Social Information-Processing Skills Training to Promote Social Competence and Prevent Aggressive Behavior in the Third Grade

A presentation based on the work of Mark Fraser, Maeda Galinsky, Paul Smokowski, Steven Day, Mary Terzian, Roderick Rose, and Shenyang Guo

Slides by Matt Toth

University of North Carolina at Chapel Hill
School of Social Work

Copyright 2007 Fraser et al
Introduction

This presentation is based on a study of the Making Choices Program that aims to promote social competence and reduce aggressive behavior among elementary school children by strengthening skills in processing social information and regulating emotions.
Review

- Early aggressive behavior and poor peer relationships are major precursors of fighting, delinquency, and drug involvement (Dodge & Pettit, 2003)

- Rejection by peers augments aggressive behavior; acceptance buffers effects of aggressive behavior (Dodge et al., 2003; S.E. Nelson & Dishion, 2004)

- Social cognitive and emotion regulation skills (social competence) helps children select and engage in behavior appropriate for given social situations (Bierman, 2004)

- Therefore, interventions to enhance social-emotional skills and peer acceptance may promote positive behavioral adjustment, buffering effects of negative behavior (Prinstein & La Greca, 2004)

Copyright 2007 Fraser et al
Purpose

To describe findings from a “study of a school-based prevention program designed to promote social competence and reduce aggression by strengthening children’s skills in regulating emotional arousal, solving social problems, and building social relationships” (Fraser et al, 2005)
Framework of Study

**Aggression**
- “Behavior that is aimed at harming or injuring another person” (Cole & Dodge, 1998, p. 781)
- Social and Physical Aggression
  - Both are linked to maladjustment (Crick, Casas, & Mosher, 1997; Reid et al., 2002)

**Three concepts underpin interventions focusing on aggressive behavior**
1. Through early experience, children accrue social knowledge that shapes beliefs, scripts, and schema
2. Accrued social knowledge influences how children encode and interpret environment, intention, and behavior of others
3. Over time, patterns in processing social information emerge as a function of biology, environmental context, parental influence, peer acceptance or rejections
Social-Emotional Skills and Aggressive Behavior

- Rational and emotional elements in the process through which social knowledge and skills mediate the relationship between environmental influences and behavior (Orobio de Castro et al., 2005)

- Skills in regulating emotions are important to cognitive problem solving because emotions arouse and organize decision making process (Lemerise & Arsenio, 2000)

- Poor skills in regulating arousal, encoding social cues, or interpretation of other’s behaviors, increase risk of peer victimization and reactive aggression (Dodge, 2003)

- Proactive aggression, use of force to achieve desired goal, is correlated with anticipating positive outcomes for the aggressive act, and the self-efficacy for engaging in aggressive responses (Crick & Dodge, 1996; Smithmyer, Hubbard, & Simons, 2000)
Social-Emotional Skills and Social Aggression

- Social aggression is different from physical aggression in that it aims to hurt others' self-esteem, social status, or friendship patterns (Galen & Underwood, 1997)
  - Hurtful gossip
  - Exclusion from activities
  - Hostile verbal behavior

- Social aggression is used to exert control over others, and/or maintain a particular social status

- Peer and classroom dynamics influence social relationships, therefore there is a growing interest in the cognitive process associated with social aggression
Social-Emotional Skills and Social Aggression cont.

- Social aggression is related to Social Information Processing skills (SIP)
  - Studies show that socially aggressive children use faulty response evaluations and decision processes, and are more likely to make hostile intent attributions, resulting in higher rates of peer conflict (Arsenio & Lemerise, 2001; Crick, Grotpeter, & Bigbee, 2002)

- Children with high externalized behavior, low social skill and few friends rate high in relational aggression and peer victimization (NICHD Early Child Care Research Network, 2004)

- Therefore, a combination of aggressive behavior, poor social-emotional skills and peer rejection increase odds of a variety of adjustment difficulties (Crick & Dodge, 1999)
The Making Choices Program

- Based on research that links physical and social aggression in childhood to SIP deficits and social-emotional maladjustment (Camodeca, Goossens, Schuengel, & Terwogt, 2003; Crick, Casas, & Nelson, 2002)

- Poor social-emotional skills and impaired friendships develop early, and predict a developmental trajectory of high aggressive behavior over time

- Therefore, MC is geared toward 3rd grade students
  - Focuses on social, emotional, and cognitive skills to build relationships and work collaboratively with peers
  - Designed to strengthen children’s social-emotional skills
  - In turn, increasing social competence, decreasing peer rejection, increasing contact with pro-social peers, and disrupting the link between early aggressive behavior and later maladjustment
The Making Choices Program

- Based on steps in processing social information

- Skills developed are thought to define whether a child will encounter new situations with positive expectations or with a sense of distrust and defensiveness

- Comprised of multiple lessons focusing on components of social competence:
  - Understanding and regulating emotions
  - Encoding social cues
  - Interpreting cues and intentions
  - Setting relational goals
  - Formulating alternate social strategies
  - Selecting pro-social behavior
  - Enacting new strategy

- Studies suggest MC is effective in the promotion of social competence (Fraser et al, 2004; Smokowski et al., 2004)
Hypotheses

- This study looks at the impact of two versions of MC
  - Basic, classroom-based Making Choices Program
  - Making Choices Plus, which addresses broader classroom and family concerns

- Hypotheses
  1) Children participating in the MC and MC Plus, compared with children in a routine health curriculum, will display greater SIP skills, greater social competence, and less aggressive behavior
  2) Effects will not vary by gender, race/ethnicity
  3) Children in MC Plus will display broader pattern of effects than children in MC training only

Copyright 2007 Fraser et al
Method

Design and Participation

- This study uses 3 cohorts of students entering the 3rd grade, from 2 different schools, in years 2000, 2001, and 2002
  - 1st year students receive a routine health program
  - 2nd year students receive MC program along with the routine health program
  - 3rd year students received the MC Plus program with the routine health program

- To assess the outcomes of the MC and MC Plus programs, teachers used instruments to rate children’s behavior in the fall and spring semester

Copyright 2007 Fraser et al
# Race/Ethnicity, Socioeconomic Status, and Gender of Students by School (N=548)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Total Sample (N=548)</th>
<th>School A (N=343)</th>
<th>School B (N=205)</th>
<th>( \chi^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free or reduced Lunch</td>
<td>52.9%</td>
<td>81.6%</td>
<td>24.8%</td>
<td>65.3***</td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>African American</td>
<td>19.7%</td>
<td>23.3%</td>
<td>13.7%</td>
<td>7.58**</td>
</tr>
<tr>
<td>Latino</td>
<td>41.2%</td>
<td>56.3%</td>
<td>16.8%</td>
<td>85.44***</td>
</tr>
<tr>
<td>European American</td>
<td>34.3%</td>
<td>15.5%</td>
<td>65.9%</td>
<td>144.63***</td>
</tr>
<tr>
<td>Gender</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>.35</td>
</tr>
<tr>
<td>Male</td>
<td>50.9%</td>
<td>51.9%</td>
<td>49.3%</td>
<td>--</td>
</tr>
<tr>
<td>Female</td>
<td>49.1%</td>
<td>48.1%</td>
<td>50.7%</td>
<td>--</td>
</tr>
</tbody>
</table>

** (p < .01), *** (p < .001)

Copyright 2007 Fraser et al
Method cont.

- Implementation

- MC and MC Plus were completed in 20 classrooms of children, receiving the lessons in years 2 and 3
  - Each program exposed students to roughly the same hours of instruction
- The MC Plus was given in the 3rd year, augmenting the MC program by including teacher and parent-involvement activities
  - Particular efforts were made to involve parents and families of students (i.e. newsletters, family information meetings)
Method cont.

- **Data Collection**
  - Child behavior was measured with two instruments
    - Carolina Child Checklist-Teacher Form (CCC; Macgowen, Nash, & Fraser, 2002)
      - Cognitive concentration
      - Social competence
      - Social contact
      - Social aggression
      - Authority acceptance
    - Aggression subscale of the Child Behavior Checklist-Teacher Form (CBCL; Achenbach & Edelbrock, 1991)
      - Measuring overt aggression (Physical and verbal aggressive behavior)
  - **Skill Level Activity** (Dodge, 1980)
    - Measures components of children’s SIP skills
      - Encoding cues
      - Attributing (hostile) intent
      - Formulation pro-social goals
      - Making response decision
Hierarchical Linear Modeling (HLM)

- Used to account for the nested design of the student (School-classroom-teacher-student)
  - Classroom imbedded in teacher and student imbedded in classroom may lead to source of error
- Student level variables included pretest, race/ethnicity, and gender
- Classroom level included intervention and school
Results

- From Table 1, one can see that there was not a significant difference in gender or race/ethnicity of the students.

- There were no significant differences in pretest scores of students across cohorts.
Results cont.

- Intervention Effects on Behavioral Outcomes at Posttest

  - Effects of intervention vary across behavioral outcome variables

  - Children in MC classrooms displayed significantly greater social competence and social contact than routine health curricula classrooms, and engaged in less social and overt aggression (Table 2 and Table 3)

  - Children in MC Plus varied significantly from comparison cohort in cognitive concentration, social competence, social and overt aggression (The following tables)
# Student-Classroom fitted HLM Model: The Effects of MC and MC Plus

<table>
<thead>
<tr>
<th>Level</th>
<th>Effect</th>
<th>Cog. Concentration (EST.)</th>
<th>Authority Acceptance (EST.)</th>
<th>Social Competence (EST.)</th>
<th>Social Contact (EST.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student</td>
<td>Intercept</td>
<td>3.21***</td>
<td>4.24***</td>
<td>3.27***</td>
<td>3.98***</td>
</tr>
<tr>
<td></td>
<td>Pretest</td>
<td>.79***</td>
<td>.79***</td>
<td>.72***</td>
<td>.57***</td>
</tr>
<tr>
<td></td>
<td>Gender (Male)</td>
<td>-.06</td>
<td>-.06</td>
<td>-.05</td>
<td>.04</td>
</tr>
<tr>
<td></td>
<td>Latino</td>
<td>.02</td>
<td>.09</td>
<td>.15*</td>
<td>.05</td>
</tr>
<tr>
<td>Classroom</td>
<td>African American</td>
<td>-.23*</td>
<td>-.14**</td>
<td>-.08</td>
<td>.06</td>
</tr>
<tr>
<td></td>
<td>MC</td>
<td>.19</td>
<td>.03</td>
<td>.29*</td>
<td>.42*</td>
</tr>
<tr>
<td></td>
<td>MC Plus</td>
<td>.30*</td>
<td>.11</td>
<td>.36*</td>
<td>.31</td>
</tr>
<tr>
<td></td>
<td>School</td>
<td>.04</td>
<td>.10</td>
<td>.22</td>
<td>-.10</td>
</tr>
<tr>
<td>Student X Classroom</td>
<td>Pretest X MC</td>
<td>.19**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pretest X MC Plus</td>
<td>.07</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* (p < .05), ** (p < .01), *** (p < .001); EST = Parameter Estimate, HLM coefficient
Student-Classroom-Teacher fitted HLM Model: The Effects of MC and MC Plus for Social and Overt Aggression

<table>
<thead>
<tr>
<th>Level</th>
<th>Effect</th>
<th>Social Aggression (EST.)</th>
<th>Overt Aggression (EST.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student</td>
<td>Intercept</td>
<td>1.03***</td>
<td>.18***</td>
</tr>
<tr>
<td></td>
<td>Pretest</td>
<td>.78***</td>
<td>.83***</td>
</tr>
<tr>
<td></td>
<td>Gender (Male)</td>
<td>-.08</td>
<td>.03</td>
</tr>
<tr>
<td></td>
<td>Latino</td>
<td>-.14*</td>
<td>-.04</td>
</tr>
<tr>
<td></td>
<td>African American</td>
<td>.08</td>
<td>.03</td>
</tr>
<tr>
<td>Classroom</td>
<td>MC</td>
<td>-.19*</td>
<td>-.08*</td>
</tr>
<tr>
<td></td>
<td>MC Plus</td>
<td>-.28**</td>
<td>-.08*</td>
</tr>
<tr>
<td>Teacher</td>
<td>School</td>
<td>--</td>
<td>.05</td>
</tr>
<tr>
<td>Student X Classroom</td>
<td>Gender X MC</td>
<td>--</td>
<td>-.10*</td>
</tr>
<tr>
<td></td>
<td>Gender X MC Plus</td>
<td>--</td>
<td>-.06</td>
</tr>
</tbody>
</table>

*(p < .05), **(p < .01), *** (p < .001); EST = Parameter estimate, HLM coefficient
Result cont.

- **Intervention Effects on Behavioral Outcomes at Posttest**
  - Posttest scores showed African American children rating lower on cognitive concentration and authority acceptance across all three cohorts.
  - Across cohorts, Latino students rated higher at posttest on social competence and lower on social aggression.
  - Table 3 shows a significant gender interaction with overt aggression, suggesting boys benefited differently from the MC intervention.
  - Ultimately, given the large number of possible interactions, the effects of the program varied little by pretest scores, race/ethnicity, gender, or school.
Results cont.

- Intervention Effects on SIP Skills (Table next slide)
  - Children exposed to MC and MC Plus had significantly more SIP skills compared to children in routine health curricula classrooms
    - More skillful in encoding cues and formulating pro-social goals
  - Across the three cohorts, girls were more skillful in encoding, goal formulation, and response decision SIP-related activities
  - African American children scored lower on goal formulation
  - Children in MC classrooms from the higher SES school had significantly higher goal formulation scores than those in the low SES school

Copyright 2007 Fraser et al
# The Effects of MC and MC Plus on SIP skills

<table>
<thead>
<tr>
<th>Level</th>
<th>Effect</th>
<th>Encoding (EST.)</th>
<th>Hostile Attribution (EST.)</th>
<th>Goal Formulation (EST.)</th>
<th>Response Decision (EST.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student</td>
<td>Intercept</td>
<td>.57***</td>
<td>.56***</td>
<td>.79***</td>
<td>.72***</td>
</tr>
<tr>
<td></td>
<td>Gender (Male)</td>
<td>-.07***</td>
<td>-.03</td>
<td>-.07**</td>
<td>-.14***</td>
</tr>
<tr>
<td></td>
<td>Latino</td>
<td>-.02</td>
<td>.01</td>
<td>-.05</td>
<td>-.03</td>
</tr>
<tr>
<td></td>
<td>African American</td>
<td>-.04</td>
<td>.04</td>
<td>-.08*</td>
<td>-.07</td>
</tr>
<tr>
<td>Classroom</td>
<td>MC</td>
<td>.12***</td>
<td>-.04</td>
<td>.07*</td>
<td>.05</td>
</tr>
<tr>
<td></td>
<td>MC Plus</td>
<td>.12***</td>
<td>-.13***</td>
<td>.16***</td>
<td>.16***</td>
</tr>
<tr>
<td></td>
<td>School</td>
<td>-.06*</td>
<td>-.03</td>
<td>-.01</td>
<td>.03</td>
</tr>
<tr>
<td>Student X Classroom</td>
<td>School X MC</td>
<td></td>
<td></td>
<td>.18*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>School X MC Plus</td>
<td></td>
<td></td>
<td>.11</td>
<td></td>
</tr>
</tbody>
</table>

* (p < .5), ** (p < .01), *** (p < .001); EST = Parameter estimate, HLM coefficient
Effect Sizes for Behavioral Outcomes and SIP Skills (Table next slide)

Overall, the effect sizes for MC Plus were greater than the effect sizes for MC

- **MC effect size:**
  - Social competence (medium)
  - Social contact (medium)

- **MC and MC Plus effect size**
  - Encoding (large)

- **Medium effect sizes of MC Plus:**
  - Cog. Concentration
  - Social competence
  - Social contact
  - Social aggression
  - Response decision
  - Goal formulation
  - Hostile attribution
<table>
<thead>
<tr>
<th>Measure</th>
<th>MC</th>
<th>MC Plus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive concentration</td>
<td>0.27</td>
<td>0.43</td>
</tr>
<tr>
<td>Authority acceptance</td>
<td>0.06</td>
<td>0.23</td>
</tr>
<tr>
<td>Social competence</td>
<td>0.46</td>
<td>0.56</td>
</tr>
<tr>
<td>Social contact</td>
<td>0.67</td>
<td>0.48</td>
</tr>
<tr>
<td>Social aggression</td>
<td>-0.32</td>
<td>-0.48</td>
</tr>
<tr>
<td>Overt aggression</td>
<td>-0.17</td>
<td>-0.17</td>
</tr>
<tr>
<td>Encoding</td>
<td>0.82</td>
<td>0.77</td>
</tr>
<tr>
<td>Hostile attribution</td>
<td>-0.17</td>
<td>-0.55</td>
</tr>
<tr>
<td>Goal formulation</td>
<td>0.28</td>
<td>0.66</td>
</tr>
<tr>
<td>Response decision</td>
<td>0.18</td>
<td>0.54</td>
</tr>
</tbody>
</table>
Discussion

- Early life experiences shape skills and social knowledge, and have the potential to produce deficits in these areas, impacting later behavior and peer relations.

- Therefore, interventions at a young age, like the MC program, can impact social knowledge and information-processing skills.
Discussion cont.

1st Hypothesis

Results show that children participating in the MC and MC Plus, compared with children in a routine health curriculum, displayed greater SIP skills, greater social competence, and less aggressive behavior, both social and overt.
Discussion cont.

- 2nd Hypothesis

- For the most part, effects of MC and MC Plus program did not vary by gender or race/ethnicity

- Only one gender variable (MC: overt aggression) showed an interaction
Discussion cont

3rd Hypothesis

The pattern of effects and effect sizes seem to support the hypothesis that MC Plus classrooms will have a broader effect than the MC classrooms.

- MC Plus showed a positive and higher effect size in cognitive concentration, response decision, and hostile attribution, than MC.

- The broader and stronger pattern of effect may have been a result of supplemental activities that included parent and teacher involvement.

Copyright 2007 Fraser et al
Despite significant difference in the SES and ethnic make up of the participating schools, effect sizes did not vary across race/ethnicity (with the exception of SIP Goal Formulation).

Findings are consistent with previous research suggesting that good social-cognitive skills, plus the ability to manage emotions, are negatively related to aggressive behavior and help children navigate social situations successfully. (Bierman, 2004; Leve, Pears, & Fisher, 2002)
Limitations

- Participants were from rural and suburban communities, no conclusions can be drawn on how the MC and MC Plus program may work in an urban setting.

- Study only tested 3rd grade, intervention may not be developmentally appropriate for later grades.

- Social desirability in rating scale
  - Teacher report scale

- Effects of history
  - No Child Left Behind

- Cumulative effect of implementing MC in the second year and MC Plus in the third year.
Conclusion

- The Making Choices program is based on the assumption that mental processes mediate, at least in part, the relationship between early social experiences and later developmental outcomes.

- This study suggests that this assumption is correct, “…school based prevention programs strengthen social emotional skills and produce significant changes in classroom and peer-related behavior” (Fraser et al., 2005)
References


<table>
<thead>
<tr>
<th>References cont</th>
</tr>
</thead>
</table>


