Growing Up in Scotland

Characteristics of pre-school provision and their association with child outcomes

Paul Bradshaw, Gemma Lewis and Tracey Hughes
Overview

- Background and aims
- Data and methods
- Findings
Background and aims
Background

- Current entitlement of 475 hours of pre-school provision increasing to 600 hours in August 2014 and extending to vulnerable 2-year olds
- Upwards of 90% of eligible children take up their pre-school place
- Existing research shows associations between features of pre-school provision and change in child developmental outcomes
- This place offers an important opportunity to address inequalities ahead of children’s entry to school.
Research questions

What does pre-school education look like for children in Scotland and how does this vary for children with different socio-economic characteristics and who live in different areas?

What is the status of children’s cognitive and social development at age three and how has this changed by age 5? How does each of these vary for children from different backgrounds and for children attending different pre-school settings?

Is there any relationship between the characteristics of the pre-school setting that a child attends and the change in their cognitive or social development?
Data and methods
Data and methods

- Data from GUS BC1, mainly that collected at around age four (sweep 4, 2008/09)
- Questionnaire module on pre-school provision - parent provided details of pre-school setting child was attending
- Data from other sweeps also used (e.g. on previous childcare experience)

Outcome data:
  - Cognitive ability
    - Expressive vocabulary and problem solving ability
    - Measured at age 3 and age 5
  - Social, emotional and behavioural development
    - Strengths and Difficulties Questionnaire
    - Measured at age 4 and age 5
Linked administrative data

- Care Inspectorate
  - Provided list of all daycare of children services registered as providing pre-school education between 2007 to 2010
  - Included inspection grades on four themes: quality of care and support; quality of environment; quality of staffing; quality of management and leadership
  - Other information where available, e.g. on number of registered places, number and qualifications of staff

- Education Scotland
  - Evaluations on QIs from all inspections on pre-school settings from 2008 to 2014
  - Five QIs: improvement in performance; children’s experiences; meeting learning needs; the curriculum; improvement through self-evaluation
  - Grades/evaluations range from 1/unsatisfactory to 6/excellent
Matching the admin data

GUS survey: Pre-school provider details for 3691 children

Matched for 99% of children. 1296 ‘unique’ pre-school centres.
Grades for 3000 children

Care Inspectorate: daycare of children services providing pre-school education

Education Scotland 1244 centres matched QI data available for 1086 children
Findings
Use of pre-school entitlement

- 92% of parents reported that their child was attending a pre-school setting
- No difference in attendance according to household income or area deprivation
- Some differences by:
  - Urban-rural: children in rural areas more likely to attend than those in urban areas (96% compared with 91%)
  - Family type: children in lone parents families less likely to attend than those in couple families (88% compared with 93%)
% of children attending different provider types by household income

- LA primary school nursery class
  - All: 58%
  - Highest income group: 47%
  - Lowest income group: 67%

- LA - other
  - All: 20%
  - Highest income group: 22%
  - Lowest income group: 21%

- Private provider
  - All: 14%
  - Highest income group: 24%
  - Lowest income group: 7%

- Voluntary provider
  - All: 8%
  - Highest income group: 8%
  - Lowest income group: 5%
Days per week by provider type

<table>
<thead>
<tr>
<th>Provider Type</th>
<th>1 or 2</th>
<th>3 or 4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>LA primary school</td>
<td>2</td>
<td>13</td>
<td>85</td>
</tr>
<tr>
<td>Nursery</td>
<td>4</td>
<td>23</td>
<td>73</td>
</tr>
<tr>
<td>Class</td>
<td>8</td>
<td>49</td>
<td>43</td>
</tr>
<tr>
<td>LA - other</td>
<td>3</td>
<td>25</td>
<td>72</td>
</tr>
<tr>
<td>Private provider</td>
<td>3</td>
<td>20</td>
<td>77</td>
</tr>
<tr>
<td>Voluntary provider</td>
<td>2</td>
<td>20</td>
<td>77</td>
</tr>
<tr>
<td>All</td>
<td>2</td>
<td>20</td>
<td>77</td>
</tr>
</tbody>
</table>

ScotCen Social Research
Hours per week by provider type

<table>
<thead>
<tr>
<th>Provider Type</th>
<th>Less than 12.5</th>
<th>12.5</th>
<th>More than 12.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>LA primary</td>
<td>36%</td>
<td>46%</td>
<td>18%</td>
</tr>
<tr>
<td>nursery</td>
<td>27%</td>
<td>29%</td>
<td>19%</td>
</tr>
<tr>
<td>class</td>
<td>15%</td>
<td>19%</td>
<td>65%</td>
</tr>
<tr>
<td>LA - other</td>
<td>39%</td>
<td>34%</td>
<td>27%</td>
</tr>
<tr>
<td>Private provider</td>
<td>31%</td>
<td>38%</td>
<td>31%</td>
</tr>
<tr>
<td>Voluntary provider</td>
<td>31%</td>
<td>38%</td>
<td>31%</td>
</tr>
<tr>
<td>All</td>
<td>31%</td>
<td>38%</td>
<td>31%</td>
</tr>
</tbody>
</table>

ScotCen Social Research
Care Inspectorate grades

- Unsatis. Or Weak
- Satisfactory/Average
- Good
- Very good or Excellent

<table>
<thead>
<tr>
<th>Category</th>
<th>Unsatis. Or Weak</th>
<th>Satisfactory/Average</th>
<th>Good</th>
<th>Very good or Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Care and support</td>
<td>1</td>
<td>4</td>
<td>28</td>
<td>67</td>
</tr>
<tr>
<td>Staffing</td>
<td>1</td>
<td>7</td>
<td>36</td>
<td>56</td>
</tr>
<tr>
<td>Environment</td>
<td>1</td>
<td>7</td>
<td>46</td>
<td>44</td>
</tr>
<tr>
<td>Management and leadership</td>
<td>2</td>
<td>9</td>
<td>38</td>
<td>52</td>
</tr>
</tbody>
</table>

%
Education Scotland evaluations

- Improvement in performance
- Meeting learning needs
- Improvement through self-evaluation

Unsatis. Or Weak  Satisfactory/ Average  Good  Very good or Excellent

Improvement in performance:
- Unsatis. Or Weak: 3
- Satisfactory/Average: 11
- Good: 42
- Very good or Excellent: 51

Meeting learning needs:
- Unsatis. Or Weak: 1
- Satisfactory/Average: 8
- Good: 40
- Very good or Excellent: 41

The curriculum:
- Unsatis. Or Weak: 3
- Satisfactory/Average: 13
- Good: 35
- Very good or Excellent: 39

Children’s experiences:
- Unsatis. Or Weak: 1
- Satisfactory/Average: 15
- Good: 32
- Very good or Excellent: 32

Improvement through self-evaluation:
- Unsatis. Or Weak: 1
- Satisfactory/Average: 21
- Good: 46
- Very good or Excellent: 51
% of children attending a centre graded very good or excellent on all CI or all ES QIs, by provider type

<table>
<thead>
<tr>
<th>Provider Type</th>
<th>Care Inspectorate</th>
<th>Education Scotland</th>
</tr>
</thead>
<tbody>
<tr>
<td>LA primary school</td>
<td>37</td>
<td>33</td>
</tr>
<tr>
<td>nursery</td>
<td>16</td>
<td>29</td>
</tr>
<tr>
<td>class</td>
<td>16</td>
<td>3</td>
</tr>
<tr>
<td>LA - other</td>
<td>41</td>
<td>32</td>
</tr>
<tr>
<td>Private provider</td>
<td>16</td>
<td>23</td>
</tr>
<tr>
<td>Voluntary provider</td>
<td>29</td>
<td>20</td>
</tr>
<tr>
<td>All</td>
<td>32</td>
<td>20</td>
</tr>
</tbody>
</table>
% of children attending a centre graded very good or excellent on all CI or all ES QIs, by hhold income

<table>
<thead>
<tr>
<th>Quintile</th>
<th>Care Inspectorate</th>
<th>Education Scotland</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bottom Quintile (&lt;£11,875)</td>
<td>32</td>
<td>25</td>
</tr>
<tr>
<td>2nd Quintile</td>
<td>30</td>
<td>25</td>
</tr>
<tr>
<td>3rd Quintile</td>
<td>35</td>
<td>20</td>
</tr>
<tr>
<td>4th Quintile</td>
<td>32</td>
<td>21</td>
</tr>
<tr>
<td>Top Quintile (&gt;=£37,500)</td>
<td>32</td>
<td>21</td>
</tr>
</tbody>
</table>
Differences in cognitive and social development

- Children in more advantaged circumstances have higher average vocabulary and problem solving ability at ages three and five than children in more disadvantaged circumstances.  
  (Bradshaw, 2011; Bromley, 2009)

- Most children don’t have any social, emotional or behavioural difficulties at ages four, five and six. However, the proportion of children with moderate or severe difficulties increases according to increasing levels of disadvantage.  
  (Bradshaw and Tipping, 2010)
Mean cognitive ability scores at age 3 by provider type

<table>
<thead>
<tr>
<th>Provider Type</th>
<th>Problem solving</th>
<th>Vocabulary</th>
</tr>
</thead>
<tbody>
<tr>
<td>LA primary school nursery class</td>
<td>71.5</td>
<td>53.6</td>
</tr>
<tr>
<td>LA - other</td>
<td>70.1</td>
<td>52.9</td>
</tr>
<tr>
<td>Private provider</td>
<td>74.2</td>
<td>55.6</td>
</tr>
<tr>
<td>Voluntary provider</td>
<td>72.5</td>
<td>56</td>
</tr>
</tbody>
</table>
Associations between pre-school characteristics and child outcomes (1)

Is there any relationship between the characteristics of the pre-school setting that a child attends and the change in their cognitive or social development?

- Testing for independent relationship between selected characteristics of pre-school provider or ‘experience’ and outcome:
  - Provider type; quality of provision; weekly duration of attendance; size of the setting; having attended a nursery or playgroup setting between birth and starting pre-school entitlement

- Whilst controlling for key factors associated with development scores at age 5
  - Development at pre-school entry - age 3/age 4
  - Socio-economic characteristics (income, parental education, socio-economic classification)
  - (Gender, ethnicity, area deprivation, area urban-rural characteristics)
Associations between pre-school characteristics and child outcomes (2)

- Only the grading on the Care Inspectorate’s theme of ‘care and support’ was found to be associated with child outcomes, after controlling for differences in children’s backgrounds.

- Children who attended providers with a higher care and support grade were more likely to show higher vocabulary skills by age five, irrespective of their skills at age three and their social characteristics.

- More disadvantaged children did not appear to benefit more from settings which had a higher care and support grade.

- Attending a private setting with a high care and support grade was not any more beneficial than attending a similarly graded primary school nursery class.
Discussion and implications (1)

- No significant systematic differences in the average quality of pre-school settings that more and less socially advantaged children attended.

- No differences in the quality of settings attended by children with different levels of social and cognitive development.

  Should there be?

- Shifting the balance to improve the quality of provision accessible to children most in need may be beneficial in reducing inequalities between the most and least advantaged.
Discussion and implications (2)

- Quality of care and education emerges as the factor associated with improvement in child outcomes.
- Therefore important to retain quality – as well as improve flexibility – as pre-school education entitlement expands.
- Weekly duration was not associated with outcomes – so simply increasing hours may not lead to improvements in child development.
- ‘Care and support’ was the most important quality measure.
  - Are the particular behaviours, interactions and experiences assessed under this theme particularly important for the outcome measures used here?
- What about staff?
- Pre-school is only part of the solution for reducing inequalities.