Enhancing Executive Functions through Music Learning

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What do we want for children?
Considerations for Success

• Domains: Cognitive, Affective, Psychomotor

• Executive Function and THINKING SKILLS

• Executive Function and BEHAVIOR SKILLS

  – Resource: Dawna Sigurdson (EF and ASD)
  – TASN Newsletter Kansas November 2015
  – www.ksdetasrn.org
Picture, Plan, Do, Enjoy
EF: THINKING SKILLS

• Planning
• Organization
• Time Management
• Working Memory
• Metacognition (self-monitoring and self-evaluation)
• RESULT: Poor HOTS (higher order thinking skills- 4 C’s and P21)
EF: BEHAVIORAL SKILLS

• Response inhibition (inability to wait)
• Emotional control (frustration, lability, anger)
• Sustained attention (affects learning/memory)
• Task initiation (delay, procrastination)
• Flexibility (no routines vs rigidity)
• Goal directed persistence (fade/perseverate)

• Result: POOR SOFT SKILLS for LEARNING
Just Treatment Tools to Develop Executive Functions Skills

• Sara Roszechnal Ward—2013 session at ASHA
  – Center for Executive Function Skill Development
  – Cognitive Connections:
    • Sara Ward and Kristen Jacobson 2012

– PLANNING and ORGANIZATION is critical
– Academic success is more than decoding ability
– 21st Century Skills—The 4 C’s
  • Communication, Collaboration, Critical thinking and Creativity using principles of Understanding by Design (UbD)
Task Execution

• STOP and read the environment

SPACE    TIME    OBJECTS    PEOPLE
• Vertical Space and Horizontal Space
  – In music—Pitch across time
  – In reading—Left to Right and Top to Bottom

• Exploration of Space-
  – Gross motor with creative movements
  – Fine motor with playing instruments
SPACE: Gross motor

- Alone—creative movement to music
- Action songs (stationary)
- Mirroring another
- Following the leader (locomotor)
- Parallel games/dances
- Circle games; line dances
- Cooperative Dances
- Obstacle courses—Space with objects
SPACE: Fine Motor

- Hands (and feet):
  - Fingerplays and action songs
  - Hand jives and dances

- Gesture
  - Pointing
  - Choosing
  - Expressing

- Using tools or objects
  - Turning pages
  - Playing instruments
  - Writing
TIME

• Time Organization
  – Ongoing and Segments

• Sounds and actions moving across time
  – Duration relationships (longer, shorter, patterns)
  – Order
  – Sequences
  – Prediction and anticipation
Time in Music

• Underlying movement of time: BEAT
• Patterns of time: Meter
• Patterns of time: Clap or play rhythms
• Sections of time:
  – Repetition patterns
  – Ordering of patterns
  – Cadences and phrases
  – Form as a time element (same/dif)
Tempo: Speed of the Beat (time)
Meter: Groupings of the Beat
Itsy Bitsy Spider:
Sequence/Anticipation
OBJECTS

• Choosing the right objects
• Manipulating the objects
  – Safe to objects, safe to self
  – Combining tools
• Using the right tools at the right time!!
Associations: Song Bag
Manipulatives: ENSEMBLE work

- Group work
- Associations
- Location on a page
- Turn-taking
- Waiting
- Looking ahead
CHOICES of OBJECTS
Features of OBJECTS

- SOUNDS of objects
- SHAPES
- COLORS
- SIZES
- USES
PEOPLE: SEEK, FIND, TRUST

- WHO
- WHAT
- WHEN
- WHERE
- HOW
- WHY

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PEOPLE

• Interactions with People
  – Helpers, Partners
  – Friends, Teachers
  – Who can help me and should I be asking in order to get something done, support me, or share my success?

• Characters in songs and stories
• People who can assist in tasks
• Pretending and role playing to learn
  – Learn by example
  – Adult Example-voice therapy
Hickory Dickory Dock

• Space—Clock and Instruments
  — runs up body of clock to face and down
  — striking the instruments with mallets

• Time—CLOCK
  — when to move or play and waiting
  — number of bell strikes to tell time
  — phrases in sequence

• Objects--choosing
  — clock, bell, shaker

• People—
  — mouse and friend helpers
Tool that works
- Instruments
- props

Same/different

Amount/enough
- Number needed
- Form size/shape
BINGO

- Space-Visuals on the floor
  - direction of the visuals
- Time-Sound silence pattern
- Objects-visuals and stuffed dog
- People-Farmer and “BINGO”
Wheels of the Bus

- **S**—Actions with “neighbors”
- **T**—Segments
  - rhythm of SSL for round and round
  - Ending/cadence “all through the town”
- **O**—Wheels
  - show the rhythm “round and round”
  - Use of other objects (wipers, horn)
- **P**—Driver
  - following directions “move on back”
Other Songs: STOP

• Boa Constrictor—
  – S: Body spaces
  – T: Order and anticipation
  – O: Being inside an object
  – P: Trust people
S/T/O/P: Acting Out
Modeling S/T/O/P
STOP Analysis

• Three Pigs story—example
• S
• Boa Constrictor (body parts/inside)
• Row, row, row your boat (back and forth vs. side to side)
• Mr. Alligator (up/down the tree)
• ST
• Itsy Bitsy Spider (actions by phrase)
• Opening and Closing Songs
• Bingo (Z—time moves with sound or silence)
• Wheels on the Bus (sequence verses)
• Fire Truck Song (sequence)
STOP Analysis

- **STO**
  - Little Red Box (in the box)
  - Hickory Dickory Dock (clock, mouse)
  - Peanut Butter and Jelly

- **STOP**
  - One Elephant
  - Three Little Ducks
  - 10 Little Dinosaurs
  - Five green and speckled frogs
  - Tiny Tim
  - A hunting we will go
  - Johnny works with one hammer
Suggested Materials and Tips

• Picture books of children’s and folk songs
• Use visuals to support STOP components
• Pace without using recordings—they are too fast
• Maintain the integrity of the songs as a support system, then ask questions.
Executive Functions: Part Two

• Using STOP to establish teaching protocols within the classroom.

• Helping teachers structure STOP support systems to facilitate Executive Functions.
Routines: Greetings
SPACE: Motor Planning

- Movement Activities “Move It” videos
- Line activities—following the leader
- Space in dances—down, up, around, beside
  - Circle left, do-oh, do-oh
  - Circle left, do-oh, do-oh
  - Circle left, do-oh, do-oh
  - Shake those apples down.
SPACE: Use Prepositions

• Song Games and Dances---
  – Hokey Pokey (in, out, about, around)
  – Go in and out the Window
  – Tideo (Pass one window)

• Charlie over the Ocean, Charlie under the sea
• Charlie caught a big fish, can’t catch me!
Objects/People: Music Sections
Imaging Objects: Going on a Picnic
Timing in Speech

• Fill in the blank songs
  – Old MacDonald
  – BINGO
  – Going on a Picnic
Did you bring the ________________?

Yes, I brought the ________________!
Time: Order/Sequence

- Dances and hand motion routines/ handjives
- Simple Line and Circle Dances
- Parachute or scarf dances to music
- STORY SONGS with actions
  - The Old Gray Cat
  - Bear Hunt
  - She’ll be coming around the mountain
- ROUNDS of all kinds
  - Visual cues and icons (contours)
OBJECTS and Time:

• SOUND STORIES: Timbre, Intensity, Dynamics

• Stormy day—making up stories

• Instruments for Animal Sounds
  – Old MacDonald
  – When cows get up in the morning
    • Moo, moo, moo, moo
  – Barnyard Song—I had a Cat (fiddle-i-fee)
PEOPLE: Mildred Parten

• Unoccupied
• Observer
• Solitary
• Parallel
• Associative
• Cooperative
People

• Line activities:
  – Train songs
  – Following the leader
  – London bridge

• Circle songs and dances:
  – Ring around the Rosie
  – Old Brass Wagon

• Partner songs:
  – Dance partners
  – Hand partners

• Imitation Dances
  – Chicken Dance
  – Line Dances

• Square Dancing
  – Cooperative timing
Executive Functions: Music Helps

• THINKING
  – Planning
  – Organization
  – Time management
  – Working memory
  – Metacognition
    • Self-monitoring
    • Self-evaluation
    • Self-actualization

• BEHAVIOR
  – Response inhibition
  – Emotional control
  – Sustained attention
  – Task initiation
  – Flexibility
  – Goal directed persistence

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