Transmitting the environmental norm from parents to children: 3 years longitudinal survey

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Aim of the study

- We examined the changes in children’s environmental behaviors and influence from parents by a three-year longitudinal study.
- Studies on children’s environmental behavior are few compared to adults’ behaviors.
Observational learning

- Social learning theory (Bandura, 1977)
  - Children acquire new behaviors through observational learning
- For environmental behaviors which are performed at home, parental influences are expected to be most relevant.
- Yorifuji (2003) Parents’ behavior had the strongest effects on children’s behavior.
The current study focuses on the role of subjective norm and personal norm.

- Subjective norm: Expectations from significant others (Fishbein & Ajzen, 1975)
- Personal norm: a feeling of moral obligation that one should conduct the behavior (Schwartz, 1977)

Differences between children and adults

- Children have not established environmental personal yet. Thus children are more likely to be influenced by others, particularly by their parents.

Changes by years

- As children get older, the effect of subjective norm will be smaller while the role of personal norm become bigger (more similar to adults’ model).
- Subjective norm would be internalized as personal norm.
Hypotheses

1. Children are **more sensitive** to subjective norms than adults.

2. As year passes, children have less effect from subjective norms and larger effect from personal norms.
Method

- The survey was conducted through 2007 to 2009 in elementary schools in Nagoya, Japan with one year interval.
- Distributed questionnaires for students of 3 – 6 grades and one of their parents.
  - The questionnaires were distributed to all the students in that grade, which allowed us to track the same population.
- The matched data were used for the following analysis.
## Respondents

<table>
<thead>
<tr>
<th>Year</th>
<th>Respondents</th>
<th>Valid answers (valid response rate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>Children of 3(^{rd}) and 4(^{th}) grade (age: 9-10) + one of the parents</td>
<td>214 pairs (73.5%)</td>
</tr>
<tr>
<td>2008</td>
<td>Children of 4(^{th}) and 5(^{th}) grade (age: 10-11) + one of the parents</td>
<td>222 pairs (76.6%)</td>
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<tr>
<td>2009</td>
<td>Children of 5(^{th}) and 6(^{th}) grade (age: 11-12) + one of the parents</td>
<td>225 pairs (75.3%)</td>
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</tbody>
</table>
Questionnaires

- Behavioral measures (2 items: assort used paper)
  - Ex. I separate used paper.

- Cognitive variables
  - Personal norm (2 items)
    - I feel I am obliged to assort used paper for the sake of environment.
  - Subjective norm (parent: 1 item, children: 2 item)
    - My parents want me to separate used paper.
  - Perceived Behavioral Control (1 item)
    - It is difficult for me to keep used paper to bring it for collection of recyclables.

- Approach from parents
  - Environmental communication
    - I talk with my child about the bad consequences of using too much paper.
  - Explicit sanction (warning/praise)
    - Warn (2 items): I warn my child to separate used paper.
    - Praise (2 items) I praise my child if he/she keeps used paper to bring it for collection of recyclables.
Result: Changes in means of assorting behavior
Results of regression analysis (2007: 9-10 years)

Parents’ behavior had the strongest effect on subjective norm.

S.N. was the strongest determinant of behavior.

The effect of S.N. was stronger for children.
The effect of parents’ behavior is weaker, but still have important role

The effect of S.N. was stronger for children

<table>
<thead>
<tr>
<th>&lt;Parents&gt;</th>
<th>&lt;Children&gt;</th>
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</thead>
<tbody>
<tr>
<td>Communication</td>
<td><img src="image" alt="" /></td>
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<tr>
<td>Warning</td>
<td><img src="image" alt="" /></td>
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<tr>
<td>Praise</td>
<td><img src="image" alt="" /></td>
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<tr>
<td>Behavior</td>
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$R^2 = .42^{***}$

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<th>&lt;Parents&gt;</th>
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<tr>
<td>Personal norm</td>
<td><img src="image" alt="" /></td>
</tr>
<tr>
<td>Subjective norm of parents</td>
<td><img src="image" alt="" /></td>
</tr>
<tr>
<td>Perceived behavioral control</td>
<td><img src="image" alt="" /></td>
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</tbody>
</table>

$R^2 = .43^{***}$
Results of regression analysis (2009: 11-12 years)

The effect of Parents’ behavior was weaker

Warning had effects on S.N.

The effect of S.N. was stronger for children

***p<.001, **p<.01, *p<.05
Discussion

- Differences between children and adults’ model
  - Children were more likely to be affected by subjective norm (Hypothesis 1 was supported).
    - Children were more sensitive to others’ expectations.
    - Influence of the norm of the society is not tested yet. Social norm may also have larger effects for children.
- Observation of parents’ behavior had consistent effects through 3 years

- As the year passes, the influence of parents’ behavior got smaller

- The effect of subjective norm and personal norm on behavior did not show constant change -> Hypothesis 2 was not supported
- Parents’ assorting behavior has increased from 2007 to 2008
- It could be the effect of survey itself

Answer to questionnaires
- Rethink their behaviors

Obtain feedback
- Know other’s attitudes and behaviors concerning paper recycling
- Get knowledge on how to recycle papers

Increase feasibility
- Parents’ assorting behavior has increased
Thank you for your attention!!
Communication and direct sanctions from parents

![Graph showing communication, warning, and praise levels from 2007 to 2009.](chart)

- Communication: 2.72, 2.99, 3.06, 2.89, 3.14, 3.19, 3.06, 3.39, 3.37
- Warning: 3.06, 3.14, 3.19, 3.06
- Praise: 2.89, 2.99, 3.06
Perceived behavior

- Parents' behavior perceived by children
- Children's behavior perceived by parents
Correlation between subjective norm and personal norm (children)

2007 (N=214)

Personal norm

Subjective norm

.54***

2008 (N=220)

Personal norm

Subjective norm

.30***

2009 (N=225)

Personal norm

Subjective norm

.35***