THE DIFFERENCES IN MATH SCORES BETWEEN STUDENTS WHO RECEIVED MUSIC ENRICHED MONTESSORI INSTRUCTION AND STUDENTS WHO RECEIVED TRADITIONAL MONTESSORI INSTRUCTION

Maureen Harris - 2005
STATEMENT OF THE PROBLEM

Value of music not being recognized

NEED FOR THE STUDY

- Skills for tomorrow
- Provide opportunities for learning through music
21st CENTURY & MAJOR CHANGES GLOBALLY-
Crisis in Education
Did you know?
Music and Brain Development

• The baby at play is sculpting a brain to be used for the rest of life (Oshlo, 1984).

• The ability to remember a melody occurs not only at birth but as early as the first trimester (Hepper, 1991).
Young Child

- During the early years music stimulates nerve connections in the brain—Dr. Gordon
- Medical students
LTTA

• Private Schools
• Artsvision – leader in innovative education projects
• RCM and LTTA
• Core idea?
Engagement

• Engagement means that children are wholly involved, physically, emotionally, intellectually, and socially.


• Harris (2005) and engagement.
Quality Montessori Research

• Success of Montessori program

• Montessori Research - Bohnlein

• Relation between Music & Math
Music and the Arts

What is the potential for the child when Montessori includes music-enriched instruction? Research (Harris, 2005)
Montessori Music/Math Study

*Maureen Harris*

- Experimental design

- Sample – 200 (3-5 yr) children

- Independent variable – music enriched instruction

- Compared on Test of Early Mathematics-3 after 6 months.
Music Enriched Montessori Curriculum

- Established Montessori programs
- Experimental treatment based on techniques sequenced to teach basic musical concepts
- Three ½ hour sessions weekly - 6 mths
- A qualified Montessori teacher/Music specialist
Age of Students by Group Membership

- **3-year old**
  - Experimental: 38
  - Control: 35

- **4-year old**
  - Experimental: 30
  - Control: 31

- **5-year old**
  - Experimental: 30
  - Control: 26

Legend:
- Experimental
- Control
Mathematics Achievement by Group Membership

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Experimental</th>
<th>Control</th>
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</thead>
<tbody>
<tr>
<td>3-year old</td>
<td>143.02</td>
<td>126.49</td>
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<tr>
<td>4-year old</td>
<td>140.00</td>
<td>117.42</td>
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<tr>
<td>5-year old</td>
<td>140.60</td>
<td>108.35</td>
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Results of Study

- Students receiving music-enriched Montessori instruction score in the 90th-99th percentile.

- Comparison by age.

- Extensive research – raises the question?
Life without Music
• “The essential thing is to arouse such an interest that it engages the child’s whole personality” M. Montessori
Music and the Arts

- Goal of early childhood education - provide rich opportunities for learning!

“I never teach my pupils, I only attempt to provide the conditions in which they can learn” Albert Einstein
Higher order thinking processes deserve immediate attention (Drake 1992)

Montessori students receiving Music Enriched Music Instruction perform in the 90\textsuperscript{th}-99\textsuperscript{th} percentile in math

Quantity and quality of research = Design decisions and the evidence of ‘what works’
Montessori learning Through Music