## C2002 Brain-based Learning

### Extent of Future Developmental Possibilities

<table>
<thead>
<tr>
<th>Executive Skills</th>
<th>Sensory/Motor Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auditory</td>
<td>Motor</td>
</tr>
<tr>
<td>Vision</td>
<td>Optimal window</td>
</tr>
</tbody>
</table>

### Window for Developing Critical/Sensitive Periods for Learning

<table>
<thead>
<tr>
<th>Skills</th>
<th>Development Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language</td>
<td>0 - 6 years</td>
</tr>
<tr>
<td>Motor</td>
<td>2 - 4 years</td>
</tr>
<tr>
<td>Auditory</td>
<td>6 - 18 months</td>
</tr>
</tbody>
</table>

### Research Suggests that Early Musical Experiences Enhance the Development of Spatial and Mathematical Skills

- A second language acquired before the age of 12 years old may be easier to learn.
- Two languages learned at any age will become easier as children become older.
- Language skills develop early and slowly.
- Motor skills are also acquired early and deteriorate with age.
- Language and motor skills develop simultaneously.

### Literature Review

- Early development of language and motor skills continues to improve throughout childhood.
- Vocabulary and grammar develop more rapidly than pronunciation.
- Spatial skills (e.g., visual-spatial reasoning) are also developed early and continue to improve throughout childhood.
- Motor skills (e.g., fine and gross motor skills) are also developed early and continue to improve throughout childhood.
- Language and motor skills develop in parallel, with language skills generally developing more rapidly than motor skills.

### Glossary of Terms

- Musical: pertaining to music or musicality
- Language: the ability to communicate using words
- Motor: pertaining to movement or motor activity
- Auditory: pertaining to hearing or auditory processing
- Vision: pertaining to sight or visual acuity
- Spatial: pertaining to space or spatial orientation
- Mathematical: pertaining to numbers or mathematical concepts

### Key Points

- Early musical experiences enhance the development of spatial and mathematical skills.
- A second language acquired before the age of 12 years old may be easier to learn.
- Language skills develop early and slowly.
- Motor skills are also acquired early and deteriorate with age.
- Language and motor skills develop in parallel, with language skills generally developing more rapidly than motor skills.

### References