Gaps and Opportunities: STE(A)M in Early Childhood Education

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Abstract for DBER Group Discussion on 2014-09-25

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Title:
Gaps and Opportunities: STEM and Early Childhood Education

Abstract:
This research talk will share findings from an environmental scan of the STEM focused professional development programs offered within the Cooperative Extension System. A study was conducted to identify the programs’ content, delivery, scope, evaluation and partners. Results indicate that Extension has become a player in providing professional development opportunities for early childhood professionals and, with a focused effort on streamlining current resources, has the capacity to become a leader in this field.
Gaps and Opportunities: STE(A)M in Early Childhood Education

Tonia R. Durden, Ph.D.
Flow

• What is Cooperative Extension?
• Accessibility to Quality Early Childhood Education
• Environmental Scan Research
• Implications
• Q&A
• Cooperative Extension
• child.unl.edu
• about.extension.org
• **Investment** in early years (Byrant & Taylor, 2009; National Institute of Child Health and Human Development, 2005)

• Need for **skilled** caregivers (Pianta, 2011; Odom, Bryant & Maxwell, 2012)

• Positive effects PD has on observed **quality** child care (Fukkint & Lont, 2007)
Environmental Scan
Primary Focus: Identify training offered through Cooperative Extension System to Early Childhood and School Age Providers Across the Nation

Secondary Focus: To assess the availability of professional development opportunities for providers who serve military families.
Improving Child Care Quality & Availability
Methods

• Development, piloting and adaptation of questionnaire: *What are the goals and objectives of your program?*

• Identification of Sample: *Purposeful-faculty, directors, educators, and other key leaders*

• Data Collection: *Electronic questionnaire; phone interviews (n=13*); Total: n=48.*

• Data Cleaning: *Removal of non ECE pd and member checking*

• Data Analysis: *Descriptive analysis; emergent themes*
• 339 ECE programs (70%)
• BKC-multiple states/150 options
• 4.26 average hours
• Face to face training: n=269
Delivery Method

- Face to Face: 58%
- Online: 30%
- Not reported: 10%
- Face to Face & Online: 2%
• Scope: 18% local; 60% multiple counties; 11% nationally

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### Early Childhood Program Content Areas

<table>
<thead>
<tr>
<th>Content Area</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child Development</td>
<td>137</td>
</tr>
<tr>
<td>Nutrition, Health, Safety</td>
<td>120</td>
</tr>
<tr>
<td>Behavior Management</td>
<td>26</td>
</tr>
<tr>
<td>Child Care Administration</td>
<td>28</td>
</tr>
<tr>
<td>Quality Child Care Environments</td>
<td>23</td>
</tr>
<tr>
<td>Other</td>
<td>14</td>
</tr>
<tr>
<td>Working with Parents/ Engaging Families</td>
<td>14</td>
</tr>
<tr>
<td>Parenting</td>
<td>7</td>
</tr>
<tr>
<td>Military Culture</td>
<td>5</td>
</tr>
<tr>
<td>Children with Special Needs</td>
<td>5</td>
</tr>
</tbody>
</table>
School Age Programs - Content Areas

- Nutrition, Health, Safety: 40
- Youth Development: 31
- Quality Afterschool Environments and Activities: 28
- Child Care Administration: 16
- STEM: 11
- Military Culture: 9
- Working with Parents/Engaging Families: 10
- Other: 8
- Behavior Management: 4
- Online Education and Safety: 3
- Children with Special Needs: 1
• Nutritional Science (nutrition and healthy lifestyle/childhood obesity prevention)
• 4-H STEM & OST STEM
• Tools of the Trade II (Science, Engineering, Technology)
• Nature/Environmental Education
<table>
<thead>
<tr>
<th>Partners</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Libraries, churches, child care centers</td>
<td>Pre/Post evaluation</td>
</tr>
<tr>
<td>Local CCR&amp;R</td>
<td>Post workshop evaluation</td>
</tr>
<tr>
<td>NAEYC; Head Start</td>
<td></td>
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<tr>
<td>CACFP</td>
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</table>
Extension playing a critical role in providing research based, accessible, professional development opportunities, particularly at the state level for childcare providers on issues facing our nation such as: childhood obesity; language and literacy; social emotional health; brain development and health and safety.
Program Evaluation: Emphasis on developing partnerships between Cooperative Extension and other research/evaluation entities should be considered in order to support more rigorous program evaluation efforts that document provider and child outcomes and impact.
Discussion

Translational/Applied Research: Potential exists for Cooperative Extension to develop and disseminate programs on a national scale, providing the opportunity to work more efficiently and effectively by sharing resources across land grant universities and among leading early childhood professional organizations.
Extension is currently in an optimal position (applied research, innovation, strategic partnerships) to help strengthen and enhance quality of early childhood programs on a national scale.
2013-2014
IANR Big Idea Project

IES Goal 2: Science Teaching Innovations
Resources

- child.unl.edu (Clover Kid Science!)
- Click2Science.org
- http://child.unl.edu/cyttap