

A Novel Perspective in Cognition and Learning: Applications of Embodied Cognition in Curricula and Instruction

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In this study, an extensive literature review is presented on how embodied cognition theory can be adapted to different modalities of learning and how it can improve learning outcomes. In recent years, the flipped education has gained popularity in Taiwan's education. This flipping has shown to be more beneficial to students who are with visual and auditory learning styles, than those who are kinesthetic learners. Two important components of embodied cognition theory claim that the body participates in the formation of cognition and pays attention to the transmission of multisensory information. Therefore, the implementation of embodied cognition theory in instruction may be well suited for students with different modality preferences. The literature review is divided into four parts: 1) introduction to embodied cognition theory, 2) applications of the theory, 3) suggestive implementations of the theory, and 4) the steps of implementation by embodied cognition teaching method.

The first part introduces the basic concepts of embodied cognition, the perspectives of embodied cognition on language acquisition, the evidence from cognitive neuroscience, and the studies that showed how embodied cognition promotes learning from gestures, active experience, and indexing, as well as related research from the teaching site. The second part of the literature review integrates the important viewpoints of embodied cognition theory and proposes its application in the curriculum and instruction, including subject instruction, music education, special education, and computer-aided instruction. The third part provides suggestions on how to implement the theory in curriculum design and instruction: the teachers realizing the transformation of their roles, the integration of body movements into teaching, the multisensory techniques for concrete instruction, and the emphases of tangible and intangible learning environment. The last part reaffirms the ideas of embodied cognition theory, and points out the steps to implement embodied cognition teaching. Through this comprehensive literature review, a deeper understanding of what and how the theory of embodied cognition can transform instruction, curriculum, and improve student learning outcomes.

Keywords: body movement, curriculum design, embodied cognition, indexical hypothesis, multisensory