation can be understood based on the idea that dancers use their bodies as "tools to think with" (Kirsh, 2010).

Different forms of improvisational dance are complex human actions, which rarely become the subject of research within cognitive science and psychology. Although, it is believed that improvisational dance is the basis for many activities within the arts (Bailey, 1980). Dance improvisation allows creative ideas to emerge from the interactions between body and mind. With the body's nature and the mind's consciousness, the spontaneous movement calls for the generation of cognition, more specifically, divergent thinking (Kirsh, 2010). Sensory stimulation entices a dancer's imagination, which therefore results in reflexive movement. If both the body and the senses are used as instruments to imagine with, and in the same moment, the dancer's movement is the direct replication of such imagination, the idea that creativity is a "pre-planned" and "sequential process" that takes place in the conscious mind through both divergent and convergent thinking is established (Łuczniak, 1988). Within each moment of improvisation, there are endless amounts of creative explorations and choices that can be facilitated. During the improvisational process, the conscious mind is able to shift from what the individual self is

doing, to the moment in relevance of time and space, the past in relation to the present, and the individual step in relation to the emerging whole (Foster, 2003). This last idea, of the conscious being able to shift to a small portion of what is to become the developing whole, corresponds back to the fundamental idea of Synthesis, within the third level of cognitive thinking. Thus, creating a direct correlation between the creative process of dance improvisation and the creative process of cognitive psychology. Furthermore, based upon previous experiments and research, improvisation has resulted in a direct positive association with creativity and divergent thinking, boosting the level of creative ideas formulated (Lovatt, 2013).

According to the results of the experiment produced by Sowden, Clements, Redlich and Lewis, participation in dance improvisation activities has overall benefits for successful divergent thinking and creativity, primarily in children. The purpose of the experiment was to test whether or not dance improvisational activities advance the creative thinking process overall but more specifically the divergent thinking process (Sowden, Clements, Redlich & Lewis, 2015). With the understanding that dance relies on cognitive learning in regards to the communication of abstract ideas, and cannot exist without “thinking, feeling, and knowing” (Hanna, 1983), the experimenters tested children at a primary school level to measure their divergent thinking and creative outcomes. Two groups of children were formed. The controlled group of children participated in a ten-minute exercise of a directed task, where they were expected to replicate the teacher’s movements in a sequential order. The other group of children participated in a ten-minute improvisational dance task, guided by the same teacher. In order to measure all of the children’s divergent thinking capabilities and creative skill, each child participated in three individual tasks measuring their mood, their level of divergent thinking, and

their overall creativity. Based upon this specific experiment, the overall results indicated that participation within the ten-minute improvisational dance activity benefited the children's originality and creativity, allowing them to score higher on the three different measurement tasks, even with just a short exposure to the improvisational activities (Sowden, Clements, Redlich & Lewis, 2015).

In a very similar study produced by Dr. Peter Lovatt, the question of whether there is a direct effect of dance on problem-solving skills was tested. Lovatt started with a group of people who were given a set of creativity tasks to complete. From there he divided the group into two and had one group participate in dance improvisation and the other group participate in a dance activity that was structured and specific. Once both groups were retested with the creativity tasks, the group that participated in the improvisation, "significantly improved their creativity scores" (Gregory, 2013). Lovatt decided to further the experiment to see if different types of dancing, such as the structured versus the improvisation, assisted people with solving different types of problems. The results of this test displayed that people who participated in improvisation showed better capabilities to think and solve problems divergently, whereas the people who participated in the structured dance form were considerably quicker at convergent problem solving.

There is an inseparable connection between mind and body, just as there is the connection between dancers in "common improvisational space" (Łuczniak, 1988). The model of studying creativity in which creativity is seen solely as a mental procedure is extremely limiting. Creative processes such as dance improvisation are established and shared within a space where conscious ideas are simultaneously thought of by the mind and produced by the body. Therefore

the idea that creative cognition is developed through abstract thinking as well as through “sensing, feeling, and doing” should emphasize the need for integration of spontaneous movement into creativity research as well as education (Łuczniak, 1988).

According to the study produced by Miriam Giguere, when students are partaking in the creative process, they are developing mental, social, creative and cognitive skills. Within this study, Giguere had forty-two student participants; participants consisted of students at the elementary school level (ages 10 – 12) and students at the collegiate level (ages 17-20). Giguere’s experiment was carried out over the course of ten sessions. Within the first session Giguere broke the students into groups and explained the idea of her project. Each group was to create a dance of their own, with all group members participating as choreographers. The students were given complete creative freedom when it came to the purpose of their piece and what it consisted of. The rest of the sessions were allotted times for the groups to meet and develop their ideas and movement. Once the ten sessions were over, each group performed their piece for their peers and then discussed the process with Giguere.

The findings from this study showed that the tasks of creating, organizing, and evaluating the moment all correspond to cognition and the process of cognitive learning. Based upon previous research, thinking and learning both involve perception and conceptualization which can be seen through the creation of dance movement, as shown in this study (Gardner, 1982). Giguere believes that the students learned about the process primarily because they were “given the opportunity to discover it for themselves.” Therefore, the idea that students are developing cognitive skills as well as acquiring a creative mindset through the artistic outlet of dance is greatly emphasized based upon this study. It is understood that cognitive enhancement is not the

lone goal of creative dance, though allowing such dance opportunities to students appears to be beneficial and needed. Creative physical activities such as improvisational dance, or creative movement are limited in the spectrum of education. Therefore, in order for students to develop an optimal sense of cognitive learning, divergent thinking, as well as creativity, such creative physical activities should be implemented within education systems at an early stage (Giguere, 2012).

## **Methodology**

After researching several different techniques and practices all centered around creative movement and dance improvisation, I decided to partake in my own exploration to see firsthand if there is a direct correlation between improvisation and the creativity found within cognition. The majority of my research comes from the observations and discussions accumulated from a guided improvisation class of dancers, ages ranging from 20-22. In further exploration of this topic, after guiding the improvisation class of young adults and gaining research and results, I decided to observe a creative movement class for younger students, ages 2-3, to see if there were any similarities between the classes. The overall purpose of these observations are to enhance the teaching methods used when teaching students who are developing their creative mindsets.

Based upon the experiment carried out by Dr. Peter Lovatt, I decided to partake in my own exploration where I guided and observed sixteen college dancers in an improvisation class. My goal of this class was to gain insight on how the dancers felt mentally afterwards in comparison to how they feel mentally after a structured class. Due to an absence of affirmative knowledge in statistics and psychological testing, I chose not to test the students after the class,

such as Dr. Lovatt did. Instead, I had a brief discussion with all of the dancers and debriefed them on the purpose of the class. The beginning of class was set up where all dancers were spread around the room, facing different directions with their eyes closed. With soft music playing in the background, I led the students through a warm up that allowed for each of the students mind's to focus on each of their individual body parts and all of the possible ways each body part could be moved. After guiding them through an isolated warm-up, the students were then told to open their eyes and begin to simply walk around the room, with no direction at all. They could travel any direction they wanted at any pace. Once the students became semi-cohesive, I then added instructions. I gave them tasks such as to walk around the room as if they were walking through traffic, or as if they were ice-skating. I then observed how they moved and how they reacted to others moving around them. Once the dancers started to become comfortable with the task, I would change the task, simply to keep the dancers on their toes and unaware of what was to come next. This was to allow for the mind to be completely free and open to any idea the dancer thought of.

After the dancers understood the idea of walking and integrating each task, I changed mindsets on them and had them travel around the room discovering for themselves the different types of shapes their body could make. My instructions were vague enough to give complete artistic freedom to the dancers, though informative enough to allow their minds to focus on the ideas sparked by the direction. For example, I would ask the dancers "How can all of your movement be linear? How many linear shapes can you make with your body, not just your extremities?" The dancers therefore took the time to think about, while moving, what linear meant to them, and how to produce such movement. This exercise allowed for the dancers to

clearly use their mind, but not have to stop and think before producing movement. After the dancer worked on linear movements, I had them experiment with rounded and circular movements. This exercise helped to affirm the idea that the mind and body are separate entities, though they can work simultaneously.

The final task I had for this group of dancers was movement across the floor. I decided to have them test the different levels of their body and the space around them. I had the dancers create in a high level of space, with all movement being tall and long and then oppose that by having them work in a low level of space, with all of their movement being on the floor. Each of these guided tasks tested how the dancers used their space and how they creatively thought of movement that would allow them to move across the room while interpreting the words high and low. With the first round of this proving to be slightly unsuccessful, where the students were more concerned about the movement that they were doing versus and not following the exact tasks, I decided to change the task to something that needed more thought from the dancers. When it came to the dancers moving solely on the floor, I had them choose two body parts (any body parts they wanted) and told them they must travel across the room consistently keeping those two specific points in contact with the floor. This task clearly changed the outcomes of the dancers movement.

After gaining an incredible amount of insight from the improvisation class of older students, I then wanted to expand upon the idea of the exploration just a bit and see if there were possible similarities between a class of older students and a class of younger students. In order to do so, I decided to observe a creative movement class of 2-3 year olds, where it became obvious that the tasks these dancers participated in were going to be on a less advanced scale. For this

expanded portion of the exploration, I did not solely guide the class; instead I helped lead this creative movement class as an assistant. I assisted a teacher who has been teaching the younger students for a while, and therefore has built a relationship of trust with them. During this class, the dancers were constantly moving around the room in order to keep engaged with the tasks at hand. The class was a bit more structured than the class of older students I taught, simply because of the age range. We used props to help gain the attention of the children, which proved to allow for more exploration of creativity for the dancers. We had the dancers jumping over dots, using tambourines as rhythmic tools for music and dance, and we finally had the dancers use scarves when it came time for complete dance improvisation. This task was the most beneficial and pertinent to the purpose of the exploration. When it came to improvisation, the dancers had absolute freedom to dance anyway they wanted, with no guidelines and no restrictions. We put on a song that the dancers were very familiar with, that way they felt comfortable in the setting, with no apprehension. The dancers could sing, dance, run, etc. These last few minutes of class were the most relevant to the experiment because I could see the closest comparison to the outcome that I witnessed in my class of older students. Therefore a direct comparison could be made between age ranges.

## **Results and Discussion**

In response to the two separate studies carried out by Dr. Peter Lovatt and Miriam Giguere, each of the findings suggested agreeable conclusions, therefore attaining a higher accuracy of the results. Although one experiment was tested on adults, the other tested on children, both experiments reared similar conclusions. The outcomes of these two studies

exemplified the idea that dance improvisation does correlate with cognition, as well as creativity, in a positive way. With Dr. Peter Lovatt's experiment, the dancers who participated in the improvisational dance, once re-tested, had significantly improved their creativity scores on their completed tasks, as well as resulted in a higher capability of divergent thinking. In regards to the experiment conducted by Miriam Giguere, through the artistic outlet of dance, students are developing cognitive skills as well as obtaining a creative mindset.

The results of my own exploration, which was constructively based upon these two experiments, generated a similar idea. When debriefing the class of older students and asking them for their own findings, the idea of removing the obvious elements in order to obtain a much deeper and more raw experience was brought up. Observations showed that with complete freedom and no instruction came apprehension and familiar patterns at first, though with very minimal instructions and focus placed on a specific target or task, the mind was able to open up and discover more unfamiliar territory. Such territory would not have been discovered though if one were participating in a completely sequential and structured class, with the elimination of any freedom of movement. One participant explained, "I felt that when we added just a few rules to the task, I was able to open my mind and come up with better ideas." The addition of constraints within freedom gave way to new ideas, similarly to how the focus of a guided dance improvisation allows for the development of creativity, and simultaneously new discovery of movement.

The dancers explained that the freedom of movement allowed for a deeper insight into who you are as a dancer, your personality, and the trust you have within yourself as well as within the dancers around you. A participant added to the conversation by saying "After the first

ten minutes or so, I exhausted all of the ideas I thought I had, and that's when I became more aware of my body and more surprised by the choices I was making." Based upon the observations made during the exercises within the class, it is much easier to see where the product you are producing comes from when you are the one creating it. There is a closeness and a protective instinct over your movement when it is personally developed and coming from a very vulnerable place in the creative mind. One's personality and trustworthiness are direct components to their creativity. However, one must trust and allow themselves to dig deeper emotionally, intellectually and physically can therefore influence the creativity of what they produce.

A dancer at this age is fairly in tune with their body and their movement from a technical standpoint, especially if they are a trained and experienced dancer. Although, elements such as movement quality, levels of discomfort, the ability to be spontaneous, innate, to react quickly, and even one's motivation are all elements that continually fluctuate throughout a dancer's career. With an open mind, allowing creativity to be developed, dancers are therefore able to discover new movement qualities that are not necessarily familiar to them, yet don't feel so uncomfortable that they're not willing to dive into the task at hand. This was specifically seen within the exercise that moved the dancers across the floor. When presented with the first task of moving in a high level of space, creating length and extension, overall the dancers produced what was comfortable to them. They didn't expose themselves to new ideas or open their minds and interpret the words high, long and elongated to mean something other than what typically comes to the common mind. They didn't use their creativity; instead they used their muscle memory in a way in which they produced what they already knew felt good on their bodies.

Though, when the task was changed to picking two body parts that needed to constantly be in contact with the floor, while moving across the room, their creative minds became very clearly present. From observing this task, it was plain to see from the amount of time it took the dancers to get across the floor, just how much they were thinking, and based upon the movement they were producing, just how new and unfamiliar it was to them. The awareness of the body and discovering new movement qualities is all a part of releasing the creativity within the mind, but also having the improvisational freedom to develop a cognitive level in which amounts to creative thinking.

An interesting point made by one of the participants during the discussion was that they had a greater remembrance of the information said throughout the entirety of the guided improvisation class, which differed from a normal structured dance class. “After you kept reminding us of all our body parts that could move in the warm up, I was constantly aware of each body part throughout the class. I’m not usually that aware of my body or the corrections I get about my body during a normal class.” They explained that during a structured class, a comment or correction could be made at the beginning of class but the mind is so focused on what the body should be doing at that moment, that there is no time for discovery within the movement and by the end of the class they don’t remember that comment/correction. On the other hand, the participant shared that throughout the entire improvisation class, they were almost so hyper-aware of their entire body that it allowed for them to recall topics and comments that were made in the beginning of the class and allow them to implement them into their movement that they were discovering later on in class. This is a perfect application of the Comprehension and Remembrance portions of the thinking process. After knowledge, comes

comprehension. Once the task is done and the class has moved on to the next task, the understanding of the first task can therefore help develop any new information the mind receives.

Another participant furthered the discussion by explaining that they felt as if they knew they were thinking about discovering new creative movement, but it was almost as if they didn't have the time to think before their body was producing the movement itself. "It was like my body was moving, and my mind was thinking, but I didn't realize what my mind was telling my body to do until my body was already doing it." This deduction goes hand in hand with the idea that the creative mind and actual body work simultaneously. The dancer explained that in order to have an open mind and freely create movement, there was no time for stopping and thinking. Instead, one movement led to the next and allowed for a free flowing dance to form while the mind was focusing on the task at hand, whether given a strict direction to move linear or cover space at a quick tempo with rounded pathways. As Foster previously proposed, throughout the improvisational process, the conscious mind is able to shift. It can change from what the body is doing, to what is around the body, where the body is in relation to others, what the body already did and how can the body expand an idea. This idea, now proposed by both Foster and the participant in my study corresponds back to the idea of Synthesis, which is developed within the third level of cognition. Synthesis takes individual pieces and creates a whole. The mind is going from one new step to the next, to create a series or in this case a complete dance of improvisational movement.

With my main research question answered, I can now look into the sub questions and distinguish if there are similarities between age ranges, as well as if the addition of activities such as dance improvisation within primary education would benefit the students at an earlier

age. Observations from my class of younger students are a little more limited due to the fact that the students are not at the same cognitive level as the older students, and the tasks at hand for the students were much more simplified due to their age. Although, these younger dancers did participate in an improvisational dance task that allowed for their creativity to undoubtedly make way into their movement. The students recalled what they had done previously in class and were able to replicate the movement as it was familiar to them, which shows a level of cognition although, the creativity of their movement is based on what they did that wasn't previously part of the class. The dancers used scarves as props to run, turn, and move freely as they liked. Allowing them the time to develop their own sense of movement and express their mind's creativity, no matter what the product gives them the chance to expand upon their cognitive mindset and explore the new ideas they have. As an observer to the class, I can only draw my conclusions from what I saw the students participating in, and therefore I am using the purpose of these observations as a teaching exploration.

Although these students were not at the same creative level as the students ages 20-22 based upon the tasks performed, there were similarities that could be drawn between the two classes. The younger students still think and move on their own level in a way that exposes their individual mentality to any observer. Their personality and their trustworthiness still come into play in terms of how willing they are to explore and move freely. Their sense of what's around them and what they already know is also incorporated into their movement. These are all indicators that express the start of a child's developmental creative mindset, and also indicators that will set children apart intellectually from those who are not exposed to such creative methods such as improvisation.

As stated by Giguere, a few of the general benefits of dancing expressed by adults and children alike include healing, physical challenge and emotional freedom. In a world where collaborative thinking and creative ability are critical to success, the cognitive benefits from dance, specifically improvisation, should be exposed to children early on in their education. With an understanding of the cognitive means that are established by children's exposure and involvement to the creative process, dance improvisation should be used as a tool for education enhancement.

These theories and ideas are indicators of how creativity and cognition range so much farther than just within the dance realm. All of society can be influenced and affected in positive ways by the development of creativity whether it is in dance, music, or simply everyday cleverness. Creativity does not simply pertain to only the arts and sciences, it can also be involved within: businesses and innovative products, social interactions through social media, and even public policies with cultural assets and intellectual capital. It is important to implement creativity and advance our creative thinking skills, in order to obtain a greater knowledge and understanding of what could be new and innovative possible solutions to everyday problems. Creativity branches from cognition, though it is what we do to activate and further develop our minds that allows for creativity to serve its highest purpose.

## References

- Bailey, D. (1980). *Improvisation: Its Nature and Practice in Music*. Buxton: Moorland Publishing.
- Banes, Sally. "The Birth of the Judson Dance Theatre: A Concert of Dance at Judson Church, July 6, 1962." *Dance Chronicle*, vol. 5, no. 2, 1981, pp. 167–212., doi:10.1080/01472528108568834.
- Cappelle, Laura. "Wonder Woman." *Dance Magazine*, Feb. 2017, pp. 36–38. "Define Cognitive Thinking." *LearningRx*, [www.learningrx.com/define-cognitive-thinking-faq.htm](http://www.learningrx.com/define-cognitive-thinking-faq.htm).
- Foster, S. L. (2003), 'Taken by surprise: Improvisation in dance and mind', In A. C. Albright & D. Gere (eds), *Taken by surprise: A dance improvisation reader*, Middletown, Wesleyan University Press, pp. 3–12.
- Gardner, H. (1983). *Frames of mind: The theory of multiple intelligences*. New York, NY: Basic Books.
- Giguere, Miriam. *Enhancing Cognition through Children's Dance Creation*. 2012.
- Gregory, Katie. "Doctor Dance." *Dance Today*, 2013, pp. 25–27.
- Hanna, J. L. (1983). The mentality and matter of dance. *Art Education*, 36, 42–46. <http://dx.doi.org/10.2307/3192662>
- Kaufman, James C., and Robert J. Sternberg. *The Cambridge Handbook of Creativity*. Cambridge University Press, 2010.
- Kirsh, D. (2010), 'Thinking with the Body', Proceedings of the 32nd Annual Conference of the Cognitive Science Society, pp. 176–194.

- Łuczniak, K. (2015), 'Between minds and bodies: Some insights about creativity from dance improvisation', *Technoetic Arts: A Journal of Speculative Research*, 13: 3, pp. 301–308, doi: 10.1386/tear.13.3.301\_1
- Paxton, Steve. 1993. "Drafting Interior Techniques." *Contact Quarterly* 18, 1:64–78.
- Paxton, Steve. 1972. "The Grand Union." *TDR* 16, 3 (T55):128–34.
- Rivers, Ashley. "Movement in the Moment." *Dance Magazine*, 2015, pp. 60–61.
- Runco, M. A. (2014). *Creativity: Theories and themes: Research, development, and practice*. Amsterdam, The Netherlands: Elsevier.
- Sawyer, R. K. (2000), 'Improvisation and the creative process: Dewey, Collingwood, and the aesthetics of spontaneity', *The Journal of Aesthetics and Art Criticism*, 58: 2, pp. 149–161.
- Schoonejans, Sonia. "Ohad Naharin, from a Kibbutz to the Wide World." *Ballet 2000*, no. 268, pp. 20–25.
- Seidel, Andrea Mantell. "Isadora Duncan in the 21st Century: Capturing the Art and Spirit of the Dancer's Legacy by Andrea Mantell Seidell." *Theatre Topics*, vol. 26, no. 3, 2015, pp. 371–372., doi:10.1017/50149767717000146.
- Sowden, Paul T., et al. "Improvisation Facilitates Divergent Thinking and Creativity: Realizing a Benefit of Primary School Arts Education." *Psychology of Aesthetics, Creativity, and the Arts*, vol. 9, no. 2, 2015, pp. 128–138., doi:10.1037/aca0000018.
- Sternberg, R. J., & Lubart, T. I. (1999). *The concept of creativity: Prospects and paradigms*. *Handbook of Creativity*, 1, 3–15. doi:10.1017/cbo9780511807916.003

Turner, Robert. "Steve Paxton's 'Interior Techniques' Contact Improvisation and Political

Power." *The Drama Review*, 2010, pp. 123–135. Vass-Rhee, Freya. "Auditory

Turn: William Forsythe's Vocal Choreography." *Dance Chronicle*, vol. 33, no. 3, 2010,

pp. 388–413., doi:10.1080/01472526.2010.517495.

Zmigrod, Sharon, et al. "Stimulating Creativity: Modulation of Convergent and Divergent

Thinking by Transcranial Direct Current Stimulation (TDCS)." *Creativity Research Journal*, vol.

27, no. 4, 2015, pp. 353–360., doi:10.1080/10400419.2015.1087280.



