

Restructuring Classical Ballet Coaching:

A Motor Learning System Integrated Network of Individual Influences and Constraints

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Abstract

Background: The entrapment of ballet within its history has led to a deep-rooted set of attenuating pedagogical strategies, but we are at a pivotal moment in ballet history where many schools and companies are fighting to change the historical aesthetic of ballet. This paper provides a look into the beginning applications of nonlinear pedagogy through an ecological theory of instruction and the responding coaching strategies necessary to work with individual constraints to form a more comprehensive and effective instruction approach towards the learning of dance.

Purpose: The purpose of this trial individualized coaching session and subsequent research is to provide a comprehensive construct of reshaping the coaching of ballet within Newell's three stage model of motor learning through a focus of individual dancer strengths in order to identify effective coaching strategies through a balance of explicit and implicit coaching techniques.

Methods: In an individual coaching session with a pre-professional ballet dancer, the specific skill of jumping was restructure through a context-removed, constraints-led approach, utilizing a hybrid system of implicit and explicit coaching strategies.

Findings: The ballet dancer showed improvement in skill performance through self-discovery of unique movement solutions.

Discussion: Future implications to continued coaching include applications of this individualized, hybrid system to larger class settings in order to create a more dynamic and inclusive approach to ballet training. Future implications into continued coaching research include a potential look into applications of this system to more complex skill developments as well as larger group settings and age specific instruction.

Keywords: Dance, Coaching Perspective, ecological theory, Individual constraints, Motor Solutions, Transfer, Motor Learning

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Introduction

While ballet requires a demanding athleticism, its strong artistic quality holds deep ties to the historical preservation of art. As a sport, ballet is making strides towards changes, with longer ballets and higher demand for tricks and powerful jumps, but as an art form, ballet is trapped in its history. The technique of ballet was created for a specific look, and this lasting foundation has created the desired ballet aesthetic, leading way to the ever-common phrase “ballet body.” The entrapment of ballet within its history has led to a deep-rooted set of attenuating pedagogical strategies (Benzion, 2012). However, we are at a pivotal moment in ballet history where many schools and companies are fighting to change the historical aesthetic of ballet. This point in ballet history presents an opportunity to re-evaluate dancer training in a reconstruction of success measures in the art and sport of dance. Unlike other sports, the goal of ballet is not objective, but is in the precision of the movement. Dancers are not often given freedom to determine a unique approach (movement solution) to the execution of a specific skill (motor problem), because their aim is to be unison, to be ideally perfect as per the predetermined details of the sport and art of ballet. Reflecting this construct, instruction rests on the identification of ballet as a primarily cognitively responsive sport resulting in predominately explicit coaching strategies (Karin, 2016). This pedagogical focus for exact definition of the consisting parts for all ballet skills creates the methodological problems found in defining a response to classical ballet as a creative effort (Fitterling & Allyon, 1983). However, this paper provides a look into the beginning applications of nonlinear pedagogy through an ecological theory of instruction and the responding coaching strategies necessary to work with individual

constraints to form a more comprehensive and effective instruction approach towards the learning of dance.

Network System of Individual Influences

Looking at a dancer as an athlete, it becomes relevant to capitalize upon the unique experience of each dancer as an individual. The micro-level of the singular athlete requires consideration of the three-dimensional interactions of all factors that create athlete development: the athlete, environment, system, and chance (Gulbin & Weissensteiner, 53). This system dictates that continuous athlete development paired with variability in external factors make for a continuous inertia of interchanging interactions, always building new ratios of factor relevance throughout the trajectory of athlete development (Gulbin & Weissensteiner, 53). The result of these interactions is filtered through the socio-cultural constraints placed on athlete development as reflected by Ludwig Wittgenstein's term: Forms of Life, meaning "behaviours, skills, capacities, attitudes, values, beliefs, practices, and customs that shape the communities we live in. The features of a form of life subsequently shape how we live" (Rothwell, Davids, and Stone, 2). As stated in Gibson's (1979) theory of affordances, the interaction of the athlete development factors with the athlete's culturally influenced forms of life are relevant to the athlete's reaction to affordances within their sport's setting. Using a broader perspective of socio-cultural constraints to examine how culture shapes movement, Bril describes a similar step performed across several cultural adaptations of dance as one form of movement that, in its origins, is based on foundations of like movement solutions to the same motor problem (Bril 2018). This paper is based upon a coaching perspective model interlacing these three concepts and lenses of athlete development by recognizing these movement solutions as the result of a systems flow chart of all the different parts.

This coaching perspective model describes a network system of individual influences in which multiple individuals are presented with a consistent motor problem. The socio-cultural constraints of that individual then determine the individual's forms of life, as a set of factors or lenses to guide the next step towards solution. This then interacts with the unique factors of athlete development including factors from the individual athlete, environment, system, and chance. This further interaction creates a unique expression of movement solution, thus showing how two culturally different individuals can be presented with the same motor problem, and result in aesthetically unique movement solutions. The immensely complex integrated system of approach to motor problems requires an individualized approach to coaching specific skill sets in sports. Rather than demanding an athlete to map their uniqueness onto a predetermined coaching strategy, allowing freedom within the learning process to build experiences aligning with individual constraints and approaches describes a more complete approach to specific skill instruction for coaching sports.

Three Stages of Motor Learning

In the specific sport of ballet instruction, this paper looks to reshape the teaching of ballet under the three stages of Newell's model of motor learning: assembling a coordination pattern, gaining control of a coordinative structure, and skilled optimization of control (Davids et al., 2010). Through the first stage of assembling a coordination pattern, the mover establishes a relative relationship between movements of different body parts which form grouped associations. These patterns of coordination are then adjusted, adapting for variables such as force, movement durations, and timings, to build to stronger and more accurate performances of the task specific movement (Davids et al., 2010). The balletic application of this stage can be found in learning the simplistic descriptive action of the basic ballet steps. Gaining

control of a coordinative structure, stage two, occurs when these basic coordination patterns are then refined to match the demands of performance environments, referring to the refinement of basic ballet steps and precision of the movement (Davids et al., 2010). Moving towards more advanced work, dancers must perfect their ability to quickly assess and read the physical cues of their current moment so as to accurately adjust for differences in weight distribution, directional force, and other external factors. Newell's third stage, skilled optimization of control, refers to the mover's ability to become more open to environmental information, allowing for increased control and efficiency (Davids et al., 2010). Moving into the more advanced application of Newell's model in ballet, this third stage could also be accredited to the careful calculations a dancer must make during performances. In a partnering or corps position where the dancers must react to the changing environmental factor of other's presence, dancers must listen to signs and constantly interpret and adjust for slight changes in their work together. Motor learning can therefore be viewed as a continuous restructure of information through these three stages. Specifically in ballet instruction, Mainwaring & Krasnow state the importance of "[identifying] the basic foundation, and then [building] upon that knowledge base" (Mainwaring & Krasnow, 2010). For this reason, in this paper, strengthening the basic foundation of a simplistic jump was the focus in application to addressing difficulty executing more complex jumping patterns. This learning as a result of a continuation of these three stages building through the restructuring of coordination patterns formed from basic foundation steps happens through the concept of transfer. As one skill is refined, it changes the assembly of coordination patterns by building from the accumulation of transfer events.

Ballet dancers are trained from a young age to experience learning ballet as a continuous job of redefinition and expansion upon prior skills. Transfer is the idea that a previous skill

builds to determine the success of the acquisition for a new skill (Davids et al., 2008). Enghauser (2012) identified this concept of transfer through prior knowledge particularly relevant to her teaching of dance. As one of her written outcomes of new applications of dance pedagogy, she listed that she found “Students will examine and reflect on their prior experiences and beliefs as learners, reevaluating them as they interface with course content” (Enghauser, 2012). This idea requires an adaptable, skill optimized sense of control in transforming one known movement pattern within a set of different ecological constraints (Davids et al., 2008). In this process, prior knowledge becomes the basis for learning a new skill as learning then occurs in an integrated layering process within interchanging constraints.

Constraint Interactions

Conflicts between different types of constraints found in ballet including structural constraints, functional constraints, the task, and sociocultural constraints (environment), interact to create different interpretations of experience, thus influencing skill development in ballet (Driska, 2019). From a pedagogical over content-based approach to coaching ballet, development of knowledge and skills throughout ballet learning are heavily guided by the structural constraints that the specific domain of ballet places on learning processes (Warburton, 2008). Each constraint interaction can be applied through the concept of transfer through the original three stages of motor learning, initiating a continuous cycle of learning through information restructuring and reception. Information reception is crossed with a multitude of factors before processing into physical technique, and this understanding will be critical to the individual focused coaching of ballet.

Ecological Theory Applications

An initial reflection of current ballet instruction methodology views ballet as a primarily cognitive responsive sport. As a result of current pedagogy approaches, “Dancers often develop and apply strategies...such as the optimization of motor synergies [as identified in Newell’s three stages of motor learning]...in an explicit way that requires attentional process and makes them accessible for higher cognitive processes” (Bläsing, Calvo-Merino, & Cross, et al).

However, the cognition perspective on ballet provides little freedom within coaching and lacks a capability to coach to the individual, heightening conflicts within constraint interactions. As a result, dancers become near perfect technicians, with little to no versatility, adaptability to other teachers or music tempos, or ability to recall choreography (Karin, 2016). Upon the explanation of ecological theories, dancers could be provided a freedom to discover movement solutions based on individual perceptions within specific and unique individual constraint interactions. One challenge arises in determining the appropriately balance of ecological and cognitive theories to create age-appropriate teaching strategies that will not only produce extraordinary ballet technicians, but also allow for individual movement, style, and adaptability. Mainwaring & Krasnow identify the optimization of self-learning. “Appreciating that not all the answers lie with the teacher, but that the students can discover information through self-exploration and work with peers, can build self-confidence as well as enhance learning” (Mainwaring & Krasnow, 2010). This application of ecological theory shows the importance of coaching strategies that can provide dancers with the freedom to work with their own strengths and constraints in self-discovery. Although ballet may be, on a technical level, predominately cognitive, utilizing the ecological approach, dancers can inherently learn about the perception-action features of ballet that give dancers their versatility and adaptability that comes with non-calculated perception-action features of ballet.

In this model, concepts from a nonlinear pedagogy utilizing an ecological theory of coaching strategies can be selected to aid in the individualized approach to managing constraint interactions through which a dancer builds their interpretations of motor problems to create unique motor solutions through the process of transfer in the restructuring of information within the three stages of motor learning. This model then guides the selection of appropriate and effective coaching strategies.

Coaching Strategies

An explicit instruction strategy is commonly used in ballet due to the demand for precision and control of many individual subsections of proper technique. However, the context of ballet demands, between the different levels of skill acquisition, could benefit from a hybrid system in which athletes are provided with limited amounts of explicit instruction as a supplement to implicit instructional strategies including a constraints-led approach guided by analogy learning and questioning strategies. According to Karin (2016), “Implicit motor learning techniques circumvent effortful, cognitive stages that are typical of unskilled performers, thereby promoting more expert-like performance.” The use of implicit instruction strategies creates a necessary balance of movement quality and individualized performance alongside of a guiding technical precision. In this balance, the amount of explicit instruction necessary can be adjusted based on the athlete’s skill level, providing athletes with the appropriate amount of scaffolding and direction in their own implicit learning experiences to follow. Utilizing this hybrid system of coaching strategies provides the opportunity for diverse solutions to individual athlete constraints.

Purpose Statement

This research aims to provide a window into the applications of effective specific skill coaching for a ballet dancer by integrating research into the importance of individualized approaches with a new frame work of motor learning and resulting applications through an ecological theory of instruction. Based on research into the importance of individual influences, a complex network system of these individual athlete factors was developed to identify the development of unique movement solutions to general motor problems. This research focuses on an individualized approach, allowing room for the development of individual-specific strategies to work with the unique constraints of different dancers. Based upon the importance of building from a basic foundation identified by Mainwaring & Krasnow (2010), strengthening the basic foundation of a simplistic jump was the focus of application to address an individual pre-professional dancer's difficulty executing more complex jumping patterns. The purpose of this trial individualized coaching session and subsequent research is to provide a comprehensive construct of reshaping the coaching of ballet within Newell's three stage model of motor learning through a focus of individual dancer strengths in order to identify effective coaching strategies through a balance of explicit and implicit coaching techniques. Reaching a pivotal moment in changing ballet history presents this opportunity to re-evaluate dancer training in a reconstruction of coaching aims, making future implications of this study relevant both to current ballet instructors as well as continuing research into applications of this method.

Method

Participants

As a ballet coach, I have extensive background in both the art form as well as training of ballet. I trained in ballet for 19 years, reaching high levels of expertise. Each dancer has their own physical strengths and weaknesses, and during my early training, it was identified that I had

specific strengths in jumps and turns. I worked with a Pilates/ballet instructor during my pre-pointe years to improve my jump reaction speed and height. When accepted to the Pittsburgh Ballet Theatre graduate program in 2016, I began training with increased rigor in my development towards a professional career as both a ballet dancer and teacher. I studied ballet training under Children's Division Coordinator, Kaila Lewis, where I learned the value of reworking basic steps in more advanced dancers to improve the strength and technique for more advance work.

In coaching and refining a specific sport skill, I chose to work in a 1-on-1 individual coaching session. I worked with a dancer, Ava, who is a pre-professional graduate student with Pittsburgh Ballet Theatre. Ava is 20 years old, she has been training in ballet since age 6. She began her training in a smaller studio in Marin county, CA, and after a series of rigorous auditions was accepted to PBT's pre-professional division in the graduate program where she is currently in her 2nd year. These dancers train with technique class, specialized skill classes such as pointe, Pilates, and modern, in addition to rehearsals 5-6 days per week for between 7-10 hours per day. Before our individual coaching session, I asked Ava what she felt her strengths and weaknesses were in ballet. She listed adagio and long lines as her strength and jumps and turns as her weakness. In a preliminary discussion before our session, Ava described her difficulty with jumps and an inability to make fast reactions to change positions in the air with dynamic speed as well as difficulty acquiring a high jump. We opted to focus on her jumps for our session.

Procedures

We began our session with an examination of Ava's petite allegro (small jumps) in her most recent audition video 2019. This video is one showcasing their technical skill and

classwork that pre-professional dancers typically put together around December to send to companies of interest. This resource, therefore, served as an adequate gage of Ava's current skill level for the technical execution of advanced petite allegro. We watched this video together taking note of specific steps that could be improved and how. Ava expressed that she was frustrated that her lack of reaction speed for her jump inhibited her ability to accomplish jumps of high difficulty and that her lack of jump height inhibited her ability to showcase dynamic positions in the air amidst fast petite allegro. To combat these weaknesses, we decided to revert back to a beginning skill of a simple *souté* and restructure how Ava physically understood the basic jump.

After our initial discussion, I planned to work on her jump coordination between legs and feet including the push off and connection through resisted *plié* (the action of bending the knees before and after the jump for both power and control). In working on jump coordination, I designed a constraint for skill development of the *souté*. Instead of jumping, the dancer would use the wall to push off in a seated position. This constraint drill would provide us the flexibility to adjust for several aspects including power of the full leg push in a jump to produce jump height as well as the energy dynamics to create a clear position. Additionally, we would be able to constrain for focused work on the articulation of the foot, in a descriptive example of how the full use of the bottom of the foot against the floor, including the fast reaction of the toes snapping off the floor to finish the line. Additionally, I designed another constraint in which we could utilize the ballet barre in the jump to control the resistance of the *plié* where the dancer would be able to feel the continuous movement of the *plié* as a transitional step of energy storage rather than a jolting interruption of movement momentum. The goal was to increase Ava's physical awareness and understanding of jump coordination to include a building momentum for height

through the plié and a more dynamic fast reaction of the legs and feet in the air through the basic jump which she could then apply to more advanced settings of more challenging petite allegro.

During our session, I began with Part 1: Souté in 1st. I first had Ava perform a simple exercise of four soutés in first position with little prior instruction. Upon her completion of this exercise, I explained the common issue athletes may run into while performing this specific skill: knees not coming to a complete stretch in the air and not pointing all the way through the legs and feet or ends of the toes. We then performed a constraint exercises to isolate the take-off of the jump. We used the wall as the floor and a sitting position to examine the parts of the fast reaction take off that could make for a more dynamic jump with added height and suspension. This constraint included a push off the wall using the full force of the legs and feet. Then we restricted the push off by having Ava keep her knees bent (limiting the force of the legs in the jump coordination). I then changed the constraint to limit the push off by having her keep her feet flexed, not allowing for the appropriate articulation of the feet against the “floor” to create the finished line of the jump. Finally, we used a third sub-constraint of keeping her heels off the wall and only pushing with her toes, limited both the use of the foot articulation off the floor and the power of the full muscle control from the legs. After completion of these four constraints, Ava executed the original exercise of four soutés in first with these 4 focuses.

The second part included a look at a simple position changing jump, echappé where the dancer jumps from a closed position, to an open position, and then back to a closed position. This part was similarly structured to part 1. Ava first completed 4 echappé with minimal instruction. I then explained a common problem with this step that often occurs, limiting the jumping momentum, the stiffness of the transitional plié. I gave her a constraint exercise in using the ballet barre to support her upper body, creating additional control in the resistance of the plié,

allowing her to push off the floor with more focus on the legs and feet, creating a higher jump with more dynamic leg and foot position. After completing the constraint, Ava completed the original exercise of four echappés to apply the learned coordination and momentum connection through the plié.

Following our session, I briefly asked Ava how the constraint exercises helped or did not help her second execution of the jump during our session. I also completed a follow up discussion with Ava after her next grad technique class to ask if she felt any difference in her ability to jump in the more advanced and complex exercises given in that setting.

Results

From the first constraint, wall jumps, four separate constraints were used in four trials. Trial 1 used the full wall souté constraint, isolating the jump's take-off. This trial constraint was used to measure the initial height of the jump based upon the coordination from the power of the legs into the fast action of the foot articulation. The purpose of this trial was diagnostic, where we could examine Ava's "height" as the distance pushed away from the barre. This diagnostic trial led to the following three trials. In trial 2's bent knees constraint, Ava saw that keeping her knees bent stopped the energy transfer from the strength of the quadriceps and hamstrings from moving into the articulation of the foot, thus stopping momentum for a higher jump. Additionally, it was noticed that this constraint did not allow for a fast reaction towards the necessary stretched and finished line of the leg in the air. In trial 3's flexed feet constraint, the momentum of the leg's power was stopped at the ankles, not allowing for fast reaction articulation of the feet. This trial resulted in a low jump height and a lack of proper stretched and pointed position of the legs and feet in the air. In trial 4's heels up constraint, Ava was restricted in her ability to combine the power of the legs with the fast action foot articulation. This resulted in

a disconnect, as the leg strength should connect through the heel pressing down to the fast reaction of foot articulation initiating by engaging the Achilles tendon into the calf muscle, extending down the bottom of the foot through the ends of the toes thus creating the “pointe” of ballet.

In the second constraint, one trial constraint was used in a continuous jump, *échappé*, focusing on the connection and continuation of building momentum between the landing and take offs between jumps through the *plié*. Ava was asked to use resistance from barre to support her upper body, as she was then able to keep a resisted and continuously moving *plié*. Ava realized that this continuation, in contrast to a stagnant *plié*, allowed for a circular recharging of momentum between jumps. In both instances, when Ava was asked to exercise the full unconstrained step, she showed improvement in the coordination between muscle power and strength from the legs and reaction speed of foot articulation, as well as an increase in control of the *plié*, making for a higher, more dynamic position of the legs and feet in the air, and more continuous jump.

Ava responded well to the ability to exaggerate common problems through different and related constraints and seeing the isolated effects of each common issue. She was then able to utilize these drills in improving the actual skill of jumping. After later discussions with Ava, it was learned that one factor that was difficult for her to put into action was how to functionally apply these skill basics to faster more complex exercises of *petite allegro*. One important lesson this exemplifies is the necessity of connecting the drill to the full performance setting of the skill. In Ava’s situation this would require building an additional constraints activity, where we could break down the areas and directions of energy articulation in more complex *petite allegro* steps. The video of our session gave me, as a coach, insight into my own coaching techniques. I was

able to view the session externally, whereby I could see how my use of explicit instruction, analogy learning, and questioning strategies are interwoven into my network of coaching techniques (Driska, 2017). I recognized moments where taking a moment to let the dancer have more ownership and initiative in her learning could have been beneficial. The video allowed me to notice moments when I continue talking past what could have been a made a richer learning experience through a more guiding questioning style than continued explicit instruction.

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Peer review feedback from my video sample of this coaching session included commentary regarding the continuous coaching of ballet in comparison to the coaching of rowing. Peers saw the use of explicit feedback provided to the dancer. A question arose pertaining to the use of other task constraints utilized in ballet coaching to attain ideal exercise goals. This requires further research as typical ballet instruction and class settings do not allow for significant task constraints. The concept of designing multiple task constraints is one of interest for further research implications.

Discussion

As explained prior, the purpose of this trial individualized coaching session was to provide a comprehensive construct of reshaping the coaching of ballet within Newell's three stage model of motor learning through a focus of individual dancer strengths in order to identify effective coaching strategies through a balance of explicit and implicit coaching techniques. This trial utilized an individualized coaching session with a pre-professional ballet dancer, Ava, in order to examine these goals. The current push for change in ballet history presents this opportunity to re-evaluate dancer training in a reconstruction of coaching aims, making future

implications of this study relevant both to current ballet instructors as well as continuing research into applications of this method.

This trial individualized coaching session met this study purpose. We were able to begin the session with an initial discussion to identify Ava's specific network system of individual influences for learning ballet. Our similar background sport-specific training, allowing for a similar understanding and learning approach to specific skill instruction. Additionally, learning more about Ava's emotional beliefs and physical strengths allowed me to identify an appropriate baseline to begin coaching strategy development. This preliminary understanding of Ava's individual influences allowed me, as her coach, to better identify with her unique movement solutions (performance) for generalized motor problems (exercises) when watching the preliminary video of Ava's specific skill performance. This second part to establishing our baseline of sport instruction included an examination of the original execution of complex petite allegro exercises. A questioning strategy was employed to determine what areas of the reviewed exercise Ava felt needed work. Providing her the agency to guide her own learning experience, I could then supplement her athlete-centered learning experience with coaching guidance and offer potential reasons she may be experiencing specific motor problems. Throughout this process, I came to realize the importance and effectiveness of allowing individual dancer freedom through agency. While an explicit coaching strategy could have been employed in which Ava was given a series of prescribed instruction and correction of dancer weakness, utilizing a questioning strategy to guide Ava towards discovery of her unique constraints of strength versus weakness provided her the freedom necessary to not only enhance her own learning through self-exploration, but also gain self-confidence in her identification and comprehension of her own skill performance. From this combination of implicit strategy supplemented with explicit

instruction, we were able to identify our session focus as working on jump coordination between legs and feet including the push off and contention through resistance in the plié.

Moving into the determining trial exercises to address these focuses, the main determinate of this session was thereby based upon the concept of specific skill coaching through the restructuring of the three stages of motor learning. As per the concept of transfer, instead of focusing on the original context of the complex jumps, I designed an effective strategy of constraints-led approaches to removing the context of the specific jumps, in order to restructure the appropriate movement patterns necessary to accomplish the skills that Ava identified as difficult. Research has shown that the advanced complexity of ballet builds from the simplistic foundations of skills. The goal was to utilize the simplistic foundation of the jump, making alterations and adaptations to Ava's implicit understanding of jumping fundamentals. This understanding could then address her specified areas of concern at a rudimentary level to be applied across all future complexities of the skill.

In working towards restrictively adapting Ava's understanding of the simplistic *souté* (trial 1), we removed the complexities of context in order to focus on specific aspects of skill development. A constraints-led approach was utilized in combination with continued questioning strategies guided by basic amounts of explicit skill instruction. We utilized four constraints for trial 1, *souté* execution. These constraints focused on stage 1 and 2 of Newell's concept of motor learning, assembling a coordination pattern and gaining control of a coordinative structure (Davids et al., 2010). In this trial, the constraint was to remove the context of jumping, to focus on the mechanics of the push off for the jump. This experience provided Ava the capability of self-exploration for effective strategies for pushing off in her jump, thus building her strength in recognition for the full picture of related parts necessary to create the energy dynamics of a clear

position and jump height. The next constraints included tasks in which Ava was to push off the wall but was restricted by either keeping her knees bent, feet flexed, or heels up. These constraints directly relate to several aspects of jump coordination that we had identified as our task goal in our prior discussion. An explicit instructional strategy would have consisted of my telling Ava each of these parts while she performed the full jump: “knees straight, heels down, pointed feet.” However, the use of the constraints-led approach in constraints 2, 3, and 4 provided Ava the opportunity to build her own representation of the necessary parts to an effective jump within push-off isolation. Repetition of the initial constraint provided her the chance to gain control of her new formed coordinative structure, refining the parts of the skill into the basic step and movement precision. Lastly, we utilized a second trial, focusing on the landing of the jump in connection with the push-off through a resisted plié. This constraint fulfilled Newell’s third stage in skilled optimization of control for the foundational step in providing Ava the opportunity to apply her learning and restructure of the jump push-off (stages 1 and 2) towards a new environment, allowing for her increased control and efficiency in application of her work on *souté* towards a slightly more complex and connected step, *échappé*. The resulting learning from utilizing the three stages of motor learning was built through the restructuring of coordination patterns formed from basic foundation steps happens through the concept of transfer. As one skill, *souté*, was refined, Ava was able to alter the assembly of coordination patterns by building from the accumulation of transfer events into the more complex step of *échappé*.

A reflection of the process and results of this individual coaching session, exemplifies the effectiveness of a hybrid system focusing on implicit learning strategies supplemented with explicit instruction in ballet coaching for the specific skill of jumping. Removing the context of

the complex jumps provided an opportunity to evaluate working mechanisms of the jump with fewer parts and factors to consider. Ava's jump improved through this process, showing a more dynamic position and higher jump as a result of a constraints-led approach. Dancer feedback from Ava confirmed the success of her restructured concept of the mechanisms for the simplistic jump. The focus of individual influences proved invaluable when determining the best approach to coaching Ava. Our initial discussion provided insight to her individual constraints and background with learning the skill of jumping.

Implications for Future Coaching

This reflection upon the process and results of this individual coaching session demonstrates the effectiveness of a hybrid system focusing on implicit learning strategies supplemented with explicit instruction in ballet coaching for the specific skill of jumping. For future coaching implications, I will employ the concept of removing the context of the complex jumps provided an opportunity to evaluate working mechanisms of the jump with fewer parts and factors to consider. Ava's jump improved through this process, showing a more dynamic position and higher jump as a result of a constraints-led approach. From this, I can ascertain that by employing this concept through a hybrid system of explicit and implicit instruction strategies, my dancers will receive more freedom in individual determinants of movement solutions. Within a class setting, I can provide opportunity for freedom of learning through increased skill specific exercises such as these. In current class settings, dancers are given a uniformed motor problem in the form of a ballet exercise to be performed a single time with mainly explicit instruction of a uniformed correction to match all dancers in the class. However, in light of this study, future coaching can be adapted towards a learner-centered environment with increased attention to individual influences of each dancer. The focus of individual influences proved invaluable when

determining the best approach to coaching Ava, and further applications to full class settings would be able to create a more complete and effective instruction of classical ballet training.

Implications for Coaching Researchers

Implications for coaching researchers of this study would lean towards further research on the transfer of the simplistic foundational step towards the more complex execution of challenging skills. Research into this aspect of skill instruction transfer could help to determine the immediate effectiveness of this specific strategy to advanced dancers. Such research would shed light upon changes to strategy, process, and delivery necessary to successfully transfer skill reconstruction from a foundational application to one of more complexity for pre-professional advanced dancers. Additional research is also necessary to determine the effectiveness of this strategy when employed over a full class setting as opposed to an individual coaching session as well as across age spectrums. It would be relevant to determine adequate class sizes determined upon dancer age and skill level in order to more effectively utilize this individualized hybrid coaching technique. This research could identify age-specific changes that would aid in a better fit between dancer development and capability. Overall, this beginning study provides insight to a potential avenue of unexplored coaching strategies to provide for a more inclusive and individualized instructional strategy for the coaching of ballet.

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