Identifying Child Temperament Profiles Using Cluster Analysis

Amanda Prokasky¹, Kathleen Moritz Rudasill¹, Victoria Molfese³, Sam Putnam², Masha Gartstein², Mary Rothbart⁴
University of Nebraska-Lincoln¹, Bowdoin College², Washington State University³, University of Oregon⁴

Literature Review

- Children's temperament traits have been linked to social (Corapci, 2008; Rothbart & Bates, 2006) and academic outcomes (Martin, 1988, 1989; Rudasill et al., 2010).
- Temperament is comprised of traits indicative of reactivity (i.e., intensity and duration of a response to stimuli) and regulation (i.e., behavioral control of reactivity) (Rothbart & Bates, 2006).
- Attempts to identify child temperament typologies dates to Thomas and Chess' landmark work (1977), where they classified infants as “difficult”, “easy”, or “slow to warm up”.
- However, these typologies may be too simplistic, and may not fully capture the broad range of child behaviors and emotions.
- Other work using cluster analysis has identified between three and seven clusters of temperament traits (e.g., Csapi & Silva, 1995; Martin et al. 2000; Rudasill et al., 2013; Sanson et. al., 2009; Thomas & Chess, 1977; Usai et al., 2009).
- This work however, has concentrated on using a small number of broad temperament factors (e.g. surgency/extraversion, negative emotionality, effortful control).
- No one to date has attempted to identify child temperament clusters based on finer grained aspects of temperament, which may be more useful because they highlight individual differences in children’s behavior and affectregn.

Purpose of Present Study

- To identify common child temperament profiles across two diverse samples.

Methods

Participants:
- Nebraska Sample: 96 preschool children (52 females), mean age: 51 months
- Oregon Sample: 187 preschool children (101 females), mean age: 49.5 months

Measures:

Procedure:
- 2.7-k means cluster analyses were applied to both samples independently.
- To aid in comparison, cluster center scores were standardized, and negative emotionality, effortful control
- The 6-cluster solution appeared to produce the greatest concordance in clusters across samples, thus the 6-cluster solution was chosen for further investigation.

Multiple Analysis of Variance (MANOVA) was run on the 6 cluster solution, with cluster and sample membership as the dependent variables, and the 7 temperament dimensions as predictors.
- Despite some small differences on individual dimensions across samples, results from the MANOVA indicated that the matched clusters from both sample did not differ significantly on any temperament dimension.

Results

- The Reactive Profile
  - Children in the reactive profile experience life intensely. They are quick to anger and excitement, and may be more fearful or shy than other children. They also have difficulty regulating emotions and behavior, exhibiting only average levels of attention and inhibitory control. Reactive children can benefit from consistent, positive interactions with caregivers.

- The Inhibited Profile
  - Children in the inhibited profile exhibit very low levels of reactivity and very high levels of regulation. They are the least active, rarely show anger or excitement and are typically very well-behaved, if not reserved. Inhibited children may benefit from encouragement from caregivers to try new things.

- The Regulated Profile
  - These children are most likely to be viewed as having an easygoing temperament. They exhibit average levels of reactivity, and average to high levels of regulation. These children typically get along well at home and in a classroom.

- The Unregulated Profile
  - Unregulated children exhibit high levels of activity, anger, and excitability, but average to low levels of fear and shyness. They also have very low levels of attention and inhibitory control, which can sometimes make their behavior seem amplified. Unregulated children can benefit from consistent, positive interactions with parents and teachers to help them learn to regulate their emotions and behavior.

- The Bold Profile
  - Bold children are very active and excitable, and they typically jump right into any situation or task without hesitation. Bold children also show lower levels of anger and average levels of regulation (attention and inhibitory control). The natural curiosity and activity of bold children should be fostered at home and school.

- The Subdued Profile
  - Children in this profile are not easily aroused, upset or active, but they are also less likely to display behaviors indicative of regulatory control. Children like this may be regarded as cystyng or even unmotivated or uninterested. Because their lower level of regulation may not be easily identified, these children’s regulatory skills should be cultivated to potentiate their success.

- The Inhibited Profile
  - Inhibited children exhibit high levels of activity, anger, and excitability, but average to low levels of fear and shyness. They also have very low levels of attention and inhibitory control, which can sometimes make their behavior seem amplified. Inhibited children can benefit from consistent, positive interactions with parents and teachers to help them learn to regulate their emotions and behavior.

- The Bold Profile
  - Bold children are very active and excitable, and they typically jump right into any situation or task without hesitation. Bold children also show lower levels of anger and average levels of regulation (attention and inhibitory control). The natural curiosity and activity of bold children should be fostered at home and school.

Future Directions

- Work is underway to conduct latent class analyses (another clustering-type analysis) on the NICHD dataset to confirm the six profile solution.
- Continue to refine profiles by matching additional samples to these profiles.
- Determine effects of profile membership on children’s early learning.
- Disseminate profile information to parents and teachers.

References


