ABSTRACT

The purpose of this study was to explore how the brain processes information, stores it in long-term memory and then applies that knowledge to teaching music in a classroom/rehearsal setting. We observed how the working memory, the system responsible for processing information from short-term and long-term memory can function with greater efficiency. We observed how the number of items available for processing in the working memory may be increased through a process identified as “chunking.” Chunking is when short patterns, or bits of information, are combined to form longer sequences. When applying these brain-friendly learning concepts to music, the instructor taught a series of short tonal and rhythmic patterns, graduating in difficulty. These patterns were combined to form longer phrases of melody or rhythm. The short patterns were extracted from a selection of repertoire being sung by the choir. They were pre-taught during the music literacy component of the warm-up sequence at the beginning of rehearsal. Once the students had learned the patterns aurally and stored them in long-term memory, the patterns were quickly recognized when they appeared in the music, often aurally first. The repertoire became much easier for the children to comprehend. Thus, the choir quickly and efficiently learned the patterns, stored them in long-term memory, allowing the working memory to access them later and apply them to other repertoire. This application of knowledge is called transfer and is a necessary part of the teaching and learning process.

LITERACY

LANGUAGE

Children learn to speak by:
- Imitating others’ speech (such as primary caregivers)
- Observing the new vocabulary used in the conversation
- Practicing the pronunciation of the new words

Creating a basic vocabulary bank known as the mental lexicon.

MENTAL LEXICON: the set of words that a person uses regularly or recognizes when used by others. Psychology has proposed various models for such a lexicon, in which words are mentally organized with respect to such features as meaning, lexical category (e.g., noun, verb), frequency, length, and sound. Also called lexical memory.

LEARNING TO READ

Pictoral – the child’s brain photographs words and visually adjusts to the shape of the alphabet’s letters.
Phonological – the child begins to decode the letters (graphemes) into sounds (phonemes)
Orthographic – the child recognizes words quickly and accurately

LETTERS WITH SOUNDS

The letter (grapheme) the child sees must correspond to what the child hears (phoneme).

GRAPHENE: a symbol used in the writing system of a particular language
PHONEME: a speech sound that plays a meaningful role in a particular language, already stored in the mental lexicon

THREE NEURAL NETWORKS

Orthography (visual processing)
Phonology (phoneme recognition)
Semantics (word interpretation)

MELODIC PATTERNS

PITCH SOLEFGE

DI RE MI FA SOL LA TE TI DO

EXAMPLES

Patterns selected from Cantate Canon by Donald Moore.

RHYTHMIC PATTERNS

EDWIN GORDON

GRAPHENE  PHONEME

Du de da di

Du de de
du da di
du ta de ta

EXAMPLES

Patterns selected from Cantate Canon by Donald Moore.

REFERENCES


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