Learning Choreography: Information Processing Style

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Though dancing is not usually compared to technology (unless you are a fan of "the robot"), the process of learning choreography can be compared to the linear processing of a computer via information processing theories, with information moving from working memory (WM) to long-term memory (LTM). Dancing involves procedural knowledge, which Schunk (2012) states is "stored gradually—often with extensive practice—and may be difficult to describe" (p. 185). It is key for dancers not only to practice and observe models, but also learn encoding and retrieval strategies. I particularly see relations between learning choreography and information processing's focus on organization, imagery, meaningfulness, and elaboration, and plan to apply this understanding to help teach my dance students effective learning strategies.

Encoding and Retrieval Strategies

Learning steps of a dance in class and being able to successfully perform that dance are not necessarily linked. If encoding is not effective and/or retrieval cues are not present, a student may "forget" the dance. Schunk (2012) states that to retrieve procedural knowledge "cues trigger associations in memory, and the process of spreading activation activates and recalls relevant knowledge" (p. 203), and that procedural knowledge established in memory "is retrieved quickly and often automatically" (p. 204), which is the goal of any dancer learning choreography. To help students reach automaticity with a piece, I must address their declarative (e.g., dance vocabulary) and procedural knowledge (e.g., how to execute steps). Organization, imagery, meaningfulness, and elaboration can help students strategically process needed information.

Organization

Organization occurs by "breaking information into parts and specifying relationships between parts" which "improves retrieval by linking relevant information" (Schunk, 2012, p. 203). Organizational strategies for learning choreography include learning hierarchies and chunking.

Learning hierarchies. Before teaching a dance, I should consider the choreography and decide which skills are needed to successfully perform the target skills. For example, just doing a double pirouette turn involves a number of prerequisite skills including knowing the passé relevé position, balancing in that position, spotting the head, and then being able to properly do a single pirouette. Schunk (2012) advises that "[w]henever steps can be specified, teacher demonstrations of the steps in a procedure, followed by student practice, are effective" (p. 197). Since WM capacity is limited, automatizing prerequisite skills through repeated practice allows for successful processing of the procedure (i.e., learning the choreography).

Chunking. Another way to reduce the load on WM during processing is to organize information into chunks by combining it "in a meaningful fashion" (Schunk, 2012, p. 183). Solway (2007) explains this in terms of learning choreography: "Where initially dancers see one move and then another, eventually they merge the steps into phrases and then into longer sequences" (par. 12). As an instructor, I should teach choreography by using chunking, as well as encourage students to create and use their own chunking methods. Karen Bradley, director of the University of Maryland graduate dance program, explains why this is important: "No two dancers chunk the same way. Some do it rhythmically, some consider spatial configurations, some think about weight shifts, some rely on imagery, and some follow an inner monologue" (as cited in Solway, 2007, par. 14).

Imagery

Mental imagery is not only a method that some dancers use for chunking information, but is also a helpful visualization strategy that allows for individual rehearsal in a group setting, and assists with transfer of knowledge to new contexts, such as an onstage performance.

Schunk (2012) explains how imagery can increase student learning in a dance class:

> Dance teachers might have their students close their eyes while listening to the music to which they will be performing. Then they might ask the students to imagine themselves dancing, visualizing every step and movement. The teacher also might ask students to visualize where they and their classmates are on the stage as they dance. (p. 215)

I have used this visualization strategy, and knowing now that it is backed by information processing theories reconfirms my belief in its importance. However, not all individuals use imagery routinely, especially older students, but according to Schunk (2012), even in adults "the capacity to form images can be developed" (p. 217). Most dancers, though, have rehearsed certain movements to the extent that their brains "are exquisitely sensitive to seeing movements they've rehearsed", and that if dancers even just "see someone performing an arabesque, for example, certain motor areas of their brains respond as if they were themselves performing the step" (Solway, 2007, par.6). In this way, visualization mirrors the benefits of physical rehearsal.

Meaningfulness and Elaboration

Dancers' brains also readily respond to the processing of information, via spreading activation, when that information is deemed meaningful. Schunk (2012) warns that "[n]onmeaningful information will not activate information in LTM" (p. 201), and "[e]laborations not linked well to the content do not aid recall" (p. 203). Therefore, as an instructor I should not only provide retrieval cues that match the cues available during encoding, but also help students elaborate and make meaningful connections by teaching strategies that utilize prior knowledge.

Prior knowledge. Particularly for novice dance students, trying to learn choreography that involves unknown movements is quite difficult. Returning to the double pirouette example, if a student does not already know the basic passé position, trying to properly add the other elements of the turn is almost impossible. Schunk (2012) states that "[e]ncoding usually is

accomplished by making new information meaningful and integrating it with known information in LTM." (p. 187), and that retrieval is facilitated as "elaboration establishes links between old and new information" (p. 202). So, to teach the passé position for a pirouette I can draw on information the students already know (e.g., what a flamingo looks like standing on one leg, and what shape your arms make when holding a beach ball). I can also incorporate elaborative rehearsal by having students add additional layers of meaning to the choreography movements to improve activation (e.g., Does that pirouette correspond with a certain lyric or emotion? Does it help to tell a story?). Solway (2007) explains the importance of this for dancers at all levels: "[K]nowing the steps of a dance is just the first phase in perfecting it. They must also convey the intention and feeling of the works they perform" (Solway, 2007, par. 3).

Prediction. More experienced dance students can also use their prior knowledge to help predict what movements come next in choreography, which decreases cognitive load and saves time when learning. This can be compared to information processing's take on language comprehension, such as Schunk's (2012) proposition that "[n]etworks allow people to understand incomplete communications" (p. 206). Sloan (2007) also sees this comparison: "Dance is a language. Once you learn the language, you can begin to predict what steps could come next based on combinations that have become familiar to you" (par. 4). For example, if I tell a novice student that a leap in the choreography begins with a "tombé prep", they will not make a connection. However, an experienced student will infer that this means a "preparation of tombé pas de bourrée glissade". Sloan further explains prediction in dance: "For the most part, in classical dance, there are only so many steps that can physically link to other steps based on where your body, your weight, and your momentum are at that moment" (par. 4). Helping students to utilize their prior knowledge will assist in the formation of meaningful connections, allowing for better retrieval during performance.

Conclusion

Now that I understand learning choreography in terms of information processing theories, I can demonstrate and teach specific learning strategies to my dance students so that they can better learn and more automatically perform choreography. While linear, computer-oriented information processing theories do not address students' ability to approach learning choreography in an analytical or creative way, their focus on encoding and retrieval conveys strategies. I can help students make strong connections between needed information when learning and practicing choreography through organization (e.g., using learning hierarchies and chunking), mental imagery, and meaningfulness and elaboration (e.g., integrating prior knowledge). Even professional dancers benefit from these strategies for learning choreography.

Solway (2007) presents a picture of this at an American Ballet Theater rehearsal:

> As they followed behind him, sketching his moves, Gomes gave a master class in cognitive learning - or so it seemed to an outsider…First he demonstrated each role, calling out verbal cues ("You look at the moon"), ballet positions ("Put her in fourth") and movements ("You're doing bourrées and saying 'no' at the same time"), and then described in more detail the impetus for the movement ("As you back up, you're scheming, and we see it on your face"), all the while humming the Mendelssohn score and counting the beats." (par. 8-9)

Not only should I demonstrate learning strategies when teaching, like Gomes, but I should also encourage students to find and use strategies that work best for them individually.

References

Schunk, D. H. (2012). *Learning theories: An educational perspective* (6th ed.). Boston, MA: Pearson Education, Inc.

Sloan, K. (2007, May 29). This is your brain on dance. *The Winger*. Retrieved from http://thewinger.com/2007/this-is-your-brain-on-dance/

Solway, D. (2007, May 28). How the body (and mind) learns a dance. *The New York Times*. Retrieved from http://www.nytimes.com/2007/05/28/arts/28iht-dance.html?pagewanted=all&_r=4&