

Whole-Brain Paths to Language Learning: An English Instruction Model

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ABSTRACT

The fact that scores on international tests such as TOFEL and TOEIC in recent years have revealed that college students in Taiwan lag behind their counterparts in the rest of the world in English proficiency suggests that there exist immediate needs for the students to improve their English skills in order to attain a better level of proficiency. The current trend moving toward globalization also demands that college students be capable of international communication. English is now the main medium employed on the internet and in worldwide communication. This being the case, having strong communicative competence in English prepares college students for global advancement in specialized knowledge and information technology.

This study addresses the issues of how college English instruction can be designed to correspond with students' sociological as well as academic needs for becoming successful English learners. The proposed Whole-Brain Pathways Model (WBP) aims to promote college students' English proficiency with emphasis being placed on the importance of equipping learners with essential skills for receiving comprehensible input, thereby rendering productive output possible.

Key Words: whole-brain pathways model, globalization, communicative competence, English proficiency

英語課程之教與學：全腦聯結模式

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摘要

近年來第二外語習得的研究，逐漸著重於語言習得本質上的探討，基於人類大腦區域各具不同的功能，議題囊括大腦的認知研究及大腦與語言資訊處理之間的關係，以探討如何強化落實第二外語的學習。本文提出「全腦英語教學法」，認為英語課程的設計，如果能注重左右腦資訊處理的差異方式，並融合語言學習者學習風格的自然傾向，輔以多元的英語學習環境及學習策略的啟蒙，使語言教學能成為有意義的學習，達到事半功倍之效。

關鍵詞：第二外語習得，語言習得，資訊處理，學習風格，全腦英語教學法，學習方法，學習策略



I. INTRODUCTION

The language learner is an individual seen as an active explorer constantly constructing a mental model of how he thinks English fits his experience, testing the language rules by making guesses, trials and errors in light of the new language experience he encounters, adjusting the theories when necessary (Owens, 2001).

To consider learning from a neural perspective, the essence of learning is to create learning pathways and employ them to build additional pathways (McCarthy, 1987). Namely learning occurs when the brain creates neural paths. The more connections the pathways made, the more learning is likely to take shape as the obtained learning paves the opportunity for further learning. Building on the known in connection with the new knowledge of the old is a strategy claimed to be useful in facilitating learning. By the same token, learning takes place because learners are mixing the new language targets with the learned ones, rendering the pathway pavement to the mental model possible, i.e. the so-called internalization process (Paul, 2003). As the taught language targets are deeply internalized, such learning allows learners to integrate the new knowledge into their English mental model and further expands it, enabling them to actively make predictions in novel situations.

II. THE ESSENTIALS OF THE WBP INSTRUCTION MODEL

1. The Dynamic Process of the WBP

Targeting at the enhancement of English learning for college students, the operating process of the WBP suggested includes three stages - Defining, Establishing, and Designing, as shown in Figure 1. The process starts with the rationale taking account of the English skills required in context of college classroom and community. The gauge of the overall situation follows the establishment of the instructional goals of

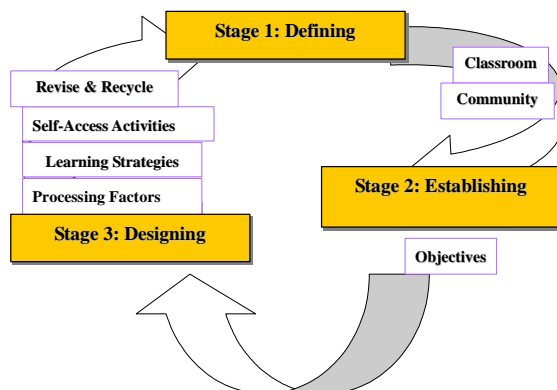


Fig. 1. The process of the WBP instruction model

the lesson design: the objectives and the learning needs under the aspects of the whole brain friendly consideration. Both right brain and left brain learning modalities are subsumed to ensure students able to learn English within the proximity of their comfort zone, maximizing the possible number of pathways routing and connections. As the lesson design is in place, employing appropriate instructional methods to deliver English materials incorporating various types of instruction is then ready. Learners may preferably perceive and process information concretely or abstractly, actively or reflectively (Kolb, 1984); integrating individualistic information processing factors into the lesson design strengthens learning. It allows students to engage in learning so that they are able to capitalize on their learning preference. Students can then further develop their language abilities, weaving the new language target pattern into their existing mental language model, using the target language in novel situation.

2. Language Forms and Language Use in Context

Language reception and production are closely connected in language development; one cannot be detached from the other. A language instruction model needs to subsume the integrated four skills in the teaching (Brown, 1994) to ensure that comprehensible input leads to productive output. For effective college English education, the WBP model takes the integration of four skills into consideration, namely the skills of listening, speaking, reading, and writing. The chosen English materials of the WBP model aim to promote students' overall English proficiency with focused skill training on thematic modules. To meet the specialized knowledge requirement of each college, academic language proficiency within students' fields of studies is also taken into account.

The proposed WBP model intends to develop students' English ability in a holistic fashion (Croker, 2002; Kolb, 1984; McCarthy, 1987), emphasizing the balanced learning of right brain and left brain to ensure students to achieve their best not only at the knowledge level but also the motivation level.

It is widely recognized that our left brain and right brain function differently (Jensen, 1998). The left brain takes in information in logical, rational, linear, analytical, and sequential ways. It seeks detail and specificity. This being the case, it controls the manipulation of symbols, namely structurally proficient in language functions. The right brain, on the other hand, takes in information in simultaneous, holistic, metaphoric and analogic ways. It looks toward larger systems of relationships and is more involved in visual and spatial reasoning. The right brain is pragmatically proficient. With these functions inextricably interwoven, their distinctions,



are not entirely conscious to learners and may often pass unnoticed without mentioning.

Table 1 summarizes the functional dominance of the left brain and the right brain in detail (Bowers, 1990; Rico, 2000): As our two halves of the brain receive information differently, left brain sees from the parts to the whole and right brain sees the whole to the parts. Language learners may therefore exhibit the preference of being either right brain dominant or left brain dominant. With the functional difference in mind, the instruction objectives of the WBP emphasize the parts (i.e. language usage such as grammar) as well as the whole (i.e. language use in practical context) in English learning. Multiple contexts for targeted language patterns are provided through computer enhanced classrooms. The materials taught within the WBP model are accordingly content-driven. Across the curriculum, instructional emphasis is placed on not only the use of authentic English materials with thematic modules but also English pattern usage.

3. Integrating Processing Factors into Lesson Design

Just as we have seen that the two halves of human brain are selective in their cognitive functions, so does the human brain navigate its ways to process information. In our information processing system, environmental stimuli are taken in, stored and retrieved by distinct mental structures. This system is utilized in various activities, including the learning and the use of language. Learning starts from what learners perceive, either concrete or abstract. The process of learning can then be accordingly activated. Observe that learning occurs when the internalization process takes shape, rendering longer information retention. There are ways of processes that learners may choose to navigate through, either active or reflective. Active processing indicates that learners engage in substantial activities or experiment with the taught subjects.

Table 1. Functional dominance of LB and RB

Left Brain	Right Brain
Categorical	Perceptual
Inductive	Deductive
Abstract	Concrete
Symbolic	Literal
Detail-oriented	Pattern-oriented
Convergent	Divergent
Logical	Intuitive
Verbal	Non-verbal
Sequential	Holistic
Parts	Gestalt
Printed expressions	Visuospatial
Analytic	Global
Auditory	Visual

Activities of this sort help learners discover the meaning of what is being learned, thriving on meaningful learning. Reflective activities, on the other hand, enable learners to organize the taught info, hence personalizing the experience and strengthening the learning. By the arrangement of two axes below, one horizontal, the other vertical (Croaker, 2002; McCarthy, 1987), the composite of processing factors under consideration within the WBP is illustrated in Figure 2.

By superimposing the perceiving axe onto the processing axe, four quadrants emerge, each of the quadrants representing important pathways for learning consolidation and also the guidelines of lesson plan design.

Quadrant A is the instructional step of letting students notice and find out what they want to learn. Quadrants B and C are the instructional steps of assisting students to explore with what they need to learn and to integrate what they have learned through various practices and exercises. These steps include learning outcome assessment in relation to the gauge of effectiveness of the instruction. Quadrant D, the final instructional step, is to enhance learning by establishing the links between the newly acquired target language and the existing language model. Such linking process is vital for language learners to internalize the learned language target, through actively putting the knowledge into use in novel situations, and even making predictions about the related language items that they might encounter in the future experience.

To activate the learners' learning cycle, the WBP Instruction Modal balances contents and processing skills to assist in internalizing new knowledge, including the steps of noticing, challenging, practicing, analyzing, reflecting and assessing. For effective learning, teachers need to employ various teaching methods to achieve an integrated instructional program that can be personalized and reflects the learning pre-

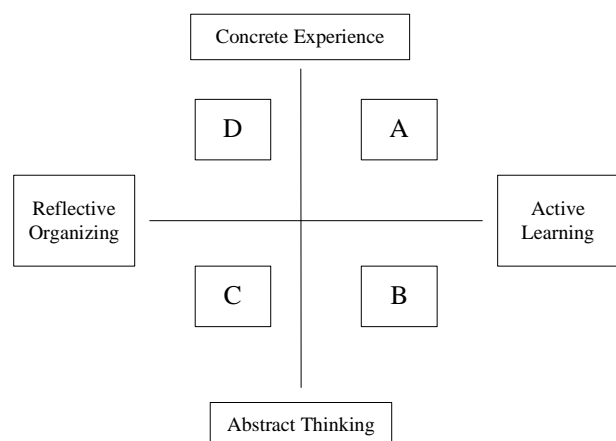


Fig. 2. The WBP learning cycle quadrants



ference of the individual learners. A multimedia language learning center is created for such purposes. The use of multimedia in language teaching and learning can be a dynamic form of communication keeping students focused and engrossed. The integration of media objects such as computerized texts, videos, animation and sounds can achieve a balanced instructional purpose, helping students not only personalize the learning but also reflect the needs and interests of the individual learners. In addition to classroom English learning, students, within the multimedia self-accessible language center, are encouraged to exploit resources on the internet and through the cable network. This leads to greater learner autonomy and more meaningful learning, for learners can become more active, self-directed, and effective. Concerning the whole brain compatible learning styles and strategies, the WBP instruction model provides learners various learning activities with the amount of support and comfort they need in learning. The breadth and the depth of the learning experience suggested allow students not only to thrive on learning but also be able to monitor their learning achievement in line with their cognitive growth, thus providing better chance for them to become successful English learners.

III. CONCLUSION

Second language acquisition develops through meaningful use and interaction under constant exposure with individual practice and group interaction in the target language. Language learning involves skills analysis and information organization in developmental stages. Successful language learning is likely to occur, as instruction design takes language learning as learner-centered, with learners constructing a mental language model. Human is born with a powerful brain processor in perceiving, producing and storing information. The process of the information flow engages whole-brain efforts, and attempts made by both modes of the brain strengthen the learning.

The WBP instruction system adopts the teaching methods based upon brain research, engaging students in authentic language activities with brain compatible learning strategies. The instruction model proposed, in the light of two modes of the brain exploiting different cognitive functions, attempts not only to eliminate the sense of threat that students have from English learning but also to promote students' English learning to be more active, self-direct and meaningful. Every stage developed by the proposed model is guided by three key elements: defining, establishing and designing so that instructors can monitor students' progress to ensure that learning occurs. Activities are integrated in the instruction to

allow students to gain the necessary knowledge cohered to the objectives. Evaluation is used to gauge the teaching effectiveness to see if the objectives of the lessons are met. The WBP model takes language learning as the process of active involvement, aiming at not only to teach the language materials for practical and academic purposes but also to activate students' learning mechanisms to become proficient English learners.

REFERENCES

- Bowers, P. S. (1990). Using the 4MAT system to bring learning styles to schools. *Educational Leadership*, 48(2), 31-37.
- Brown, D. (2000). *Teaching by principles*. New York: Longman.
- Caine, R., & Caine, G. (1994). *Making connections: Teaching and the human brain*. California: Addison-Wesley.
- Cobb, P., & Bowers, J. (1999). Cognitive and situated learning perspectives in theory and practice. *Educational Researcher*, 28(2), 4-15
- Crocker, E. R. (2002). *Developing whole-brain instruction: A learning styles model*. ID: ISU.
- Christison, M. A. (2002). Brain-based research and language teaching. *English Teaching Forum*, 40(2), 2-7.
- Fodor, J. (1983). *Modularity of mind*. Cambridge: MIT Press.
- Gardner, H. (1993). *Multiple intelligences: The theory in practice*. NY: Basic Books.
- Goleman, D. (1995). *Emotional intelligence*. NY: Bantam Books.
- Hadley, A. O. (2001). *Teaching language in context*. Boston: Heinle & Heinle Publishers.
- Hart, L. (2002). *Human brain, human learning*. NY: Longman.
- Kolb, D. (1984). *Experiential learning: Experience as the source of learning and development*. NJ: Prentice Hall.
- Jensen, E. (1998). *Teaching with the brain in mind*. VA: Association of Supervision and Curriculum Development.
- Krashen, S. D. (1985). *The input hypothesis*. London: Longman.
- McCarthy, B. (1987). *The 4MAT system: Teaching you learning styles with right/left mode techniques*. Barrington, IL: EXCEL.
- Orlich, D., Harder, R., Callahan, R., & Gibson, H. (2001). *Teaching strategies: A guide to better instruction*. Boston: Houghton Mifflin.
- Owens, R. (2001). *Language development*. Boston: Allyn and Bacon.
- Paul, D. (2003) *Teaching English to children in Asia*. Hong Kong: Longman.



Rico, L. (2000). *Writing the natural way*. CA: Tarcher.

Rod, E. (1988). *Classroom second language development: A study of classroom interaction & language acquisition*. New York, NY: Prentice Hall.

Trevarthen, C. (1990). Growth and education of the hemispheres. In C. Trevarthen (Ed.), *Brain circuits and functions of the mind: Essays in honor of Roger W. Sperry*.

(pp.334-363). New York: CambridgeUP.

Wolfe, P., & Brandt, R. (1998). What do we know from brain research. *Educational Leadership*, 56(3), 8-15.

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