

Chapter 8

The Effect of Brain–Based Professional Development on Shifting English Language Teachers’ Pedagogical Perceptions

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ABSTRACT

Brain-based learning (BBL) represents a new paradigm for teaching 21st Century learners. This chapter introduces brain-based professional development (BBPD) that utilizes theories and key findings from the field of cognitive neuroscience. This chapter reviews brain-based approach to learning and brain-compatible strategies for teaching as well as how to design a BBL lesson plan. Additionally, the chapter highlights the significance of incorporating BBL in professional development especially for novice English language teachers on shifting English language teachers’ pedagogical perceptions. It stresses the importance of educating teachers about the brain and introducing brain-based instructional strategies. Besides, future research directions and educational implications of brain-based instruction are provided particularly for English language teaching and classroom environment.

INTRODUCTION

21st Century education requires teachers to help learners attain the multifaceted skills necessary for living, learning and working in the 21st Century. Reforming 21st Century education is fruitless without developing teachers and empowering them with techniques to achieve this reform. Therefore, effective professional development should result in modifying teachers’ knowledge, attitudes, and beliefs along

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with helping teachers transform the newest findings of educational research into classroom practices. Understanding how learners learn, along with adjusting teaching to satisfy the learners' needs, is an important aspect of teachers' professional education.

Brain-based learning (BBL) represents a new paradigm for teaching 21st Century learners. Neuroscientific knowledge empowers teachers with better ways to learn and to teach in the 21st Century. Neuro-Education, Carew and Magsamen (2010) state, is a nascent discipline that blends various fields including neuroscience, cognitive psychology, and education to better understand the learning process and thus to utilize more dynamic curricula, teaching methods, assessment, and educational policy. Zaidina (2015) argues that having knowledge of basic neuroscience concepts and underlying components of learning and how to nurture it is an essential aspect of teacher training. Accordingly, educators and teachers need to update what they know about brain development, physiology, motivation, information processing, memory, and transferring learning from scientific research. Such knowledge can inform teachers' practices in the classroom. In the English language learning context, El-Henawy (2018) points out that providing educators with neuroscientific knowledge encourages them to utilize various techniques to promote English language instruction by engaging students in meaningful and authentic tasks.

Teachers' perceptions about the curriculum to be taught, their students, the learning process, and the teaching profession are considered to have a critical influence on teachers' cognition and practice (Mohammadi, & Moradi, 2017). Since integrating neuroscience into teachers' knowledge influences how teachers conceptualize the learning and teaching processes, Ansari, König, Leask, and Tokuhama-Espinosa (2017) advocate incorporating neuroscience in pre-service teacher education and in-service professional development. Without more effective preparation and training, teachers may not be ready to make the shift toward brain-compatible education to foster deeper learning for all students and engage their 21st-century brains with innovative activities.

REVIEW OF LITERATURE

Brain-Based Learning and Teaching

“Learning is a process of building neural networks” (Wolfe, 2001, p. 135) and “teaching is the art of creating conditions that lead to nurturing change in a learner’s brain” (Zull, 2002, p. 5). Cercone (2006) and Ronis (2007) contend that Brain-based learning (BBL) is a new paradigm that translates neuroscience research for educational applications that help educators move from teaching to the test to initiating the changes needed to better prepare students for the twenty-first century. According to Caine and Caine (1991), brain-based learning entails acknowledging the neuroscience rules for fulfilling meaningful learning and managing teaching. Additionally, Jensen (2008, p. 4) defines brain-based learning as “learning in accordance with the way the brain is naturally designed to learn”.

BBL is aligned with constructivism (Cercone, 2006). Reviewing constructivist and brain-based learning models, Gülpinar (2005) inferred that both theories view a learner as a unique individual with a special sociocultural context, build enriched and challenging environment for all learners, create authentic experiences, offer choices in activities, and provide learners with opportunities to solidify, internalize, and reflect on what they learn. Similarly, Kahveci and Ay (2008) confirm that though BBL and constructivism have emerged out of two different fields, they had common educational implications. Like the constructivist approach, brain-based learning considers learners' cognitive, affective, and

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