

# More than Just a Nudge: Supporting Kindergarten Parents with Differentiated and Personalized Text Messages

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## OVERVIEW

Recent studies show that texting-based interventions with parents and caregivers can produce educational benefits in children across a range of ages. Such programs, due to their low cost and ease of implementation, provide researchers with opportunities not only to support students and parents, but also to test the mechanisms underlying the effects of these programs. This study evaluates the impact of personalization and differentiation in a text-messaging program for parents of young children. We investigate whether text-messaging programs are effective primarily because they hold attention through regular reminders (“nudges”), or additionally because of the specific content they provide. We find that content is an important contributor to program effectiveness.

## BACKGROUND

Changing adult behavior is difficult. However, programs that promote sustained attention over time, regularly provide small bits of useful information, delineate easy-to-achieve tasks, and offer ongoing encouragement show positive long-term effects. Text-messaging interventions are especially well-suited to delivering these programs given their affordability and potential

## KEY FINDINGS

- Children in the differentiated and personalized program were 63 percent more likely to read at a higher level than those in the generalized group, as measured by district assessments.
- Differentiation and personalization of a text-messaging intervention increased parental involvement with, and enthusiasm for, the program as measured by parent survey responses.
- Parents of children in the differentiated and personalized program reported engaging more in literacy activities and finding it easier to build reading skills.
- Academic effects were particularly pronounced for students further from average levels of baseline development — in the bottom and top quartiles of skill distribution — indicating that the effects likely stem from text content.

reach, and have generated positive results on child outcomes in a variety of educational contexts when geared towards parents and caregivers.

During the 2013-2014 and 2015-2016 school years, we conducted a randomized controlled study of the READY4K! texting intervention (now known as Tips·by·Text) with two cohorts of preschool families in San Francisco. In that program, treatment group families received three texts per week focused on building a variety of pre-literacy skills. All parents in the treatment group received identical texts, regardless of their child's skill level. Results of the study showed that the program positively affected the extent to which parents engaged in home literacy activities with their children, increased parental involvement in schools, and translated into student learning gains. These results were strongest for children with lower pre-program assessment scores.

Although the READY4K! intervention and other texting programs have yielded promising results, previous studies were not designed to explore which aspects of the programs contributed to their effectiveness. A program could have worked simply because it nudged parents to interact with their child or, alternatively, the specific activities that the program encouraged might have been key to its success. This study seeks to address whether texting programs work solely because they address limited attention through reminders or also because they provide parents with useful content that is relevant to their children.

To explore the mechanisms underlying the success of READY4K!, we test whether sending texts tailored to a child's developmental level enhances program effectiveness. In other words, we test whether a personalized and differentiated version of the READY4K! intervention is more successful than the generic version. Personalization conveys child-specific information and may give parents a better sense of a child's grasp of a given skill, while differentiation provides activities for parents targeted to their child's ability. If personalization and differentiation matter, we would expect the program to generate greater student learning gains and more robust parent involvement than a generic program, especially for students who are either meaningfully above or below the development level that the generic texts target. On the other hand, if program-inspired behavior change comes solely or primarily from holding attention through regular reminders, we would not expect personalization or differentiation to affect program effectiveness.

## THE PROGRAM

In the original, generic READY4K! program, we sent treatment group families three texts per week. On Mondays, parents received a FACT text designed to highlight the importance of the week's skill. On Wednesdays, they received a TIP text describing highly specific activities parents could do with their children to build that skill. On Fridays, parents received a "GROWTH" text, providing them with reinforcement and a follow-up tip. Control group families received one

placebo text every two weeks that contained general district information and did not promote parent-child interactions.

In this study, we followed the first-year cohort of READY4K! prekindergarten families into their kindergarten year and also recruited additional kindergarten families. We randomized the participating kindergarten families into three groups: a treatment group which received generalized literacy texts, a treatment group which received personalized and differentiated literacy texts, and a control group which received occasional placebo texts unrelated to literacy. We built on the original format of READY4K!, gearing this new texting program towards kindergarten skills.

Families in the generalized text program received FACT, TIP, and GROWTH texts each week. Every family in this treatment group was prompted to do the same literacy activity, and no information was provided about a child's strength on a particular skill. This program was analogous to the original READY4K! intervention.

Families in the personalized and differentiated text program also received three weekly texts. The FACT texts were identical to those received by the generalized group, but the TIP and GROWTH texts were differentiated. For each week's literacy skill, we created a four-interval achievement scale. Then we gauged each child's achievement level on each skill based on surveys and assessments. Students scoring on the lower end of the scale received easier versions of the TIP and GROWTH texts and simpler suggested activities, while those at the upper end of the distribution received more advanced versions. Students scoring in one of the middle two groups received texts and activities similar, if not identical, to the activity given to families in the generalized text treatment. A student was not necessarily in the same category each week because a child may be weaker on one skill, but stronger on another.

In addition to differentiating TIP and GROWTH texts based on skill level, we personalized the TIP texts by giving parents information regarding where their child fell in the distribution of skills. We indicated that the child was "beginning" to learn the skill, "growing" in their knowledge, had "solid" understanding, or had "strong" knowledge of the skill.

## THE STUDY

794 students participated in the program. Their families were racially and linguistically diverse, and their parents had varying levels of education, with the majority not having completed a bachelor's degree. Parents completed a baseline survey about home literacy habits and their child's literacy skills, and could choose to receive texts in English, Spanish or Chinese. Texting began at the end of October 2014 and continued for ten months.

To create texts for the personalized and differentiated treatment group, we used data from parent surveys and formative assessments already administered by kindergarten teachers. We used fall-semester first grade literacy assessments as the primary outcome of interest in this study, though we also gathered information from kindergarten teacher surveys conducted in the spring of the texting program and from parent surveys conducted after the program was completed.

## CONCLUSION

This study investigates the effects of a text-based program for parents of kindergarten children, distinguishing a generic program from one adding differentiation and personalization based on each child's developmental level. Children in the differentiated and personalized program were 63 percent more likely to read at a higher level than those in the generic group, and their parents reported engaging more in literacy activities. Effects were driven by children further from average levels of baseline development, indicating that the substantial effects of the personalized and differentiated program likely stem from text content. This study provides evidence that text messaging interventions can do more than merely maintain parents' attention or nudge behaviors via reminders, as parents interact with and absorb the content of the messages as well.

## RELATED PUBLICATIONS

York, B. Loeb, S. & Doss, C. (2019). "One Step at a Time: The Effects of an Early Literacy Text Messaging Program for Parents of Preschoolers." *Journal of Human Resources*, 54(3), 537-566.