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Infusing Bodily Connotations Into Storytelling Instruction: A Discussion Grounded in Embodied Cognitive Theory

ZHANG Yongfei[a],[b],*

[a]Ph.D., Candidate, Department of Education, Southwest University, Chongqing, China.
[b]Associate professor, College of Education Science, Dali University, Dali, China.
*Corresponding author.

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Abstract
Reforms in the theory and practice of curriculum and instruction should be based on changes in their theoretical foundation of cognitive theories. Traditional cognitive science has long been stuck in the confines of Cartesian dualism: the intact human being is divided into body and mind; cognitive computationalism and information processing theories have been prevalent. The computational metaphor of cognition advocates a "disembodied" kind of cognition and devalues bodily connotations. This approach has also impacted our fundamental understanding of issues in education and instruction; the theory and practice of storytelling instruction inevitably head down the wrong path as well due to the influence of this approach. Embodied cognitive theory is a new direction in contemporary philosophy and research in cognitive sciences; its emphasis on the cultural, integral, and affective nature of cognition infuses bodily connotations into our understanding of cognition. This new theoretical approach would also reveal new implications for the theory and practice of storytelling instruction.

Key words: Storytelling instruction; Embodied cognition; Cultural nature; Integral nature; Affective nature

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INTRODUCTION
Discussions of human cognition from religious, philosophical, and scientific perspectives alike are the most profound question presented to us. Cognitive sciences are a continuation of philosophical epistemology; cognitive sciences including computationalism, symbolism, cognitivism and other research paradigms have long been stuck in the confines of Cartesian dualism, which, on the basic premise of body/mind dualism, defines cognitive activities as a well-established, codified intellectual process, as the processing and computation of symbols or information, as the internal linkages of neurons and so forth. These research paradigms neglect and obscure the key roles that the body and the surrounding environment play in a cognitive process; just like behaviorism, they can all fall into the category of disembodied cognition. Embodied cognitive theory is a new trend of European and American philosophy that has developed based on long-time reflection on and critique of the Cartesian mind/matter dualism. It breaks away from the framework of classical cognitive theories characterized by the brain-centered hypothesis, views brain-body-world as an integral system, which is regarded as the basis of human cognition, and emphasizes that the surrounding environment is a part of the cognitive system. Here, the body is not a single brain or an isolated body; instead, it is the body and its experiential structure situated in the context of the "life-world". Embodiment also includes the body as the environment and context of cognitive mechanisms. Viewed from the perspective of epistemology, learning and instruction are special cognitive activities of humans; reforms in the theory and practice of curriculum and instruction should be based on changes in their theoretical foundation of cognitive theories. Using story-telling as a means of enlightenment and education is a time-honored practice; in the context of the new curriculum reforms, storytelling instruction needs to be infused with new connotations in adapting

to the requirements of curriculum transformation and development so that it can become more vigorous. The propounding of embodied cognition theory not only has enriched research in philosophy and cognitive science itself but will also suggest new directions in promoting theoretical innovations and practical transformations of storytelling instruction.

1. EMBODIED COGNITION EMPHASIZES THE IMPLICATIONS OF ITS CULTURAL NATURE FOR STORYTELLING INSTRUCTION

For a very long time, theories in cognitive science have shared a similar view: Cognition is the processing and computation of information by the brain; it is a result of input-output. The occurrence of cognition is merely an internal incident in the nervous system and has little to do with culture. Theories of embodied cognition argue that "the occurrence and development of cognition depends on all kinds of experience, particularly bodily experience, and is embedded in the intricate interplay of the individual, the environment, culture, and many other factors" (Clark, 1999). Cognition is shaped by the body and the surrounding environment together. Viewed from the perspective of embodied cognitive theory, culture not only influences cognition; it also constitutes and determines cognition. Individual psychological structure and behavior, including cognitive activities, surely cannot exist outside certain historical, cultural, and environmental contexts. If we compare European classical music, African American jazz, and traditional Chinese opera, we can see clearly that art is embedded in bodily experience and that social history, cultural context, and so forth provide an important psychological structure for people's perception, understanding, and creation of art. Cognition does not have an ultimate basis or foundation beyond its embodied history (Varela, Thompson, & Rosch, 2010, p.XXI). History and culture is our context of living and the body is the means by which we live in the "life-world"; our cognition and the means by which it is communicated vary in different cultural contexts.

Stories play an important role in the formation and development of a culture. People always like to pass down their cultural traditions, experience and knowledge, religious beliefs, customs and habits, morals, and so forth to subsequent generations through stories. Educational activities in the early phases of human history often took the form of story-telling. For example, the myths of ancient Greece and Rome have had a deep influence on European cultures; Socrates loved to tell stories; Plato stated in *The Republic* that a primary means of education for three- to six-year-olds is story-telling. Chinese educators are also good at using stories like "Mother of Meng choosing the right neighbor", "Zengzi slaughtering a pig", and "Kong Rong giving up the biggest pear" to build character and cultivate virtues. The cultural value of storytelling instruction is the communication and inheritance of knowledge, experience, and culture. The effect of culture on cognition is that culture constitutes, influences, and determines cognition. To emphasize the cultural nature of cognition in storytelling instruction, we need to properly address two questions:

Firstly, what kind of culture do we need to choose and pass down and what kind of cultural spirit do we need to cultivate in people? The stories of every country and every ethnic group are deeply embedded in their own cultures; *The Twenty-Four Filial Exemplars*, *Aesop's Fables*, *The Thousand and One Nights*, *Grimms' Fairy Tales*, *Andersen's Fairy Tales* and so forth all illustrate the significant differences among different ethnic groups in history and culture, morals and ethics, customs and traditions, ideology and mentality, and other aspects. We create stories, we tell stories, we hear stories, and we are shaped by stories. Choosing stories are choosing culture; these choices will shape one's cultural personality in a gradual and imperceptible manner just like spring drizzle that comes with the wind at night and humidifies the world around us.

Secondly, how can the cultural nature of stories be illustrated in storytelling instruction? For teachers, imparting stories as some kind of knowledge is different from passing down stories as a form of culture in many aspects such as predetermined objectives, methods employed in teaching, attitude towards teaching, and investment of energy. If they choose the former, then knowledge can be spoon-fed, teaching methods can be simple, mechanical, and intense, attitude towards teaching can be perfunctory, and the teacher can even complete the whole process in the form of a "monologue". By contrast, the latter requires a well-crafted curriculum and whole-hearted devotion on the part of the teacher; it also requires that the teacher has a comprehensive grasp and deep understanding of the cultural background of the stories used in instruction. To understand and adequately narrate cultural stories, the teacher himself or herself has to be a culturally well-informed, intellectually vital, and confident literature.

2. EMBODIED COGNITION EMPHASIZES THE IMPLICATIONS OF ITS INTEGRAL NATURE FOR STORYTELLING INSTRUCTION

According to the Gestalt psychology theory on the wholeness of perception, individuals are capable of drawing upon existing experience and background knowledge to integrate discrete properties and disparate

parts of an object existing in ordinary time and space into a unified whole. Borrowing from the wholeness of perception theories, embodied cognitive science asserts that the body is indivisible, body and mind are an integral whole, and humans perceive the world in a holistic manner. Because I have a body, because I act in the world through my body, the time-space reality as I view it is not the sum of the dots (Merleau-Ponty, 2001, p.186). For example, when we look at figure 1, we can see two superimposed triangles and three partially covered squares instead of a bunch of disordered irregular geometric shapes. Cognition uses the body as a basic frame of reference; it is an integral process and not simple computation and processing of information. Traditional cognitive science is misleading in breaking down the cognitive system into various internal neural or functional sub-systems. Mozart once wrote that "the entire piece of music, albeit long...I was not listening continuously to one chunk after another; instead, I heard them all at once" (R. Root-Bernstein & Root-Bernstein, 2001, p.73). Aristotle also believed that stories always have a complete structure: a beginning—a middle—an end. Thus from the very beginning stories already necessarily include a beginning and an end.

Figure 1
Wholeness & Understanding of Perception

Following the rule of the integral nature of cognition in storytelling instruction, teachers may leave blanks as needed and become adept at telling an incomplete story, creating adequate suspense. Students can use their experience and background knowledge to help them understand the story and create a complete story by filling in the blanks. We have all had such experience with story-telling: there is always an important character in the story, there will be some problem scenarios in the story, some difficult issues to be solved, a puzzle with cues, and we expect results and objectives. The integral nature of cognition determines that when a story is presented to us, naturally the structure of a complete story is formed, which necessarily includes a beginning and an end. The existence of such a structure not only reveals to us in the past but also enables us to interpret the present. That is why the suspense and blanks in a story are often better able to capture the attention of students and stimulate their interest. Engaging students in understanding and completing a story through adequate suspense and blanks are a process that emphasizes generative power. Doll argued that a good story, a great story, would motivate, encourage, and urge the reader to interpret and have a dialogue with the text. A good story should have a sufficient degree of uncertainty to entice the reader to participate in the dialogue (2000, pp.240-241). As the saying goes, "there are a thousand Hamlets in a thousand people's eyes". Teachers should give students some room for imagination and exploration. Due to differences in living environment and cultural background or even gender differences and fluctuations in mood, students may understand, perceive, and experience the same story in different ways. The integral nature of embodied cognition also determines the aesthetics of humans: Beauty is the pursuit of completeness as exemplified by our appreciation of the beauty of the goddess Venus. She is beautiful precisely because upon seeing her statue with arms broken off at the shoulder, each individual has adequate room for pondering and imagination and thus can form a mental image of the perfect Venus according to his or her own understanding of the body. A successful expressive act not only provides a mnemonic device for readers and the author alike; it also makes meaning become an artifact that exists at the center of the author's work as well as a new sense organ that is placed inside the author or readers. It opens up a new realm or field for our experience (Merleau-Ponty, 2001, p.238). If we expect to facilitate students' mental and intellectual development through instruction, if we expect to inspire and guide students' curiosity through instruction, if we expect to nurture a spirit of innovation through instruction, then we should be not merely spoon-feed stories as knowledge. The generative power of students requires that teachers accept and acknowledge differences as well as respect the understanding, perception, and experience of students. Only in this way can a story truly become students' own story, the creation of which involves the students' participation. Otherwise, the story will always remain someone else's story.

3. EMBODIED COGNITION EMPHASIZES THE IMPLICATIONS OF ITS AFFECTIVE NATURE FOR STORYTELLING INSTRUCTION

According to the cognitive theory of learning, learning is a form of cognitive processing. Classical cognitive theories define cognition as "the whole process of sensory input being converted, simplified, processed, stored, abstracted, and used" (Peng, 2001, p.30). The processing of cognition

is not affected by affective factors. Cognitive science has long been grounded in the hypothesis of disembodied cognition. The hypothesis of the computation metaphor of cognition and the rapid development of artificial intelligence even lead cognitive science to a similar view: Cranial nerve cells and computer transistors are highly identical; the human brain is a biological computer. The fanatical fantasy of computationalism has further pushed theories of disembodied cognition to the extreme and has even led to the "brain in a vat" hypothesis: The body is not absolutely necessary to cognition; cognition is perfectly capable of occurring in a "brain" soaked in a specially designed vat. Psychological events occur by providing the neurons floating and swinging in nutrient solution with stimuli in exactly the same way that the brain in the cranial cavity receives stimuli (Damasio, 2007, p.176).

A brain like this is still capable of normal psychological activities. In Descartes' view, the soul would exist in eternity even without a body. With the help of infinitely advanced science and technology, eventually the day will come when humans can continue to live in the form of a brain with no need for a body, just like in the narrative of the Hollywood movie *Source Code*. We would have to say that this is an innocent and bold hypothesis but it is also a wild fantasy. According to theories of embodied cognition, "no body, no consciousness" (Kelly, 2010, p.73); no body, no mind. All of us would rather believe that we are rational beings and that we remain objective, fair, and free from emotional biases in interacting with other people, reasoning, and decision-making. Yet as a matter of fact, this is only wishful thinking on our part; abstract logical reasoning with a complete lack of emotion is impossible. The James-Lange theory of emotion in psychology suggests that bodily movement or behavior has an impact on human cognition. For example, crying would intensify grief and sorrow; the more we cry, the sadder we feel. We exist in the world in a bodily form; the body is a body with emotions.

Stepper and colleagues (1993) have found through experiments and observation that bad posture like slouching with slumped shoulders is more likely to make one feel dispirited and depressed while good posture like holding one's head up high and walking tall is more likely to make one feel confident and in high spirits. Artificial intelligence would never become capable of understanding the internal affective state of humans unless the computer had a human body. Humans cannot handle and process information as "objectively" as computers do; cognition is affective, embodied cognition. If we adhere to the view that learning is a special cognitive activity, then it becomes even more obvious to us that students' learning is affective, embodied learning.

In storytelling instruction, we should spurn the method of using stories for quick success in and instant benefit of imparting knowledge; instead, we should place more emphasis on the affective experiences that stories provide for students. Everyone loves to hear stories; it seems to be human nature. This may be attributable to the fact that stories have their own lives and are inherently affective. The goal of education in ancient Greece and Rome was to cultivate "kindness" to people. Myths were included selectively as an important component of education; these stories were used to cultivate "wisdom", "bravery", "moderation", and "justice".

In ancient China, it was believed that "metaphor" types of methods should be used to produce men with noble character such as the method of teaching moral lessons through stories and fables. One not only acquires large amounts of knowledge from stories but also gains strong emotional experiences because stories are anything but boring. Students would easily lose interest in listening to script lecturing and they would also easily become resistant to the purely expository method of preaching because these methods of teaching neglect the emotional involvement of students in the learning process. Storytelling instruction can arouse one's feelings; the plot of a story is most likely to create appealing emotional resonance. Because of embodiment, we would necessarily observe the world from a limited perspective and be always situated in specific emotions in this process of observation (He, 2009, p.vii). These affective factors are necessary components in one's cognitive, learning, thinking, and productive processes. Unlike what is posited in some theories, they are not obstructive or interfering; instead, they can play a facilitative and even determining role. We would have to admit that in terms of recording human images, the computer can record the physical appearance of a person of more "realistically" than the greatest painter in the world. Yet the computer can never create a classic masterpiece like the *Mona Lisa*. Viewers can appreciate works of art and readers can understand stories precisely because humans live in the world in a bodily form.

The body is the "sounding board" of atmosphere and emotion; the occurrence of an emotion not only influences oneself but can also infect and influence others directly through emotional means, creating resonance, sympathy, and empathy. Moreover, the body is also a "convertor"; it can convert experience into behavior, response, or action. In storytelling instruction, if teachers merely position themselves as a narrator and place their students in the role of a recipient, undertaking teaching activities as simple information transmission and feedback, they would be repeating the mistake of the hypothesis of disembodied cognition.

As the initiator in storytelling instruction, teachers need to mobilize the affective factors in teacher-student interaction, guide students in their attempt to relate the settings and emotions in the stories as much as possible to their own life experiences through association and simulation so that the object and the person become

a unified whole, thereby truly meeting the curriculum requirement of "understanding the plot in a story and relating to the characters". Only by doing so can the storytelling instruction transcend the "accumulation of rational knowledge and cognition" (Jaspers, 1991, p.4) and become the kind of heart-touching, soul-cleansing education.

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