Supporting home visitors implementation of evidenced-based interventions: Collaborative development of a mobile application for integrity monitoring and performance feedback

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Purpose of Study:

To create, provide, and test implementation supports for equipping Early Head Start (EHS) home visitors' to deliver Little Talks, a book sharing intervention, to parents and children. Specifically, this study entailed the:

- Collaborative development of a mobile application for home visitors to self-report home visiting content for the Little Talks intervention and EHS visit summary
- To create mechanisms for applying Little Talks integrity data to performance feedback
- To embed Little Talks performance feedback into the program's bi-weekly home visitor supervision
- To examine trends in Little Talks integrity as performance feedback is provided
- To empirically compare EHS visit integrity between randomly-assigned Little Talk and comparison home visitors

Summary of Methods

Participants & Setting: This study was conducted in partnership with EHS administrators and home visiting staff. Eight of the 17 home visitors were randomly selected and assigned to Little Talks and comparison conditions. All home visitors were female, half were Latina and bi-lingual (Spanish and English). EHS home visitors recruited their families for the project, resulting in 17 Little Talks and 20 comparison families. On average, children were 17.2 months of age (SD = 8.6), and mothers were 28.9 years (SD = 6.8). The majority of mothers identified as Hispanic and about half were Spanish-speaking (9.4% were bi-lingual Spanish and English).

Integrity Monitoring Measure: Web-based survey software (iForm) was adapted to monitor the EHS home visitors' adherence with major elements of the Little Talks intervention (21 items). Additionally, this software was adapted to collect the home visit summary information typically recorded by home visitors (34 items). For the Little Talks home visitors, the Little Talks integrity form was integrated into the EHS home visit summary application. The Little Talks integrity monitoring tool consisted of three major activities conducted by EHS home visitors: 1) Observation of parent-child book sharing, 2) Adaptation and delivery of Little Talk curriculum to parents based upon their assessment of parents' strengths and needs, 3) Collaborative Goal Setting with parents to address challenges in formulating a books sharing routine and using Little Talks strategies. Integrity data were collected by EHS home visitors for each visit. Data were

uploaded and retrieved by members of the research team, who prepared performance feedback and provided it to home visitors during their bi-weekly supervision with program staff. Comparison home visitors completed their EHS visit summary as usual; they did not receive performance feedback.

Summary of Key Findings:

Little Talks home visitors quickly adhered to the Little Talks intervention procedures, with indicators for implementing the curriculum (LT Curr), collaborative goal setting (CGS), decision making (Dec Mkg), and collaboration with the parent (Par Coll) all exceeding the recommended standard of 80% adherence (Sanetti & Kratochwill, 2009). Moreover, for indicators that were initially substantially below the acceptable integrity standard, the home visitors' adherence rapidly increased. Tables 1 and 2 present results from repeated measures ANOVA examining integrity data across randomly selected 4 and 8 randomly selected check points. The two time periods were selected to demonstrate integrity for the majority of the sample (Table 1) as well as over a longer period of time (Table 2). For Little Talks home visitors the mean number of days from check point 1 through 4 was 102 (SD = 37.10), and from check point 1 – 8 was 195 (37.00); for the comparison group the mean number of days was 83.7 (SD = 24.58) and 169.33 (36.50). Figures 1 and 2 provide graphs of Little Talks integrity across 4 and 8 check points.

Table 1: Little Talks integrity across four check points (n = 17)

Component	Mauchly's Test of Sphericity	Epsilon ε (if needed)	Within-Subjects Test
Par Coll	$\chi^2(5) = 12.23, p = .02$	Greenhouse-Geisser, .64	$F(1.90, 30.48) = 5.72, p = .009$
CGS	$\chi 2(5) = 12.42, p = .03$	Greenhouse-Geisser, .68	$F(2.03, 32.55) = 4.33, p = .02$
Dec Mkg	$\chi 2(5) = 8.41, p = .13$		$F(3,48) = 3.43, p = .02$
LT Curr	$\chi 2(5) = 7.36, p = .20$		$F(3,48) = 0.66, p = .58$

Table 2: Little Talks integrity across eight check points (n = 9)

Component	Mauchly's Test of Sphericity	Epsilon ε (if needed)	Within-Subjects Test
Par Coll	$\chi^2(5) = 47.43, p = .02$	Greenhouse-Geisser, .37	$F(2.33, 18.64) = 3.97, p = .03$
CGS	$\chi 2(27) = 51.10, p = .01$	Greenhouse-Geisser, .33	$F(2.58, 20.64) = 2.39, p = .10$
Dec Mkg	$\chi 2(27) = 38.74, p = .13$		$F(7,56) = 2.40, p = .03$
LT Curr		Greenhouse-Geisser, .30	$F(2.10, 16.83) = 0.60, p = .57$

Figure 1: Little Talks integrity trends across 4 check points (n = 17)
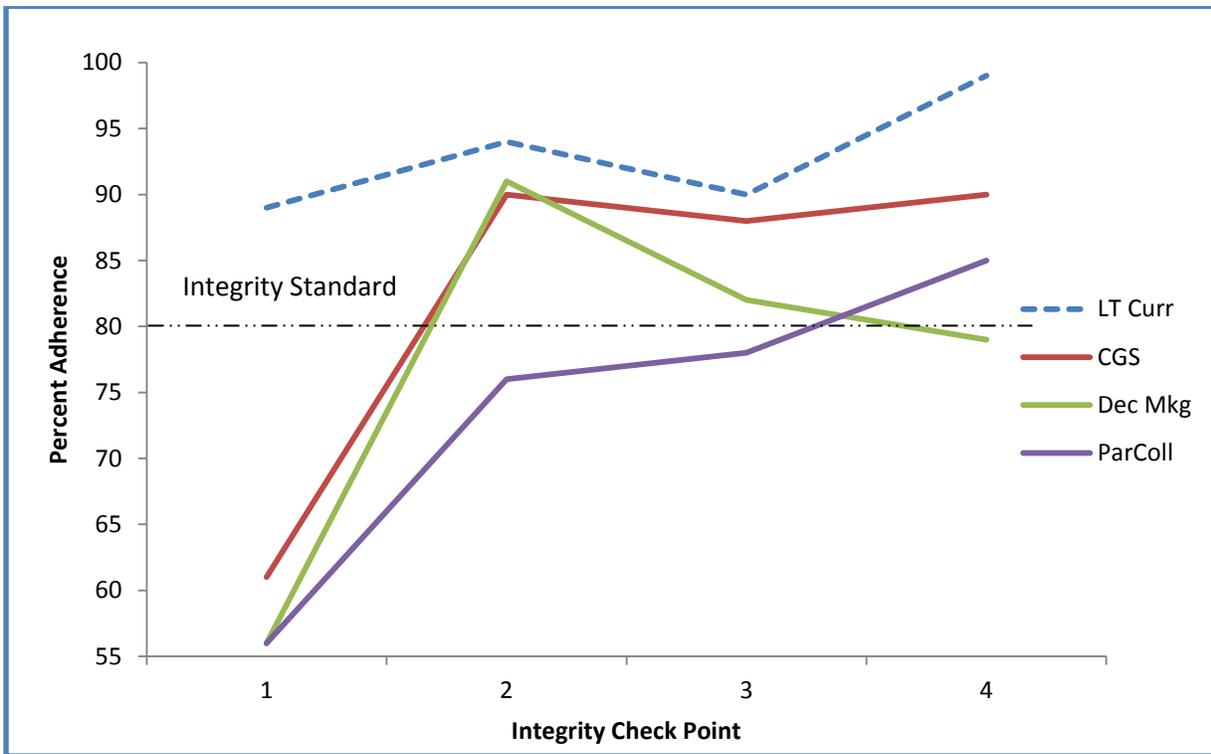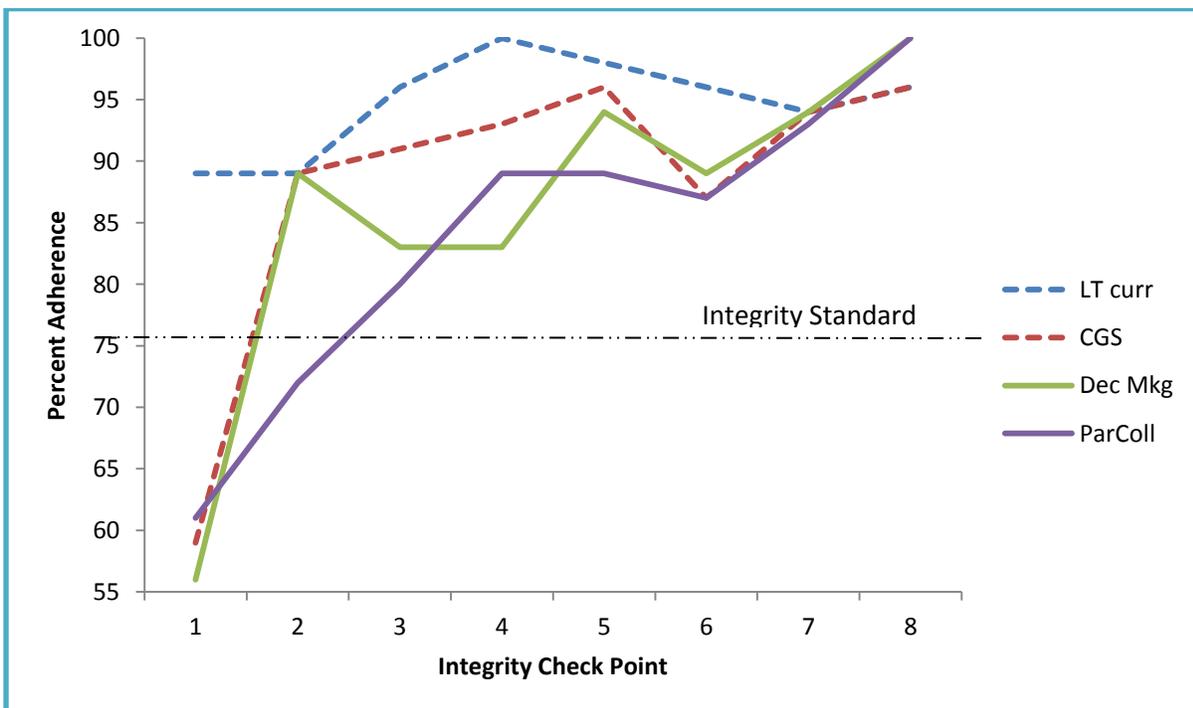

Figure 2 Little Talks integrity trends across 8 check points (n = 9)

Mean integrity per Little Talks components was examined for families who did and did not complete the full intervention. The primary cause for families not continuing the intervention was home visitor turnover; families' enrollment in EHS was disrupted when their home visitor left the program. Table 3 presents findings that

Table 3: Integrity for families who discontinued or completed Little Talks (n = 20)

Component	Discontinued	Completed	ANOVA Results
	Mean (Standard Deviation)		
CGS	0.75 (0.17)	0.89 (0.08)	$F(1,18) = 5.83, p = .02$
Dec Mkg	0.69 (0.19)	0.87 (0.09)	$F(1,18) = 6.912, p = .0.01$
Par Coll	0.73(0.10)	0.85 (0.07)	$F(1,18) = 9.08, p = .007$
LT Curr	0.93 (0.10)	0.94 (0.06)	$F(1,18) = 0.5, p = .82$

Integrity indicators derived from the EHS home visit summary for both Little Talks and Comparison home visitors were all very high and showed minimal variation. Therefore, statistically significant differences in integrity trends for EHS home visit summaries were not found for the majority of components. Only one significant finding occurred, which demonstrated that trends for adherence to eliciting parent input during the visit were significantly higher than those of the comparison home visitors, although both groups showed acceptable levels of adherence (e.g. > 80%).

Mean integrity for Little Talks and EHS visit components were compared. A high, statistically significant correlation was obtained for the association of Little Talks curriculum and the EHS component, Child Development Discussion ($r = .99, p < 0.001$). This high correlation is not surprising as the Child Development Discussion is a required and central aspect of the EHS visit, which would be implemented routinely.

An interesting association occurred between the Little Talks curriculum and EHS Parent Input integrity components ($r = .48, p = 0.05$). This indicated that adherence to providing the Little Talks curriculum was associated with greater adherence to obtaining parent input on the EHS home visit.

Discussion

Results from this study indicate the benefits of monitoring home visiting integrity and utilizing these data to engage home visitors in ongoing performance feedback. Further, this project demonstrated the feasibility of using a mobile application for obtaining self-reported integrity. Trends in the Little Talks integrity indicated that the curriculum was immediately implemented with satisfactory integrity. Components involving home visitor decision making and parent collaboration were not initially implemented with integrity, but home visitors rapidly increased adherence to these components as performance feedback was provided. Examination of the generalization of the impact of performance feedback specific to Little Talks to general EHS home visiting components was inhibited by restricted variance in reported EHS adherence. The

only impact noted occurred for the EHS component to elicit parent input. Little Talks home visitors show significantly greater and steady adherence to this component. Further, the mean integrity of for the Little Talks curriculum implementation and EHS parent input were significantly and positively correlated.

There are several qualifications to this study that should be noted, including 1) nested nature of data, 2) small sample size, and 3) reliance on one method and dimension of integrity assessment.