Observing Children’s Engagement

The Individualized Classroom Assessment Scoring System (iCLASS) measures an individual child’s engagement in the classroom using 4 domains and 10 dimensions (Downer et al., 2010; see Figure 1).

Each dimension was rated on a 7-pt scale (1=low, 7=high) using behavioral markers in a standardized manual. Dimension scores were averaged across all cycles.

Using the iCLASS to Measure Preschool Children’s Engagement with Teachers, Peers and Tasks: Examining Measurement Invariance Across Gender, Ethnicity, and Poverty Status in Three Samples

Natalie L. Bohlmann, Jason T. Downer, Leslie M. Booren, Michelle F. Maier, and Amanda P. Williford

University of Virginia, Center for the Advanced Study of Teaching and Learning (CASTL)

Participants: 925 children (466 girls and 459 boys, 44% African American, 37% Hispanic, 9% White, M=54.89, SD=21.34 years in age) from 305 preschool classrooms.

Sample 1: 341 children (219 girls and 122 boys, 46% African American, 32% Hispanic)

Sample 2: 352 children (180 girls and 172 boys, 72% Hispanic, 15% White)

Sample 3: 232 children (117 girls and 115 boys, 76% African American, 19% Hispanic)

Procedure: Data were collected as part of three separate research studies. Observations were conducted alternating four cycles (10 minutes observing, 5 minutes coding) across the morning on randomly selected children (M=4.03, SD=1.85) in each classroom.

Aim 1: Examine measurement invariance of a 4-factor model of the iCLASS across three samples, confirm the 4-factor model in a combined sample, establish stability in the combined sample across demographic groups (see Table 1).

Multi-group CFA following a step-wise process of testing configural, weak, strong, and where needed partial intercept invariance was used to examine measurement invariance across three samples and across demographic groups. Weak factor invariance (factor loadings invariant across groups) followed by strong invariance (intercepts of measured variables equal across groups) was tested (Meredith, 1993). Where strong invariance was not met, partial intercept invariance (some, but not all, intercepts invariant across groups) was then explored (Reise, Widaman, & Pugh, 1993).

Table 1: Fit indices for the Combined Sample and for the Baseline, Weak, Strong, and Partial Intercept Invariance Models for Each Multi-group Comparison

<table>
<thead>
<tr>
<th>Sample</th>
<th>Weak Invariance</th>
<th>Strong Invariance</th>
<th>Partial Intercept Invariance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Separate Groups</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample 1</td>
<td>95.37(55)</td>
<td>95.37(55)</td>
<td>95.37(55)</td>
</tr>
<tr>
<td>Sample 2</td>
<td>95.37(55)</td>
<td>95.37(55)</td>
<td>95.37(55)</td>
</tr>
<tr>
<td>Sample 3</td>
<td>95.37(55)</td>
<td>95.37(55)</td>
<td>95.37(55)</td>
</tr>
</tbody>
</table>

Aim 2: Four-factor Model Combined Sample

Combined Sample (N = 925)

Table 2: Aims 2: Four-factor Model Combined Sample

<table>
<thead>
<tr>
<th>Gender</th>
<th>Ethnicity</th>
<th>Poverty Status</th>
<th>Sample 1</th>
<th>Sample 2</th>
<th>Sample 3</th>
<th>Combined Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Girls</td>
<td>African American</td>
<td>Poor</td>
<td>95.37(55)</td>
<td>95.37(55)</td>
<td>95.37(55)</td>
<td>95.37(55)</td>
</tr>
<tr>
<td>Boys</td>
<td>Hispanic</td>
<td>Non-Poor</td>
<td>95.37(55)</td>
<td>95.37(55)</td>
<td>95.37(55)</td>
<td>95.37(55)</td>
</tr>
</tbody>
</table>

Discussion

Establishing measurement invariance is critical for measures designed for use with diverse populations as it provides evidence that an assessment taps into the same underlying structure across groups and lends support for the measure’s utility in practical applications (Dragovits & Kanfer, 1995; Horn & McKenzie, 1992).

Implications

Results demonstrate invariant measurement properties on the iCLASS across ethnically and economically diverse samples, providing validation for the observation system’s utility in examining individual children’s experiences in preschool.

The iCLASS is poised to help the field better understand the role that a child’s engagement in the classroom may play in their preparation for school.

Implications & Future Directions

Demographic group comparisons did not consider the role of classroom context and therefore may not accurately represent population differences in children’s engagement.

Future work should examine children in context to determine the degree to which observed differences are attributable to contextual factors before any conclusions are drawn.

Acknowledgements

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