

# Data Management Plan

## Study information

*Title:* The impact of nudge communication mode, presentation, and sender on parental visits to a state literacy program website in Arkansas

*Abstract:* The Arkansas Department of Education (ADE) is launching a communication campaign to encourage parent engagement with the Arkansas Reading Initiative for Student Excellence (R.I.S.E.) literacy website, which ADE hosts. ADE aims to understand best practices for parent outreach to encourage equitable engagement with parents.

The implementation and impact study will examine a school-level nudge communication intervention targeted at parents of elementary school students. ADE will deliver a set of electronic communications to households within each participating school, using parent contact information associated with the households. Using a school-level factorial design, this study will estimate the impact of each of the following intervention factors on parent visits to the R.I.S.E website:

- Mode of the communication (email versus a combination of email and text messages).
- Presentation of the communication (text versus text and graphic).
- Sender of the communication (whether emails or texts are sent by the school principal or generically by ADE).

This study will provide ADE and other education agencies with an understanding of implementation considerations for direct nudge communications to parents and the relative effectiveness of readily malleable aspects of the communications.

The study will address the following research questions:

## Implementation questions

1. What percentage of elementary school households were successfully contacted by ADE?
  - a. What percentage of households approved ADE's request to access and use the contact information?
  - b. What percentage of households had functioning email accounts and cell phone numbers at the beginning of the study?
  - c. Did the percentages of households that approved ADE's request to use the contact information and had accurate and functioning contact information vary by rural/nonrural school locale or school demographic composition (above- or below-median percentages of low-income, Black or Hispanic, or English learner students)?
2. What percentage of elementary school households received the emails or texts in each round of communications?
  - a. What percentage of households opened email messages?
  - b. Did the percentage of households that opened email messages or received texts vary by rural/nonrural school locale or school demographic composition (above- or below-median percentages of low-income, Black or Hispanic, or English learner students)?

## Impact questions

1. Did the mode, presentation, or sender of a nudge communication impact the average percentage of Arkansas elementary school households that visit the R.I.S.E. landing page and the time spent on the page?
  - a. Did the fully enhanced nudge strategy (adding a text message, a graphic, and a known sender) increase the average percentage of households that visit the R.I.S.E. landing page and their time spent on the page compared with the base condition (email only, no graph, no known sender)?
  - b. Did the mode, presentation, or sender of a nudge communication impact the average percentage of Arkansas elementary school households who visit the R.I.S.E. landing page and time spent on the page for subgroups of schools (rural schools; schools with above-median percentages of low-income, Black or Hispanic, or English learner students; schools with above-median percentages of parents approving ADE access to their contact information)?

*Authors:* Candace Hester, Anja Kurki, Andrew Jaciw

*Principal investigator's contact information:* [chester@air.org](mailto:chester@air.org)

## Data sources

The study will use extant data collected by ADE from its Student Information System, Statewide Information System Reports, the email and text messaging vendor, and Google Analytics. The study also will use data from the National Center for Education Statistics (NCES). The following table provides details about each piece of data that the study team seeks to obtain.

Name of data source	Owner/publisher of the data	Year(s)	Variable(s)
Student Information System	ADE	2020/21 2021/22	<ul style="list-style-type: none"> <li>• District ID.</li> <li>• School ID.</li> <li>• Household ID (deidentified).</li> </ul> <p><i>Household-level data:</i></p> <ul style="list-style-type: none"> <li>• Number of enrolled students, by grade.</li> <li>• If household has email address, phone number or both.</li> <li>• If household approved ADE’s request to use their contact information.</li> <li>• If household has accurate and functioning email, phone number or both.</li> </ul> <p><i>School-level data:</i></p> <ul style="list-style-type: none"> <li>• Treatment indicator.</li> <li>• Size (enrollment) by grade level (K–6).</li> <li>• Percentage of students by racial/ethnic category.</li> <li>• Percentage of students eligible for national school lunch program.</li> <li>• Percentage of English learner students.</li> <li>• Percentage of students enrolled in special education.</li> <li>• Title I status.</li> <li>• Charter or magnet school status.</li> </ul>
Email and text provider	ADE	2021/22	<ul style="list-style-type: none"> <li>• District ID.</li> <li>• School ID.</li> <li>• Household ID (deidentified).</li> <li>• Open rates.</li> <li>• Bounce rates.</li> <li>• Click dates and times.</li> </ul>
Google Analytics	ADE	2021/22	<ul style="list-style-type: none"> <li>• District ID.</li> <li>• School ID.</li> <li>• Total number of visitors.</li> <li>• Number of new visitors.</li> <li>• Date and time of visit.</li> <li>• Duration of time on the site.</li> </ul>
Common Core of Data	NCES	2018/19	<ul style="list-style-type: none"> <li>• District ID.</li> <li>• School ID.</li> <li>• Geographic locale (urbanicity).</li> </ul>

## **Data confidentiality**

REL Southwest will obtain most of the necessary data for the study from ADE. Southwest will have access to district and school IDs. REL Southwest will not have records that directly identify individuals or households. Household level identifiers will be unique random numbers generated by ADE. The researchers will not disclose data produced in any manner that could identify individuals or schools.

Data will be used only to address the approved research questions for this study and will be destroyed in accordance with the data-sharing agreement with ADE. Publications and reports of these data and information related to them, including preliminary project descriptions and draft reports, will involve only aggregate data and follow Institute of Education Sciences guidance in reporting by suppressing data with small cell sizes.

## **Data security**

The household-level data will be securely transferred by ADE to Empirical Education. The data will be stored and analyzed on a secure workspace. The household-level data will be electronically transferred to Empirical Education through a secure website, which uses HTTPS/TLS with a signed security certificate. Data will be encrypted during transmission. Empirical Education will establish and maintain a secure workspace for the project with restricted role-based permission and access to the workspace. The secure workspace provides account maintenance, verification of transfer integrity, malware detection, and notifications of transfer events to ensure reliable exchange of potentially sensitive data.

## **Format for final data file**

The study will produce an alternate data file document, as described in the *Data Management Plans and Data Files Guidance* document. This document will provide relevant documentation needed to replicate the analysis. In a .txt format, the alternate file will describe the data and the steps the study team took to merge and clean the data, create variables, and run analyses.

## **Why a public-use file will not be made available**

The researchers are not authorized to release the data used in the study. ADE's data-sharing agreement forbids the release of the state data to other researchers or parties.