



Helping Parents Navigate the Early Childhood Enrollment Process: Experimental Evidence from New Orleans

Lindsay Weixler

Tulane University

Jon Valant

Brookings Institution

Daphna Bassok

University of Virginia

Justin B. Doromal

University of Virginia

Alica Gerry

Tulane University

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Helping parents navigate the early childhood enrollment process: Experimental evidence from New Orleans

Lindsay Weixler¹, Jon Valant², Daphna Bassok³, Justin B. Doromal³, & Alica Gerry¹

Abstract

The early childhood enrollment process involves searching for programs, applying, verifying eligibility (for publicly funded seats), and enrolling. Many families do not complete the process. We conducted a randomized controlled trial to assess strategies for communicating with families as they verify eligibility. Working with administrators in New Orleans, we randomly assigned families to receive either: (1) the district's usual, modest communications, (2) the usual communications plus weekly text-message reminders formal in tone, or (3) the usual communications plus weekly text-messages reminders friendly and personal in tone. Text-message reminders increased verification rates by seven percentage points (regardless of tone), and personalized messages increased enrollment rates for some groups. The exchanges between parents and administrators reveal the key obstacles that parents confronted.

¹Tulane University

²Brookings Institution

³University of Virginia

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Introduction

Although public investment in early childhood education (ECE) has risen rapidly and most young children now experience regular non-parental care, the process of finding and enrolling in ECE programs remains difficult for many families (Bassok, Magouirk, Markowitz, & Player, 2018). Applicants to publicly funded programs typically confront a multi-step process—search, apply, verify eligibility, and enroll—that demands sustained attention in navigating a complex assortment of processes and requirements. Research from K-12 and higher education indicates that complexity in the choice and enrollment processes can result in poor outcomes, such as enrolling in undesired programs or not enrolling at all (Bettinger, Long, Oreopoulos, & Sanbonmatsu, 2012; Klasik, 2012; Schneider, Teske, & Marschall, 2000). Similar obstacles exist for families choosing ECE programs, though the ECE choice process has received less attention from researchers. These obstacles may be particularly burdensome—and consequential—for disadvantaged families tasked with navigating the ECE choice process with especially limited resources.

Using a randomized field experiment, we assessed the effects of a text-messaging intervention designed to help low-income parents in New Orleans verify their eligibility for a publicly-funded ECE seat (a necessary but insufficient step for enrolling). New Orleans provides a promising context for this study because the city recently expanded OneApp, its unified enrollment system for K-12 schools, to include all publicly funded pre-K, Head Start, and Early Head Start programs. Through OneApp, parents can request placements in an assortment of publicly funded ECE programs. Like with the OneApp’s K-12 system, parents make requests by submitting a ranked list of programs, which an algorithm uses to make placements. However, unlike the K-12 context, publicly funded early childhood seats are generally targeted to children

from low-income families. As a result, ECE applicants must provide documents, in person, to verify their eligibility for a seat. The resulting complexity may harm the individuals the program intends to benefit. In 2016-17, about 35 percent of the families who submitted an ECE application through the New Orleans OneApp did not complete the verification process. These families demonstrated their desire for a placement in a publicly funded ECE program (by submitting an application) and then lost their opportunity for such a placement by not verifying their eligibility.¹

We conducted this experiment in partnership with the district office overseeing the OneApp enrollment process.² Our intent was to identify and address barriers associated with verifying eligibility for ECE programs. The district hypothesized that many low-income families who submitted an application did not complete verification because they found the process confusing or intimidating. Drawing on research showing that personalized reminders (Castleman & Page, 2016; Dechausay & Anzelone, 2016) and supportive interactions (Bettinger et al., 2012; Castleman & Page, 2015) can improve the rates at which people complete complex tasks, we sought a low-cost intervention to improve verification rates. We turned to text messages, which, at relatively low cost, have demonstrated potential for changing behaviors that include college enrollment among low-income high school students (Castleman & Page, 2015), voter turnout (Dale & Strauss, 2009), and parental interactions with young children (Doss, Fahle, Loeb, & York, 2018; S. E. Mayer, Kalil, Oreopoulos, & Gallegos, 2018; York, Loeb, & Doss, 2018).

¹ Parents who failed to complete verification had the opportunity to complete verification during the late enrollment period and take any remaining open seat or add their child to waitlists. However, by that time, many high-demand programs, and nearly all seats for children under 4, were full.

² At the time of this project, the office was housed within the state-run Recovery School District; they have since been incorporated into the Orleans Parish School Board central office. For simplicity, we refer to them as “the district.” In public-facing materials, the office is referred to as “EnrollNOLA.”

Specifically, parents were randomly assigned to one of three groups after they submitted an application but before they completed the verification process. Group 1 (n=414 parents), the control group, received the district's typical communications: formal, weekly email reminders to verify their eligibility, text message alerts for five weekend verification events, and one "robocall" reminder. Group 2 (n=400) received the same communications, plus weekly text message reminders, also formal in tone (e.g., "Your child's OneApp is incomplete. The next step is to verify eligibility. Submit required documents to finish your OneApp."). Group 3 (n=410) received the same communications as Group 2, but with a different tone and style. Their messages were personalized and casual in tone, and encouraged two-way communication with a friendly staff member (e.g., "Hi, it's Ashley... I want to make sure [Child's name] doesn't lose her spot for next year! Text me if you'd like help finishing the OneApp!").

These groups provide a set of substantively important treatment contrasts. Comparing the verification and enrollment rates of Groups 1 and 2 enables us to test the effects of providing additional reminders via text messages. Comparing Groups 1 and 3 enables us to test the effects of providing those reminders in a way that could make an impersonal, intimidating process more welcoming. Comparing Groups 2 and 3 tests the impacts of a government making its outreach bureaucratic and impersonal in tone, versus friendly and personal. In addition to examining effects on verification and enrollment rates, the two-way nature of the communication allows us—and the district—to obtain a real-time glimpse of families' enrollment processes and what types of challenges they experience.

The experiment's results indicate that a low-cost text message intervention can help parents overcome the eligibility verification barrier in the ECE enrollment process. We find that parents who received the text messages, regardless of tone, were seven percentage points more

likely to complete verification than parents in the control group (67% versus 60%, $p < .05$). Additionally, the informal texts—but not the formal texts—yielded higher rates of program enrollment as of February of the following school year. Effects for both verification and enrollment were particularly large for parents who applied solely to public pre-K³ programs, compared to those who applied to at least one Head Start program. For these applicants, receiving some type of text message reminders increased verification rates by 13 to 15 percentage points, while the informal texts increased program enrollment by 10 percentage points. Finally, parents who received informal text messages responded to those messages at extremely high rates—89% of Group 3 parents responded to at least one text (compared to eight percent and 12% of Groups 1 and 2, respectively). These parent responses enabled administrators to engage with parents during the verification process and provided insights about the key challenges that families face during verification.

This study makes three distinct contributions to the existing literature. First, by identifying the steps required to complete the ECE choice and enrollment process—and showing the potential to improve outcomes by targeting a logistical barrier—it illustrates that parents often need help not just with identifying program options but also with navigating the often-complex choice and enrollment process. Several school choice experiments have shown that presenting more, or different, information about families’ individual school options can affect which schools they choose (Corcoran, Jennings, Cohodes, & Sattin-Bajaj, 2018; Glazerman, Nichols-Barrer, Valant, & Burnett, 2018; Hastings & Weinstein, 2008). Few studies, however, have explored the effects of providing information or support for the school choice process itself. Second, this study’s results demonstrate the potential for a specific intervention to address a

³ Aside from Head Start, all seats in this system are for three- and four-year-olds and almost all are in public or private schools. A small number are located in private childcare centers working in partnership with public schools. For simplicity, we refer to all non-Head Start seats as “pre-K.”

known barrier in the ECE enrollment process—and at low cost, with the enrollment system’s administrators managing the intervention themselves. Third, the text message exchanges between parents and administrators reveal that misunderstandings and other obstacles interfere with many parents’ attempts to verify, and highlight the usefulness of two-way text message communication for collecting real-time information about parent experiences.

This paper proceeds as follows. We begin by describing the process of enrolling in ECE programs, the potential barriers to successful completion, and the efficacy of behavior interventions (and text messages specifically) in supporting families through the application process. Next, we describe the application process in New Orleans, where we conducted this study. We then present the intervention and its results, followed by a discussion of the implications for practice and policy.

Prior Literature

High-quality early childhood opportunities can improve a child’s short- and long-term outcomes (e.g., Phillips et al., 2017; Yoshikawa et al., 2013). Given the significance of ECE experiences in shaping children’s developmental outcomes, as well as the high variability in the quality of ECE programs available, it is important to understand how and why young children sort into specific ECE options.

Existing research has focused on supply and cost of ECE options as major drivers of parental choices. Relatively little research has examined the multi-step process that many parents must navigate when seeking public ECE options for their children. First, parents *search* for programs that meet their needs. Second, they *submit an application* to express their interest in these programs. Third, if programs have particular eligibility requirements, parents *verify their eligibility* by providing, for example, documents that demonstrate their sources of income and

residency. Finally, conditional on completing these steps, parents *enroll* to confirm that their children will take a seat that has been offered.

These steps—search, apply, verify, and enroll—vary across family and local contexts, as well as by program types. For example, some families may consider more options than other families. Similarly, some areas do not offer publicly funded seats, or have steps that tend to co-occur (such as allowing families to observe a program and verify eligibility at once). Still, the processes that families—and especially low-income families in urban areas—undertake is similar enough to define the “gauntlet” that parents must run in order for their children to participate successfully in ECE programs.⁴ In describing the prior literature, we emphasize research that pertains to each of these steps in the ECE enrollment process. We give disproportionate attention to literature related to eligibility verification—the focus of this study’s interventions—but begin with the search step.

Search

The step of the ECE process that has received the most attention from researchers is parents’ search for programs. Survey-based studies indicate that parents seek “high-quality” programs—often characterized by supportive and engaging environments for learning, responsive student-teacher relationships, and high levels of teacher education (Barbarin et al., 2006; Bassok, Magouirk, et al., 2018; Cryer & Burchinal, 1997; Forry, Tout, Rothenberg, Sandstrom, & Vesely, 2013; Meyers & Jordan, 2006). However, practical and convenience factors (e.g., hours, location, and cost) constrain parents’ choices and can complicate their search for ECE programs (Barbarin et al., 2006; Rose & Elicker, 2008; Sandstrom & Chaudry, 2012; Sandstrom, Giesen, & Chaudry, 2012). This is especially the case among lower- and middle-income working families with less flexible employment (Kim & Fram, 2009).

⁴ See Klasik (2012) for an analogous description of the college enrollment gauntlet.

Parents report conducting brief, limited searches, often only visiting or even considering a single program (Bassok, Magouirk, et al., 2018; Chase, 2010; Chaudry et al., 2011). Why many parents consider so few options when selecting ECE for their child is not well understood. One possibility is that the limited searches reflect a lack of available options that meet families' needs with respect to cost, location, or hours. Several recent studies and numerous news articles have documented the limited availability of ECE in some communities (Fetterman, 2018; Malik & Hamm, 2017; Sandstrom et al., 2018). Recent estimates suggest that between 24% (Iowa) to 62% (California) of a state's population live in a census tract with inadequate ECE supply, also known as a "child care desert" (Malik & Hamm, 2017).⁵

However, it may also be that ECE programs *are* available but families struggle to navigate the fragmented set of options. For example, parents could have limited information about the availability of programs for which they are eligible (or about the importance of identifying high-quality programs). Or they could struggle to find time to engage in a thorough search process. In practice, most parents report relying on informal recommendations to find ECE for their child (Bassok, Magouirk, et al., 2018; Iruka & Carver, 2006; Pungello & Kurtz-Costes, 1999).

Apply

Searching for ECE programs is just the first in a multi-step process, but little research has examined the steps that typically follow. We summarize the literature related to each step but acknowledge that much of it comes from a K-12 or higher education context, raising questions about its applicability to ECE.

⁵ These authors defined a child care desert as "any census tract with more than 50 children under age 5 that contains either no child care providers, or so few options that there are more than three times as many children as licensed child care slots." Louisiana, which is the context for the present study, was not included in those authors' study.

Traditionally, families submit a separate application directly to each ECE program to which they wish to apply. This mirrors what had been the charter school and college application processes in many states—processes that are increasingly being centrally coordinated. For charter schools, the lack of coordinated enrollment process across schools proved burdensome for families who had to navigate many different application requirements and deadlines, sometimes having to submit applications in person during working hours (Gross, DeArmond, & Denice, 2015; Harris, Valant, & Gross, 2015). This paved the way for unified enrollment systems that couple a common application—which allows parents to apply for many schools using just one form—with a centralized process for placing students in schools based on families’ rankings and school priorities. In higher education, in hopes of reducing the burden and redundancy of decentralized college application processes, more colleges are participating in common applications that allow students to apply to many schools at once (Liu, Ehrenberg, & Mrdjenovic, 2007).

More recently, some cities, including New Orleans, Chicago, Boston, and Washington, DC, have moved towards unified enrollment systems for ECE. A move toward common application or unified enrollment systems could simplify the ECE application process, although these systems remain uncommon for ECE and, where they do exist, tend to include only a small portion of the ECE programs within a community.

Verify Eligibility

This study focuses on the third step, eligibility verification, and the barriers that families face in demonstrating their eligibility for programs to which they have applied. Failure to complete verification can result in losing a desired ECE placement. Researchers and

policymakers have been increasingly concerned with barriers that prevent targeted populations from receiving services available to them.

In the ECE context, verification arises in the provision of publicly funded programs that target families whose household income is below a state-defined income threshold or who meet various other criteria (e.g., for special education services). Parents must provide documents to demonstrate their eligibility for these services. Families eligible for multiple, targeted programs may need to go through multiple, similar-but-different verification processes. For example, the annual household income threshold for Head Start in Louisiana is \$24,600 (before taxes) for a four-person household, while the threshold for Louisiana's Child Care Assistance Program (CCAP), the Louisiana program funded by the federal Child Care and Development Fund, is \$37,944. Head Start also requires an in-person interview not required by other programs. Differences in eligibility requirements across programs can frustrate efforts to streamline verification processes, leaving low-income families to navigate many different processes. These processes can be burdensome, especially for families in poverty (Mani, Mullainathan, Shafir, & Zhao, 2013). When resources are scarce, people tend to focus on pressing needs and make tradeoffs in their decisions against these needs (Shah, Shafir, & Mullainathan, 2015).

There are at least three reasons why parents might not complete the verification step in the ECE enrollment process. *First, parents might be unaware of the need to verify.* Parents juggle many obligations, and they might simply forget, or never notice, that they need to verify. Attention is a limited resource, and overloading one's cognitive resources can stress working memory and executive functioning. *Second, parents might not understand how to verify.* They might be aware of the overarching requirement to verify but not understand the individual steps and procedures necessary. These processes can be complicated—as is the case for Head Start

programs in New Orleans and their patchwork of requirements—and this, coupled with limits on parents’ resources, could keep applicants from knowing what to do. *Third, parents might have limited capacity to complete verification.* Along with the behavioral barriers just described, parents face structural barriers. That is, they may know that they have to verify and understand how to do it, and yet, due to one constraint or another, not be able to complete the process. Potential constraints include work schedule conflicts, transportation issues, and not possessing the necessary documents.⁶

Though little research has examined verification barriers to participation in publicly funded ECE programs, studies in two related areas are informative. First, in the postsecondary education context, the Free Application for Federal Student Aid (FAFSA) has been a barrier for many families. Many applicants struggle to verify their income and asset information, which can delay or prevent them from receiving award packages from colleges and universities. Bettinger, Long, Oreopoulos, and Sanbonmatsu (2012) found that offering a streamlined FAFSA process to parents who were receiving tax preparation assistance from the company H&R Block resulted in substantial increases in FAFSA submission, college enrollment, college persistence, and aid receipt rates. In effect, the intervention made the eligibility verification process less burdensome for families, resulting in positive short-term and long-term outcomes.

A second related literature examines barriers to families’ use of child care subsidies, which provide funds that families can use to pay for an ECE program. This literature indicates that some barriers to using these subsidies are practical or structural, such as a lack of adequate transportation (Herbst, 2008; Herbst & Tekin, 2012). Other barriers are more behavioral, such as not being informed about the process or avoiding it due to stigmas associated with subsidy

⁶ This list of reasons why parents do not verify eligibility is not exhaustive. For example, while likely uncommon in New Orleans, undocumented immigrants might worry about producing (or failing to produce) documents for government review (e.g., Abrego, 2011; Yoshikawa, 2011).

receipt (Adams, Snyder, & Sandfort, 2002; Dechausay & Anzelone, 2016; Herbst, 2008; A. K. Mayer, Cullinan, Calmeyer, & Patterson, 2015).

Disentangling why parents do not verify is essential, as different reasons imply different policy solutions. Institutions can address structural barriers by, for example, enabling parents to verify near their homes or places of work, regardless of where they live, and with hours that extend beyond typical work day hours. However, if the barriers that prevent verification are behavioral rather than structural, this approach can only accomplish so much. Parents might benefit from interventions that target behavioral barriers.

Enroll

The final step in the process involves enrollment itself. That is, after families have identified a program, applied, verified eligibility, and received a placement, they still must submit final enrollment paperwork and show up. This final step has not been studied carefully in the ECE context, but it has captured the attention of the higher education community. Castleman and Page (2014) show that many low-income high school graduates do not actually enroll in college even after completing many steps along the way. Whether because of changing plans or getting lost or disconnected during the enrollment process, large percentages of students signaled their intent to enroll but ultimately did not do so. Two experimental studies aimed to address this “summer melt,” finding that college counseling (Castleman, Arnold, & Wartman, 2012) and personalized text messages (Castleman & Page, 2015) can improve college enrollment and outcomes for low-income students.

Text-Message Interventions in ECE

The existing research from K-12 and higher education suggests that an effective

communication intervention could help parents through the verification process. This type of intervention can remind parents of the need to verify and address possible misunderstandings about how to do so. Additionally, through two-way exchanges between parents and administrators, a communications intervention could reveal, in real time, the structural barriers that interfere with verification.

Given this, we turned to text messages to support parents' verification processes. Studies using text messages have demonstrated potential, at a relatively low cost, for changing behaviors such as whether low-income high school students enroll in college (Castleman & Page, 2015), whether people turn out to vote (Dale & Strauss, 2009), and how parents engage with their young children (Doss et al., 2018; S. E. Mayer et al., 2018; York et al., 2018). Text-message outreach can provide salient and timely communications to parents, meet parents where they are, in the context of their busy lives, and open channels for two-way communication to provide information and support.

We are aware of no studies that have examined methods for supporting parents through the ECE verification process. Thus, we encountered open questions about how parents would respond to various messages, what would be the optimal tone and approach of these messages, and what specific features would be most useful (e.g., two-way communications that allow parents and administrators to communicate via text messages). Experimental evidence related to parents' engagement with their young children's learning indicates that parents are indeed responsive to prompts received from text messages (York et al., 2018); however, there may be diminishing returns to the frequency and intensity of text message prompts (Cortes, Fricke, Loeb, & Song, 2018). In addition, differentiated and personalized information—relative to generic information—increases the likelihood of parents reading to their children, and consequently

increases children's subsequent literacy skills (Doss et al., 2018). Research more removed from the ECE context suggests that using overly formal or complex language can frustrate one's audience (e.g., Oppenheimer, 2006).

Text-based interventions that encourage parents to engage with young children are similar to the present context in that they prompt parents to take actions on behalf of their children. They differ, however, in the time and resources demanded from the actions prompted. In parent engagement, texts offer simple suggestions for incorporating learning opportunities throughout the day (York et al., 2018). In contrast, eligibility verification, at least in New Orleans, requires a fairly substantial investment of time and effort to produce the necessary documents in person. This might (or might not) increase the importance of supportive, personalized, and interactive text-message exchanges.

In sum, research from ECE and other areas suggests that a text-message intervention could help parents through the eligibility verification step of the ECE enrollment process. However, the existing literature does not provide direct evidence on this subject, nor clear guidance on how such an intervention could successfully inform and engage parents and reveal to administrators what type of support parents might need.

Policy Context

New Orleans provides a useful context to study parents' verification and enrollment processes. In 2012, Louisiana passed the Early Childhood Education Act (Act 3), which overhauled Louisiana's ECE system with the explicit goal of building a cohesive system that supports improvements in school readiness. Coordinated enrollment was a key component of Act 3, requiring every parish (county) to create a system that centralizes information, and potentially application processes, for all publicly funded ECE programs. New Orleans responded to Act 3 by

leveraging its existing K-12 unified enrollment system, known as OneApp (for examples of prior studies of OneApp, see: Abdulkadiroglu, Che, Pathak, Roth, & Tercieux, 2017; Lincove, Cowen, & Imbrogno, 2018; Harris, Valant, & Gross, 2015; Lincove, Valant, & Cowen, 2018). OneApp, which the district administers, provides a common application that enables parents to apply to multiple schools at once, removing the need to navigate many application documents, requirements, and deadlines. It also provides a mechanism for placing students in schools based on families' rankings, school priority groups, and seat availability. Parents rank their favorite choices and the system makes placements (Harris, Valant, & Gross, 2015).

In response to Act 3, New Orleans expanded OneApp, which already included public school pre-K programs to also include enrollment for other publicly funded ECE programs including Head Start, Early Head Start, and state-funded preschool programs in private schools and childcare centers.⁷ As a result of this expansion, the Early Childhood OneApp contains roughly 600 seats for 0-2 year-olds and 1,100 seats for three-year-olds, in addition to the 2,900 seats for four-year-olds.

Unlike for K-12, the Early Childhood OneApp requires the additional step of verifying parents' eligibility for seats in their requested schools.⁸ After submitting an application, but before the end of the application period, applicants are required to come, in person, with documentation to verify their eligibility for programs listed on their application. Some of these documents are easier to obtain than others (see Figure 1).⁹ All applicants must show the child's birth certificate and proof of Orleans Parish residency. Further, because all Head Start and almost

⁷ Louisiana funds public pre-K seats in private settings through two funding streams: the Non-Public Schools Early Childhood Development program and the Preschool Expansion Grant. Applications for child care center seats funded by federal subsidies are not yet included in the OneApp.

⁸ From this point forward, we use "OneApp" to refer to the Early Childhood OneApp, which is the primary focus of this study.

⁹ Note that although this document states that families must verify within five business days of submitting the application, the district allows families to verify until the Main Round deadline, regardless of application date.

all state pre-K programs are targeted to low-income families, the vast majority of applicants must show proof of their household income.¹⁰

Parents were required to have a complete set of documents at their visit. If they did not, they were required to return with all documents. Making the process more complex, Head Start and Early Head Start applicants had additional requirements for verification documents and an in-person interview, and had to verify at a designated Head Start Eligibility Center. In contrast, school-based pre-K applicants could complete their verification at one of three Family Resource Centers, with standard weekday hours, located throughout the city.¹¹ Head Start centers' verification hours and days of operation varied across centers (see Figure 2). The district also held five Saturday verification events during the application period, at different locations around the city, at which parents could complete all aspects of the verification process.

While having a unified enrollment system may have simplified some aspects of ECE enrollment, the in-person verification step posed a practical barrier for enrollment. Because the OneApp is only considered complete upon successful verification of eligibility, unverified applicants were not placed in publicly funded ECE programs. It is notable, however, that the burden of verification is not unique to a centralized system; centralized enrollment simply enables us to easily identify the number of interested parents for whom verification, specifically, appears to pose a barrier. The OneApp's verification requirement is similar to the process in many publicly funded ECE programs around the country.

¹⁰ A few charter schools in Orleans Parish are chartered by the state Board of Elementary and Secondary Education and thus accept students from any Louisiana district. Additionally, public schools with pre-K seats are allowed to offer tuition-based seats, which do not require income verification. Programs for gifted students also do not require income verification. In 2017-18, of 40 schools offering pre-K, approximately a dozen offered tuition-based or gifted seats (almost always in addition to seats for low-income students and those with special needs).

¹¹ Families applying to both Head Start and school-based pre-K programs could complete verification for all school choices at the Head Start Eligibility Center, so it was not the case that they had to visit separate sites. However, these parents could *not* complete Head Start verification at a Family Resource Center.

Method

Data and Sample

Because New Orleans separates application and verification into distinct steps, we could identify, in real time, the parents who had enough interest in a public ECE placement to have submitted an application but had not completed verification. Through our collaboration with the district, we obtained data about ECE applicants. Since parents entered their phone numbers while completing the application, we had access to applicants' cell phone numbers to use for text messages. We also obtained data on whether parents ultimately completed the verification process, along with anonymized transcripts of the text message conversations between parents and district staff.

A total of 4,111 parents (or other guardians) submitted applications for 4,740 children in the 2018-19 Early Childhood OneApp. This intervention included the subset of those parents who applied for a seat within the first four weeks of the application period (November 1 through November 27, 2017) and had not completed the verification step by the end of that period. This consists of 1,224 parents who submitted applications on behalf of 1,407 children. Of the 2018-19 applicants not in the sample, 416 verified eligibility before the intervention started and the rest applied too late to be included in this analysis.¹²

Demographic data on participants are limited, but in the application pre-screening questions, applicants reported a (median) monthly income of \$1,200. This is below the poverty line for any family with a household size of two or greater. About 90% of parents in the sample were identified as living under 185% of the poverty line based on their answers to the pre-screening questions. About half of the children in our sample are male, and almost all applicants

¹² The intervention was originally intended to also include applicants who applied later and did not verify within a week. However, due to an error in the text-messaging system, these applicants did not receive the intervention as designed and could not be included in the analysis.

listed English as their preferred language. (The intervention was provided only in English.) The groups were well balanced, with no significant differences on any reported demographics or program types (see Table 1). About 63% applied for a Head Start or Early Head Start seat, which is restricted to families at or under 100% of the poverty line (and is the only OneApp option for children under three years old). Just over 40% applied for a four-year-old seat.

Intervention

Applicants to the 2018-19 Early Childhood OneApp could apply between November 1, 2017, and February 23, 2018. Unverified applicants were randomly assigned to intervention groups on Monday, November 27. We randomized at the parent level so that a parent with more than one child in the study would receive the same type of communications for each child. Group 1 (n=414 parents/472 children), the control group, received the district's typical communications: formal, weekly email reminders to verify their eligibility, text-message alerts for up to five weekend verification events, and one "robo-call" reminder. Group 2 (n=400 parents/463 children) received the same communications plus weekly text messages (up to 15 total if a parent remained unverified for the entire period), also formal in tone (e.g., "Your child's OneApp is incomplete until you verify eligibility. Please review the following link for help finishing your OneApp."). Group 3 (n=410 parents/472 children) received the same communications as Group 2, but with a different tone and style in the text messages. Their messages were personalized, casual in tone, and encouraged two-way communication with a named member of district staff (e.g., "Hi, it's Ashley... I want to make sure [Child] doesn't lose her spot for next year! Text me if you'd like help finishing the OneApp!"). Group 3 members additionally received follow-up friendly texts after a verification event announcement, for a total of 19 possible texts. Appendix A contains the full set of text messages sent to each group.

The district sent reminder texts to Groups 2 and 3 on Tuesday mornings. In addition, they sent formal event announcement texts to all three groups on the Thursday before the Saturday event, with “Ashley” sending follow-up texts to Group 3 on those Fridays. Parents in all groups could respond to any text they received, though only parents in Group 3 were explicitly encouraged to reply. If parents replied to a text, a district staff member replied and attempted to help. Parents continued to receive weekly texts through the application period until they completed verification.

Analysis of Intervention Effects

To identify the effects of the intervention, we used a logit model to predict four outcomes as a function of intervention group membership (see Equation 1)¹³. This analysis was conducted at the child level, with standard errors clustered by parent. Outcomes were: (1) whether the parent responded to a text message; (2) whether the child was verified by the deadline; (3) whether the child was enrolled in a public ECE program one year later (February 2019); and (4) whether the child was both verified by the deadline *and* enrolled one year later.

$$\eta_i = \alpha + \beta_1(\text{group}_i) + e_i \quad (1)$$

Here η_i represents the log-odds of the outcome for child i as a function of intervention group, with the control group as the reference and each experimental group represented by a dummy variable. Additionally, because the verification process is more complicated for Head Start applicants--and because this could be a particularly disadvantaged population—we tested the specific benefit of the intervention for Head Start applicants by interacting treatment status with an indicator of having applied for a Head Start program (Equation 2). We present both logit

¹³ OLS models are often preferred, even with binary outcomes, for their more straightforward interpretation. However, when modeling effects separately by program (Equation 2 below), some results from OLS models differed slightly from results from logit models. All estimates were in the same direction, but the statistical significance of the interaction terms varied between OLS and logit models. Therefore, we present the logit model results, which are more appropriate for binary outcomes.

coefficients and marginal probabilities in the results tables. For ease of interpretation, we discuss effects in terms of the difference in marginal probabilities.

$$\eta_i = \alpha + \beta_1(\text{group}_i) + \beta_2(HS_i) + \beta_3(\text{group}_i * HS_i) + e_i \quad (2)$$

We also examine the speed with which applicants verified. While verifying earlier does not improve an applicant's chance of admission, it allows more time for parents and administrators to address problems with parents' verification materials and mitigates administrators' workload just before the deadline. We used a Cox proportional hazards regression (Bradburn, Clark, Love, & Altman, 2003; Singer & Willett, 2003) to estimate the effect of group membership on the hazard function—in this case, the instantaneous rate of verification over the application period (Equation 3).

$$\log H(t_{ij}) = \log H_0(t_j) + \beta_1(\text{group}_i) \quad (3)$$

Here, $\log H(t_{ij})$ represents the predicted cumulative hazard function for child i , and $\log H_0(t_j)$ represents the baseline hazard function for the control group. β_1 is the effect of intervention group membership on the hazard function. We present results from the model using as the outcome the number of business days between the start of the intervention and the date of verification. This metric creates a smoother and more accurate representation of the hazard function, as it removes long stretches (e.g., winter break) when offices were closed and applicants were unable to verify. However, regression coefficients are identical in the model estimated using calendar instead of business days, as the measures are perfectly correlated.

Text Content Analysis

We conducted a content analysis of text message conversations between district staff and applicants in order to identify barriers to verification by tabulating the frequency of a variety of parent responses. Parent response categories were developed using an inductive coding process

in which two coders examined a subset of the text content (~20%) to identify patterns and themes in the data. Once these themes were developed, coders conducted a second round of more focused coding of all text messages included in the sample. We measured inter-rater reliability on the 20% of data coded by both coders using Cohen's kappa (Hallgren, 2012); inter-rater reliability statistics ranged from 0.83 to 0.98.

Ultimately, we tabulated text content across three broad themes relating to a parent's likelihood of verifying—awareness, understanding, and capacity. *Awareness* captures a parent's recognition that additional steps are required to complete the verification process. *Understanding* refers to the parent's knowledge of how to complete the verification step(s). *Capacity* refers to the ability to navigate the related logistics, including finding required documents and traveling to a verification site during open hours. Additionally, we used chi-square tests to compare understanding and capacity responses between Head Start and Pre-K and between verified and unverified applicants. Because of small cell sizes, we used Fisher's exact test to compare awareness frequencies. Finally, we used themes developed in the frequency analysis, and memos generated throughout the coding process, to examine barriers pertaining to the Head Start process specifically. The quantitative analyses identified this subset of applicants as the group least likely to complete the verification process, and the tabulations revealed that over 10% of Head Start applicants were confused about aspects of the process specific to Head Start.

Results

Intervention Effects

The effects of the intervention, reported in log odds, appear in Table 3, with marginal probabilities appearing in Table 4. As indicated in the first three columns, Group 3 participants, who received personalized texts that encouraged responses, responded at a much higher rate—

89% responded to at least one message, compared to 8% of Group 1 and 12% of Group 2. The Group 3 response rates were significantly higher than Group 1 and 2 response rates for the full group as well as for the pre-K and Head Start subgroups.

Applicants assigned to either the formal (Group 2) or informal (Group 3) text-message intervention group were seven percentage points more likely to verify their eligibility by the end of the period, compared to the control group (67.2% and 66.9%, respectively, compared to 59.5%; $p < .05$; see Tables 3 and 4). Verification rates did not differ between Groups 2 and 3. With respect to verification, the interacted model shows that personalized texts were less effective for applicants who applied to at least one Head Start than for applicants who did not. Pre-K applicants were 15 percentage points more likely to verify than the control group when they received personalized texts (82.4% vs. 67.9%), compared to a non-significant five percentage-point difference (58.6% vs. 54.0%) for Head Start applicants. Group 2's formal texts produced a similar pattern of results, but the interaction was not statistically significant.

Next, we turn to whether children were enrolled in a program as of the following February. The personalized texts had a strong effect on later enrollment for pre-K, but not Head Start, applicants (though the interaction term was not statistically significant, leaving some uncertainty as to whether the effect of the texts on enrollment alone differed for these groups; see Table 3). Group 3 pre-K applicants were 10 percentage points more likely to be enrolled than Group 1 pre-K applicants, and 17 percentage points more likely to have both verified and enrolled (10% of the control group enrolled in the spring "open enrollment" process, relative to 3.5% of the personalized-text group). However, Head Start applicants in the personalized group were only three percentage points more likely to be enrolled, and this difference was not

significant (see Tables 3 and 4). Taken together, these results indicate that the intervention was substantially more effective for parents not applying to Head Start.

The intervention also increased the speed with which applicants verified. Parents in Groups 2 and 3 had lower median verification times than parents in Group 1 and were about 25% more likely to complete verification at any given moment during the intervention (see Tables 5 and 6 and Figure 3). Once again, for pre-K applicants, the effect was even larger: applicants in the intervention groups had a median verification time of 21 business days, relative to 38 for the control group (see Table 5). They were 51% to 65% more likely to verify at any given time, though only the interaction term for Group 3 was statistically significant ($p < .10$; see Table 6).

Cost per Additional Verified and Enrolled Applicant

The text messaging service that we used charged \$0.824 per recipient per month, paid in advance based on estimated usage. Applicants in Groups 2 and 3 began receiving text messages in November and continued to receive them through February or until they completed verification. For the applicants in this study, the cost of the text messages was approximately \$3,000. Based on the marginal probabilities of verification reported in Table 4, we estimate that an additional 74 children (45 pre-K applicants and 29 Head Start applicants) verified as a result of the intervention. The cost of the text messaging service per additional verified applicant was about \$40. However, these costs differed between Head Start and pre-K applicants (\$66 per Head Start parent; \$25 per pre-K parent). We also found that personalized texts increased the likelihood of enrollment for pre-K applicants, at an estimated cost of \$31 per additional enrolled student.

Of course, these costs are specific to the design of this intervention, the text messaging service used, and the estimated participation rates. The costs, while relatively low, do not

account for the staff time needed to respond to parent texts, particularly for parents in the personalized group. The district reported that on the days when it sent messages, staff spent a substantial number of hours responding to texts. The burden on staff time is a consideration for the district in future communication planning.

Text Content Analysis

Of the 1,224 parent applicants assigned to one of the three intervention groups, 1,214 received at least one text message. In all, 15,732 text messages were exchanged: 9,624 (61%) of those were automated texts sent to applicants, 2,738 (18%) were parent text responses, and 3,370 (21%) were district staff responses to parents' replies. The analysis below includes the text content of all applicants assigned to Group 3 (N=408) who received at least one text message.¹⁴ In other words, each number in Table 2 reflects the proportion of text-receiving Group 3 participants who responded (at least once) in the way described.

Is there a lack of *awareness* of the verification process? Text conversations indicated that parents were generally aware of the verification process. Fewer than 2% of parents indicated a complete lack of awareness that they needed to verify their child's application; those applicants were more likely to be pre-K, not Head Start, applicants (see Table 2). Another 5% of parents indicated that they were aware of the process and did not pose additional questions for district staff. The vast majority (81%) of parents asked for help with the process, indicating an awareness of the process but a desire for guidance. Of course, the text messages themselves might have made parents aware of the need to verify, so we cannot identify with certainty how many parents were unaware of the verification requirement in the absence of the texts.

¹⁴ Of the 410 participants in Group 3, two participants had inactive phone numbers on file and never received the text communication. Our analysis includes only the 408 participants who successfully received a text from the district.

Do parents have difficulty *understanding* how to verify their children? In our analysis of the text messages, the most frequently mentioned barrier to verification was a lack of understanding of the steps required to verify, with no significant differences in these responses across subgroups. Just over half (51%) of parents asked specific questions like, “Can I bring the documents to any one of the Head starts even though I didn’t select them [as] a school?” Specific questions related primarily to verification locations (18% of parents), the documentation required to complete the process (17%), dates or times for verification (12%), and related deadlines (10%). Approximately 9% thought they had completed the process but realized through conversations with district staff that they had missed steps. In many of these cases, it was a misunderstanding about the specific verification requirements for Head Start seats—an issue we revisit in more detail below.

Do parents indicate a limited *capacity* to complete the verification process? Finally, 20% of parents indicated some logistical barrier to completing the process, again, with no significant differences across subgroups. About 15% expressed difficulty finding or accessing at least one of the required documents (most often residency or income documents). About 9% expressed that schedule conflicts prevented them from verifying during the available hours (most often because of conflicting work schedules). In one instance, a parent appeared overwhelmed by the process, communicating to district staff, “I see a lot of stuff is required and it’s too much personal information for me to come up with.” In most instances, however, parents stated specific concerns such as, “I almost have all the paper work ready to go submit [but couldn’t] get into my food stamp account,” to which district staff members could provide alternative solutions. For example, parents citing work hours conflicting with verification center hours were encouraged to attend a Saturday verification event. Although the capacity to complete

verification was an obstacle in some circumstances, it was clear from the text content that the most frequent obstacle, at least among those who responded to the text messages, was understanding the administrative steps required to complete the process.

Analysis of Head Start Applicants' Texts

The subset of applicants applying for Head Start seats verified at lower rates. A further examination of the text conversations between this group of applicants and district staff highlights areas of misunderstanding that may be contributing to lower verification rates. Two clear difficulties unique to Head Start applicants presented themselves in this analysis. First, parents did not always understand the requirement to verify for a Head Start program every year. Parents whose child had been enrolled in a Head Start seat in previous years may have recently gone through the verification process, particularly if they enrolled after the start of the school year. These parents were aware that the verification step was required, but some did not realize they had to complete it again for the new program year.

District Staff Member: Remember to verify your docs before February 23rd.

Parent: How, I thought I did so, but I may be wrong

District Staff Member: You did it back in October for the 2 yr old program. Round 1 started November 1st. That previous verification does not count for the new program.

A second and more prevalent point of confusion for Head Start parents was a general misunderstanding that the process of verifying for a Head Start seat was different from the process of verifying for a school-based pre-K seat. Many applicants did not distinguish between the FRCs and the Head Start centers. This caused confusion for parents who had verified at an FRC and thought the process was complete but continued to receive texts from the district indicating incomplete verification status.

District Automated Text: Your OneApp is not complete until you submit these documents.. Hope to see you at the verification event!

Parent: I submitted all my documents so why am I gett this

District Staff Member: Hi, [parent's name], we do not have your OneApps marked as complete. Did you visit a Head Start Center to complete verification?

Parent: Yes I did I complete everything
*Completed

District Staff Member: Thank you! Which Head Start did you verify with? We can follow up.

Parent: What do you mean

District Staff Member: You said you verified at a Head Start. Do you remember which one you brought your documents to? They would also have asked you some questions about your family.

Parent: I went to the family resource center on Dwyer

District Staff Member: Thanks! That's why you're marked incomplete. Since you're applying for Head Start, you need to visit a Head Start Center & they'll finish the process for you.

Parents who apply for a Head Start seat can verify their child at a Head Start center for both Head Start and pre-K seats. However, an FRC cannot verify a child for their Head Start seat because of the Head-Start-specific interview requirement. Some exchanges between parents and administrators indicated that parents had to make extra trips to complete the verification process. A lack of clarity around the distinction between verification processes for Head Start and other program seats could be consequential. The added confusion over verification locations may result in a failure to verify for some families.

Overall, the text message communications seem to have been well received by parents. Fewer than 2% opted out of the text messaging service, and parents voiced their appreciation in many of the text conversations. "I did it [verified] thanks so much for [t]he reminders," wrote

one applicant. The text conversations provided the district with insight into the struggles parents face throughout this process—insight that the district plans to use to refine the verification process in future enrollment cycles.

Discussion

Over the last two decades, various federal and state initiatives have increased low-income children's access to high-quality early childhood education. These initiatives are backed by research showing the importance of an enriched environment in the first few years of life for successful cognitive and emotional development (Shonkoff & Phillips, 2000) and the potential for high-quality ECE to improve achievement and life outcomes for low-income children (Heckman, 2006; Yoshikawa et al., 2013). Efforts to improve ECE access have included increasing the number of subsidized childcare seats (US DHHS, 2014), increasing Head Start and Early Head Start enrollment (US DHHS, 2015), expanding state pre-k programs (Barnett et al., 2016), and reducing administrative barriers to enrolling in childcare subsidy programs (Adams, Snyder, & Banghart, 2008).

One topic that has not received sufficient attention from researchers is the complex application and enrollment processes that parents must navigate in order to get their children into a program that provides the services they seek. These processes may be challenging for many parents. In New Orleans, for example, about 35 percent of the low-income parents who applied for a publicly funded early childhood seat in 2016-17 did not complete the eligibility verification process. As a result, these parents lost their opportunity to obtain a seat that, by applying, they had demonstrated a desire to get.

This paper describes the typical steps of the early childhood enrollment process for low-income parents—search, apply, verify eligibility, and enroll—to illustrate the various points at

which the process can get derailed. We focus particularly on the eligibility verification step. A growing body of early childhood literature describes how families, and particularly low-income families, find early childhood programs for their children (the “search” step). Relatedly, there are now a number of experimental studies testing strategies for informing parents about the individual schools available to them (e.g., Corcoran, Jennings, Cohodes, & Sattin-Bajaj, 2018; Glazerman, Nichols-Barrer, Valant, Chandler, & Burnett, 2018; Hastings & Weinstein, 2008). However, hardly any research has tested interventions to help parents through other, more logistical parts of the process.

We find that a simple, inexpensive intervention can substantially improve the rate at which low-income parents complete the verification step, particularly for applicants to pre-K. Overall, parents who received text messages about verifying their eligibility, regardless of tone, were about seven percentage points more likely to complete the process than parents who did not receive messages. When they did verify, they did so more quickly. This is the first evidence we are aware of showing the potential of text messaging interventions to support parents through the ECE enrollment process.

Two additional findings from the study, which were unanticipated, warrant further discussion: (1) differences in outcomes between Head Start applicants and other applicants; and (2) differences in enrollment but not verification outcomes between the formal and personalized intervention groups.

Parents applying only to pre-K (not Head Start) programs were 13 to 15 percentage points more likely to verify, from a baseline rate of 68%. Put differently, over 40% of pre-K applicants who would not have verified did so as a result of receiving text-message reminders. Additionally, pre-K children of parents receiving personalized texts were 10 percentage points

more likely to be enrolled, and 17 percentage points more likely to have both verified and enrolled. However, the intervention was much less effective for Head Start applicants. Verification and enrollment rates were only five and three percentage points higher, respectively in the Head Start text-message groups, and these differences were not statistically significant. There are various possible explanations for the lower effectiveness with Head Start applicants. First, Head Start serves families with income below 100% of the federal poverty line (FPL), which means that they are likely more disadvantaged, on average, than New Orleans pre-K applicants (who are primarily applying for seats available to those under 185% FPL). Perhaps text messages in general, or the specific content or style of this study's messages, were not well aligned with the needs of a population in such poverty. Second, Head Start applicants had younger children on average (17% of Head Start applications were for 4 year olds, compared to 85% of pre-K applications), and parents of children closer to school age may be more motivated to enroll them in an ECE program. Third, the complexity of this particular Head Start verification process might have left barriers that this information intervention did not, or could not, overcome. The process requires additional income documents and takes more time, with an interview component at a Head Start Eligibility Center. Some parents expressed confusion with the Head Start-specific requirements, while others might have simply decided that those additional efforts were not worthwhile. Perhaps a text-support intervention like this one is effective only when the next steps are clearer and more achievable for the given population.

The second unexpected finding relates to the effect of more personalized text messages. We had expected that providing parents with personalized texts might amplify the effectiveness of a text-message intervention. However, that was generally not the case for verification. It may be that this particular group of parents, who applied in the first month of a nearly four-month

application window, are familiar enough with the process, and have enough time to complete it, that simply reminding them is all that is necessary. Perhaps later applicants would benefit more from personalization than earlier applicants. However, the personalized texts did have an additional effect on children's enrollment one year after the intervention, whereas formal texts did not. We can only speculate as to why that might be. One possibility is that parents who interacted with a supportive district staff member felt more connected to the public school system, or better able to advocate for themselves when problems arose, which made them more likely to enroll their children and keep them enrolled through the first several months of the school year.

Personalized texts also provided a real-time glimpse into the needs of low-income parents during the ECE enrollment process. Researchers and administrators often try to understand families' behaviors, beliefs, or barriers through surveys. However, field surveys, particularly of low-income populations, often suffer from low response rates, as well as concerns about social desirability bias. Responses to text messages provide an intriguing way to better understand the needs of families applying to public ECE programs. Nearly 90% of applicants who received personalized texts responded at least once, and the majority of applicants asked specific questions that revealed the challenges they were encountering. The high response rate suggests that a lack of motivation is an unlikely explanation for failures to complete verification. Rather, the primary barriers appear to be misunderstandings and capacity issues. Half of applicants asked questions related to understanding the process, which indicates that a communication intervention can solve the problem for many applicants. However, nearly a fifth of applicants also reported logistical barriers like document access and transportation, which would require interventions beyond text-message support.

Other approaches to helping parents through eligibility verification might have larger, or different, effects. We tested a particular type of intervention (text messages), in a particular context (the New Orleans ECE enrollment system), with a particular population (low-income parents). The study's results might not generalize to settings different from this one. Notably, too, we tested just one type of approach—helping parents through a barrier in the ECE enrollment process. One alternate approach would be to remove the barrier altogether. For example, policymakers could align ECE income eligibility requirements with requirements for other social services, and then preapprove ECE applicants who qualify for these services. Policymakers also could attempt to create additional ways through a barrier, such as allowing parents to submit paperwork online or, as a neighboring Louisiana parish does, send photographs of their documents. Simplifying the verification process for Head Start applicants could be particularly beneficial, as many of today's most disadvantaged parents—who might benefit most from high-quality care—confront the most complex and burdensome enrollment processes.

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TABLE 1
Descriptive Statistics and Randomization Balance

	Descriptives			Balance	
	Group 1 (control)	Group 2 (formal)	Group 3 (informal)	Group 2 – Group 1	Group 3 – Group 1
Male	0.505	0.514	0.510	0.009 (0.034)	0.004 (0.033)
English-speaking	0.989	0.981	0.979	-0.009 (0.009)	-0.011 (0.010)
Median monthly income (\$)	1,200	1,200	1,100	0.000 (71.880)	-100.000 (69.521)
Age of child					
Infant	0.028	0.032	0.032	0.005 (0.011)	0.004 (0.011)
One	0.123	0.130	0.129	0.007 (0.021)	0.006 (0.021)
Two	0.136	0.140	0.155	0.005 (0.023)	0.019 (0.023)
Three	0.273	0.287	0.278	0.014 (0.029)	0.004 (0.028)
Four	0.441	0.410	0.407	-0.030 (0.033)	-0.034 (0.033)
Program type					
Head Start	0.604	0.624	0.650	0.020 (0.034)	0.047 (0.034)
Pre-K	0.396	0.376	0.350	-0.020 (0.034)	-0.047 (0.034)
Observations	472	463	472	935	944
Number of children					
Number of adults	414	400	410	814	824

Note. Standard errors appear in parentheses. All values reported as proportions (of children) unless otherwise noted. “Program type” shows the proportions that applied for at least one Head Start seat or only Pre-K seats. Randomization balance statistics reflect results of OLS regression tests (conducted at the child level with standard errors clustered by adult applicant), except for median monthly income tests that used quantile regression. In addition, we conducted chi-squared tests of balance for age and program type and found no significant differences at the .10 level. Ten applicants (four in group 2; three each in groups 1 and 3) did not report gender.

+ $p < .10$. * $p < .05$. ** $p < .01$.

TABLE 2
Content of Group 3 Text Message Responses (in Percentages)

	Full sample	Head Start applicant		Verification status	
		Yes	No	Verified	Did not verify
Lacked <i>awareness</i> that verification was required	0.012	0.004	0.026 ⁺	0.011	0.014
Had difficulty <i>understanding</i> how to verify	0.507	0.538	0.458	0.479	0.559
Unsure of verification locations	0.179	0.202	0.142	0.177	0.182
Unsure of documents required	0.167	0.170	0.161	0.143	0.210
Unsure of verification times/dates	0.120	0.142	0.084	0.125	0.112
Unsure of deadline	0.100	0.087	0.123	0.106	0.091
Thought s/he had completed verification but had not	0.088	0.107	0.058	0.102	0.063
Confused about Head Start verification process	0.086	0.119	0.032	0.075	0.105
Unsure of eligibility requirements	0.029	0.032	0.026	0.015	0.056
Unsure of how to verify multiple children	0.022	0.036	0.000	0.008	0.049
Unsure of early childhood age requirements	0.007	0.008	0.006	0.008	0.007
Indicated limited <i>capacity</i> to complete verification process	0.203	0.202	0.206	0.211	0.189
Difficulty obtaining required document(s)	0.145	0.162	0.116	0.151	0.133
Obtaining proof of income	0.071	0.079	0.058	0.091	0.035
Obtaining proof of residency	0.056	0.063	0.045	0.053	0.063
Obtaining child's birth certificate	0.027	0.040	0.006	0.019	0.042
Difficulty getting to verification location during open hours	0.086	0.079	0.097	0.087	0.084
Due to work schedule	0.054	0.047	0.065	0.057	0.049
Due to transportation issues	0.020	0.020	0.019	0.019	0.021
Other					
Was aware of verification step but needed assistance	0.806	0.798	0.819	0.800	0.818
Did not respond to any message	0.103	0.111	0.090	0.117	0.077
Opted out of text reminders	0.012	0.012	0.013	0.008	0.021
Observations	408	253	155	265	143

Note. Table shows the percentage of Group 3 participants that sent at least one message of this type. Chi-square tests were used to compare the frequency of capacity and understanding responses (but not sub-categories) between Head Start and Pre-K and between verified and unverified applicants. Because of small cell sizes, Fisher's exact test was used to compare awareness frequencies.

⁺ $p < .10$. * $p < .05$. ** $p < .01$.

TABLE 3
Effects of Intervention

	Responded to at least one message		Verified eligibility		Enrolled		Verified and enrolled	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Group 2	0.342 (0.236)	0.345 (0.379)	0.330* (0.151)	0.665** (0.257)	0.114 (0.137)	0.151 (0.223)	0.191 (0.140)	0.321 (0.216)
Group 3	4.501** (0.238)	4.785** (0.395)	0.320* (0.149)	0.796** (0.259)	0.199 (0.135)	0.460* (0.230)	0.333* (0.138)	0.701** (0.223)
Head Start		0.135 (0.360)		-0.588** (0.208)		-0.484* (0.196)		-0.614** (0.200)
Group 2 x Head Start		-0.013 (0.485)		-0.456 (0.320)		-0.040 (0.286)		-0.182 (0.288)
Group 3 x Head Start		-0.453 (0.496)		-0.609+ (0.319)		-0.343 (0.286)		-0.498+ (0.287)
Constant	-2.382** (0.177)	-2.461** (0.278)	0.386** (0.103)	0.750** (0.159)	0.196* (0.096)	0.491** (0.151)	-0.290** (0.100)	0.075 (0.147)
Observations	1224	1224	1407	1407	1407	1407	1407	1407

Note. Standard errors appear in parentheses and are clustered by adult applicants for the child-level outcomes (verified eligibility, enrolled, and verified and enrolled). Group 1 (control) is the reference group. All estimates reported in log odds.

+ $p < .10$. * $p < .05$. ** $p < .01$.

TABLE 4

Marginal Probabilities of Applicant Behaviors by Program Type

	Responded to at least one message			Verified eligibility			Enrolled			Verified and enrolled		
	All	Pre-K	Head Start	All	Pre-K	Head Start	All	Pre-K	Head Start	All	Pre-K	Head Start
Group 1	0.085 (0.014)	0.079 (0.020)	0.089 (0.019)	0.595 (0.025)	0.679 (0.035)	0.540 (0.034)	0.549 (0.024)	0.620 (0.036)	0.502 (0.032)	0.428 (0.024)	0.519 (0.037)	0.368 (0.032)
Group 2	0.115 (0.016)	0.108 (0.025)	0.120 (0.021)	0.672 (0.024)	0.805 (0.032)	0.592 (0.033)	0.577 (0.024)	0.655 (0.037)	0.529 (0.031)	0.475 (0.024)	0.598 (0.038)	0.401 (0.032)
Group 3	0.893 (0.015)	0.911 (0.023)	0.881 (0.020)	0.669 (0.024)	0.824 (0.030)	0.586 (0.032)	0.597 (0.023)	0.721 (0.035)	0.531 (0.029)	0.511 (0.024)	0.685 (0.036)	0.417 (0.030)
All groups	0.365 (0.014)	0.353 (0.022)	0.373 (0.018)	0.645 (0.014)	0.766 (0.019)	0.573 (0.019)	0.574 (0.014)	0.663 (0.021)	0.521 (0.018)	0.471 (0.014)	0.597 (0.022)	0.396 (0.018)
Observations	1,224	493	731	1,407	526	881	1,407	526	881	1,407	526	881

Note. Table shows proportions of the total number of participants in the given group. Standard errors appear in parentheses. “Pre-K” refers to those whose application did not include any Head Start programs.

TABLE 5
Median Business Days Until Verification

	Median (days)	Standard deviation (days)
Group 1	54	21
Group 2	44	22
Group 3	43	23
Head Start		
Group 1	58	20
Group 2	54	20
Group 3	54	22
Pre-K		
Group 1	38	22
Group 2	20.5	22
Group 3	21	22

Note. Medians calculated including participants who never verified, such that the median reflects the point at which 50% of the entire sample in a given group had completed verification.

TABLE 6
Hazard Ratios for Intervention Effects on Verification Timing

	(1)	(2)
Group 2	1.249*	1.513**
	(0.111)	(0.198)
Group 3	1.277**	1.651**
	(0.113)	(0.213)
Head Start		0.639**
		(0.080)
Group 2 x Head Start		0.759
		(0.135)
Group 3 x Head Start		0.708+
		(0.125)
Observations	1,407	1,407

Note. Standard errors appear in parentheses. Group 1 (control) is the reference group. Hazard ratios calculated using Cox regression.

+ $p < .10$. * $p < .05$. ** $p < .01$.

FIGURE 1
Documents Required for Verification

Documents required for verification

In order to prove eligibility to receive a free early childhood seat, families must submit documents to any EnrollNOLA Family Resource Center or the Eligibility Centers listed on the next page. **If you do not verify your eligibility, you will NOT receive a placement.** Applicants must verify their eligibility within 5 business days of submitting their OneApp. Below is the list of documents required for Early Childhood programs:

	Required for Head Start and Early Head Start	Required for PK 4: LA4, NSECD, PEG
Birth certificate	✓	✓
Parent or Guardian ID	✓	✓
Proof of Guardianship (if not parent) ex: Foster Care	✓	✓
Two Proofs of Residency*		
Current rental lease agreement	✓	✓
Homestead Exemption in the parent's name	✓	✓
Electricity/gas bill	✓	✓
Sewerage/water bill	✓	✓
Telephone bill	✓	✓
Cable/internet service bill	✓	✓
Section 8 or HANO Voucher Statement	✓	✓
Current official letter from a government agency	✓	✓
Proof of Household Income	Bring all that apply	Bring all that apply
Working Applicants must provide one of the following:		
4 Current and Consecutive Pay stubs for each parent or caregiver in the house** (must be within 2 months of date completing verification)	✓	✓
W-2 forms	✓	not required
Income Tax form (1040, 1040 EZ, 1040 A, 1099)	✓	not required
An official letter from your employer stating: - Where parent/guardian is employed and start date - Hourly rate of pay & frequency of pay (weekly, biweekly, monthly) - The average number of hours parent/guardian works per week.	✓	✓
Non-working applicants must provide one of the following:		
Most recent unemployment compensation statement	✓	✓
If unemployed and not receiving unemployment compensation: Parent/caregiver must submit a letter of support and income documentation from support source.	✓	not required

* Either the parent/guardian name must be on the residency documents or if the parent/guardian lives with another adult who is named on the residency documents, the parent/guardian must bring a signed letter from the person named on the residency documents stating that the parent/guardian lives at that same address. If bringing a letter, parent/guardian must bring acceptable proofs of residency in resident's name.

** Paychecks/stubs must be calculated on a 40 hour/week basis. If you work less than 40 hours each week, please bring a letter from your employer on letterhead stating where you are employed, your hourly rate of pay, frequency of pay, and the average hours worked a week in order to accurately calculate your actual income.

FIGURE 2
Verification Locations and Times for 2018-19 Applications

Where to Verify

FAMILY RESOURCE CENTERS | ELIGIBILITY CENTERS

If you apply to PK4 or NSECD program, you must visit a Family Resource Center within 5 days to complete the verification process. Family Resource Centers are open Monday - Friday, 8:30 AM - 4 PM.

Uptown
Lawrence D. Crocker Elementary
2300 General Taylor Street, 70115

New Orleans East
Livingston Collegiate Academy
7301 Dwyer Road, 70126

Westbank
Orleans Parish School Board Central Office
3520 General DeGaulle Drive,
Suite 1101, 70114

1-877-343-4773 | www.EnrollNOLA.org
**No appointment necessary for
 FRC's or Eligibility Centers**

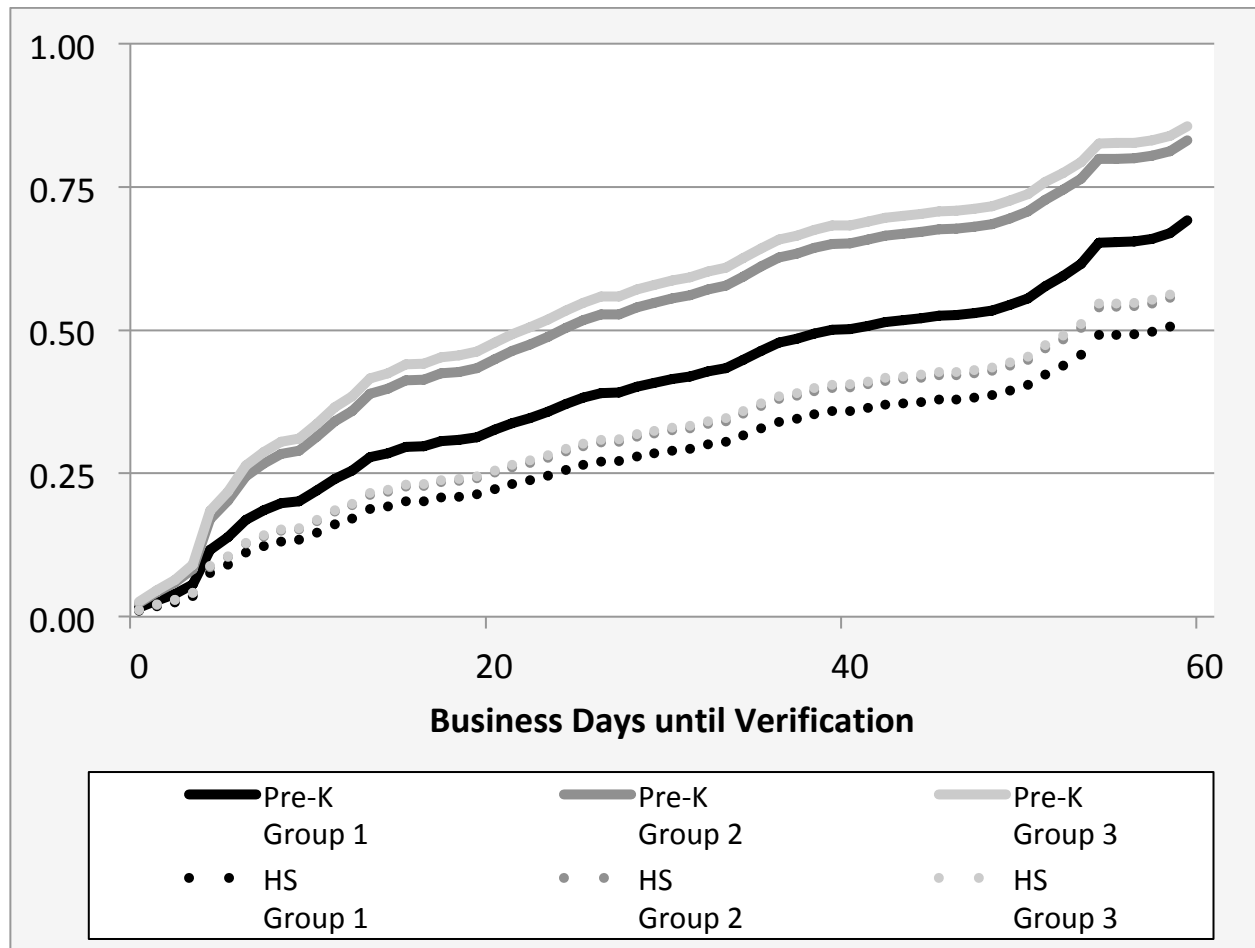
If you apply to Head Start or Early Head Start programs, you must visit an Eligibility Center within 5 days to complete the verification process.

Below is a list of Eligibility Centers. See the attached page for a list of documents you should bring with you, or visit EnrollNOLA.org. You will get a call from EnrollNOLA if a seat becomes available. Please be sure that the contact information your provided is updated and accurate.

	HEAD START CENTER	HOURS	ADDRESS (New Orleans)	PHONE
Uptown	Central City E.O.C. Head Start Center	M - TH, 10 AM - 2 PM	2020 Jackson Ave., 70113	(504) 210-1143
	Carrollton-Dunbar Head Start Center	M, T, TH, 10 AM - 2 PM; W, 2 - 6 PM	9301 Colapissa St., 70118	(504) 325-5818 ext. 1560
	Kingsley House	M-F, 9 - 11 AM, 2 - 3 PM	1600 Constance St., 70130	(504) 523-6221
	Incarnate Word Head Start	M-TH, 10 AM - 2 PM	8326 Apricot St., 70118	(504) 861-6342
	Dr. Peter W. Dangerfield	M, T, TH, 10 AM - 2 PM; W, 2 - 6 PM	1402 S. Jefferson Davis Pkwy., 70125	(504) 459-4820
	Magic Street at Fabourg Lafitte H.S.	M - W, 10 AM - 2 PM; TH, 2 - 6 PM	2101 Lafitte St., 70122	(504) 577-2142
	Priscilla R. Edwards Head Start Center	M - TH, 10 AM - 2 PM	1962 Jackson Ave., 70113	(504) 210-1143
	TCA Head Start at Mahalia Jackson	M, T, TH, 10 AM - 2 PM; W, 2 - 6 PM	2405 Jackson Ave., 70113	(504) 359-6891
	St. John the Baptist Head Start	M-F, 8 AM - 3 PM	1920 Clio St., 70113	(504) 529-2557
	Viney Reynolds at Marrero Commons	M, W, TH, 10 AM - 2 PM, 2 PM - 6 PM	3501 Erato St., 70125	(504) 459-4848 ext. 1531
Downtown	Educare	M-F, 10 AM - 2 PM	3801 St. Bernard Ave., 70122	(504) 308-3400
	St. David Head Start Center	M, T, TH, 10 AM - 2 PM; W, 2 - 6 PM	1230 Caffin Ave., 70117	(504) 459-4845
	St. Mary of the Angels Head Start	M-F, 8 AM - 4 PM	2225 Congress Street, 70117	(504) 227-3470
	Urban League Head Start Center	M - TH, 10 AM - 2 PM	2800 Desire Pkwy., 70126	(504) 944-0801
N.O. East	Gentilly East Head Start Center	M, T, TH, 10 AM - 2 PM; W, 2 - 6 PM	4347 Reynes St., 70126	(504) 325-5827 ext. 1570
	James Singleton Head Start Center	M, W, TH, 10 AM - 2 PM; T, 2 - 6 PM	14441 Curran Boulevard, 70128	(504) 325-5839 ext. 1581
	Diana Head Start Center	M, W, TH, 10 AM - 2 PM; T, 2 - 6 PM	2144 Pace Blvd., 70114	(504) 325-5800 ext. 1541
	Pearlie H. Elloie Head Start Center	M, 2 - 6 PM; T, W, TH, 10 AM - 2 PM	3029 Wall Blvd., 70114	(504) 325-5807 ext. 1550
Westbank	EARLY HEAD START ONLY			
	Boys Town LA Early Head Start	M-W 2 PM - 5 PM TH-F, 8 AM - 5 PM, <i>Appointment Only</i>	300 North Broad St. Suite 106, 70119	(504) 293-7900
	LSU Health Sciences Center EHS	M-F, <i>Appointment Only</i>	411 S. Prieur St., 70112	(504) 556-7585
	Total Community Action	M-TH, 9 AM - 12 PM - CLOSED JULY	1422 S. Jefferson Davis Pkwy., 70125	(504) 459-4813

Note. Schedule obtained from EnrollNOLA website in November 2017.

FIGURE 3
Business Days to Verification, by Head Start Status and Intervention Group



Note. Because the failure outcome (verification) is the target intervention behavior, the graph depicts the failure function (the inverse of survival) for each group, separated by Head Start application status. Graph generated from the post-estimation results following the Cox regression.

APPENDIX A1

Text Messages for Group 1

Msg. #	Date	Content
1	11/30	Your child's OneApp is incomplete! GET VERIFIED Saturday 12/2, 10am-2pm @ Paul Habans Elementary. Remember your documents: www.enrollnola.org/events . You can't finish your OneApp without these documents. Hope to see you at the verification event.
2	1/11	There's still time to GET VERIFIED DAY DATE TIME @ LOCATION*. Remember your documents. www.enrollnola.org/events . Your OneApp is not complete until you submit these documents.. Hope to see you at the verification event!
3	1/25	There's still time to GET VERIFIED Saturday 1/27, 10am-2pm @ McMillian's First Steps 2601 S. Claiborne Ave. Remember your documents. www.enrollnola.org/events . Your OneApp is not complete until you submit these documents. Hope to see you at the verification event!
4	2/1	There's still time to GET VERIFIED Saturday 2/3 10 am to 2 pm @ Superdome. Remember your documents. www.enrollnola.org/events . You can't complete your OneApp without these documents. Hope to see you at the verification event!
5	2/15	There's still time to GET VERIFIED Saturday 2/17 10 am to 2 pm @ Resurrection of Our Lord 4861 Rosalia Dr. Remember your documents. www.enrollnola.org/events . Your OneApp is not complete until you submit these documents. Hope to see you at the verification event!

Note. Applicants stopped receiving text messages after they completed verification; only those who never verified or verified after the final text was sent received all messages. Due to an error, message #2 was sent as shown in the table, without specific date/time and location information.

APPENDIX A2

Text Messages for Group 2

Message	Date	Content
1	11/28	Hello, this message is from EnrollNOLA. We will text info and reminders about completing the OneApp process. Reply CANCEL if you do not want these texts.
2	11/30	Your child's OneApp is incomplete! GET VERIFIED Saturday 12/2, 10am-2pm @ Paul Habans Elementary. Remember your documents: www.enrollnola.org/events . You can't finish your OneApp without these documents. Hope to see you at the verification event.
3	12/5	Your child's OneApp is incomplete. The next step is to verify eligibility. Submit required documents to finish your OneApp. See https://goo.gl/SBfJ7u
4	12/12	Your child's OneApp is incomplete until you verify eligibility. Please review the following link for help finishing your OneApp: https://goo.gl/SBfJ7u
5	1/4	Your child's OneApp is incomplete. The next step is to verify eligibility. Submit required documents to finish your OneApp. See https://goo.gl/SBfJ7u
6	1/11	There's still time to GET VERIFIED DAY DATE TIME @ LOCATION*. Remember your documents. www.enrollnola.org/events . Your OneApp is not complete until you submit these documents.. Hope to see you at the verification event!
7	1/16	Your child's OneApp is incomplete until you verify eligibility. Please visit us for how to verify: https://goo.gl/SBfJ7u
8	1/23	Your child's early childhood OneApp is incomplete. Please verify eligibility so your child's application can be considered. See https://goo.gl/SBfJ7u
9	1/25	There's still time to GET VERIFIED Saturday 1/27, 10am-2pm @ McMillian's First Steps 2601 S. Claiborne Ave. Remember your documents. www.enrollnola.org/events . Your OneApp is not complete until you submit these documents. Hope to see you at the verification event!
10	1/30	Your child's OneApp is incomplete. The next step is to verify eligibility. Submit required documents to finish your OneApp. See https://goo.gl/SBfJ7u
11	2/1	There's still time to GET VERIFIED Saturday 2/3 10 am to 2 pm @ Superdome. Remember your documents. www.enrollnola.org/events . You can't complete your OneApp without these documents. Hope to see you at the verification event!
12	2/6	Your child's OneApp is incomplete. Deadline is Feb. 23. Please verify eligibility so your child's application can be considered. See https://goo.gl/SBfJ7u
13	2/15	There's still time to GET VERIFIED Saturday 2/17 10 am to 2 pm @ Resurrection of Our Lord 4861 Rosalia Dr. Remember your documents. www.enrollnola.org/events . Your OneApp is not complete until you submit these documents. Hope to see you at the verification event!
14	2/20	Your child's OneApp is incomplete. The deadline is a few days away. Verify by Feb 23 or your child's OneApp will not be considered. See https://goo.gl/SBfJ7u
15	2/27	Your child's OneApp is incomplete. The deadline has been extended. Verify by March 2 or your child's OneApp will not be considered. See https://goo.gl/SBfJ7u

Note. Applicants stopped receiving text messages after they completed verification; only those who never verified or verified after the final text was sent received all messages. Due to an error, message #6 was sent as shown in the table, without specific date/time and location information.

APPENDIX A3

Text Messages for Group 3

Message	Date	Content
1a	11/28	Hi [Parent First Name]! I'm Ashley from EnrollNOLA. You're almost done with [Child First Name]'s OneApp! You just need to verify eligibility. Want help with next steps? :)
1b	11/28	Hi [Parent First Name]! I'm Ashley from EnrollNOLA. You're almost done with your children's OneApps! You just need to verify eligibility. Want help with next steps? :)
2	11/30	Your child's OneApp is incomplete! GET VERIFIED Saturday 12/2, 10am-2pm @ Paul Habans Elementary. Remember your documents: www.enrollnola.org/events . You can't finish your OneApp without these documents. Hope to see you at the verification event.
3	12/1	Hi [Parent First Name], it's Ashley! Did you see the text about EnrollNOLA's verification event this Sat.? Text me for details on what to bring, etc.!
4a	12/5	Hi, it's Ashley. I want to make sure [Child First Name] doesn't lose a chance to get a seat next year! Do you need help finishing the OneApp process?
4b	12/5	Hi, it's Ashley. I want to make sure your children don't lose a chance to get a seat next year! Do you need help finishing the OneApp process?
5a	12/12	Hi [Parent First Name]! Good early childhood programs help kids succeed in kindergarten! Want to schedule a time to finish [Child First Name]'s OneApp? :)
5b	12/12	Hi [Parent First Name]! Good early childhood programs help kids succeed in kindergarten! Want to schedule a time to finish your children's OneApps? :)
6a	1/4	Happy New Year! I noticed that [Child First Name]'s OneApp isn't done and I don't want you to miss the deadline! Can I help?
6b	1/4	Happy New Year! I noticed that your children's OneApps aren't done and I don't want you to miss the deadline! Can I help?
7	1/11	There's still time to GET VERIFIED DAY DATE TIME @ LOCATION*. Remember your documents. www.enrollnola.org/events . Your OneApp is not complete until you submit these documents.. Hope to see you at the verification event!
8	1/12	Hi [Parent First Name], did you see EnrollNOLA's text about Saturday's event? Parents have found those really helpful to finish OneApp verification. :)
9	1/16	Hi, it's Ashley! I'm getting ?s from parents about which documents to bring. It's ID, 2 proofs of residency, and proof of income. Details: https://goo.gl/SBfJ7u
10	1/23	Hi [Parent First Name]! To be considered for OneApp, you have to complete two steps. 1.Submit choices (DONE!). 2.Verify eligibility (NOT DONE!). Can I help with #2?
11	1/25	There's still time to GET VERIFIED Saturday 1/27, 10am-2pm @ McMillian's First

		Steps 2601 S. Claiborne Ave. Remember your documents. www.enrollnola.org/events . Your OneApp is not complete until you submit these documents. Hope to see you at the verification event!
12a	1/30	It's Ashley again. Remember you're ONE STEP from finishing the OneApp and putting [Child First Name] on a great path to kindergarten! Text me for help!
12b	1/30	It's Ashley again. Remember, ONE STEP from finishing the OneApp and putting your children on a great path to kindergarten! Text me for help!
13	2/1	There's still time to GET VERIFIED Saturday 2/3 10 am to 2 pm @ Superdome. Remember your documents. www.enrollnola.org/events . You can't complete your OneApp without these documents. Hope to see you at the verification event!
14	2/2	[Parent First Name], it's Ashley, following up on this Saturday's School Expo. Do you know where to go or what to bring? Text back or email us oneapp@rsdla.net .
15a	2/6	Hi! Just want to be sure you know the verification deadline is getting close (February 23)! Anything I can do to help finish [Child First Name]'s OneApp?
15b	2/6	Hi! Just want to be sure you know the verification deadline is getting close (February 23)! Anything I can do to help finish your children's OneApps?
16	2/15	There's still time to GET VERIFIED Saturday 2/17 10 am to 2 pm @ Resurrection of Our Lord 4861 Rosalia Dr. Remember your documents. www.enrollnola.org/events . Your OneApp is not complete until you submit these documents. Hope to see you at the verification event!
17	2/16	[Parent First Name], you probably saw the message already, but tomorrow we're having our FINAL verification event before the OneApp deadline! Will you be there?
18a	2/20	[Parent First Name]: Remember, if you don't verify, [Child First Name]'s OneApp won't be considered. Only 3 days until the deadline! Text me so [Child First Name] won't miss it!
18b	2/20	[Parent First Name]: Remember, if you don't verify, your children won't be considered. Only 3 days until the deadline! Text me so your children won't miss it!
19a	2/27	Hi [Parent First Name]. We noticed [Child First Name]'s OneApp still isn't verified. The deadline is extended until 3/2 (Tuesday). Can I help you get this done?
19b	2/27	Hi [Parent First Name]. We noticed your children's OneApps still aren't verified. The deadline is extended until 3/2 (Tuesday). Can I help you get this done?

Note. Applicants stopped receiving text messages after they completed verification; only those who never verified or verified after the final text was sent received all messages. Some messages were personalized with children's names. Parents applying for multiple children received the "b" version of those messages. Due to an error, message #7 was sent as shown in the table, without specific date/time and location information.

APPENDIX FIGURE A1

Weekly Email to All Unverified Applicants

Dear Parent/Guardian,

You are receiving this email because you submitted an Early Childhood OneApp for your child, and you have not yet verified your eligibility. **If you do not verify your eligibility you will not be placed in an Early Childhood program. It is essential that you complete this as soon as possible.**

If you applied to Pre-K4, NSECD (private schools) or CCAP programs: You may verify your eligibility at a Family Resource Center (FRC). CCAP applicants must also apply to the Louisiana Department of Education to receive a CCAP voucher. The application and instructions are available online: <http://www.louisianabelieves.com/early-childhood/child-care-assistance-program>.

If you applied to Head Start, Early Head Start, and/or Early Head Start+CCAP programs: You may verify your eligibility at a designated Head Start center. The list of designated Head Start centers is available here: <https://oneappnola.files.wordpress.com/2015/10/eligibility-center-and-frc.pdf>

The following documents are required to complete verification:

1. Proof of guardianship: Parent or Guardian's ID
2. Proof of age: Birth Certificate or Certificate of Live Birth
3. Proof of residency: Two (2) of the following documents are required for proof of residency
 - Current rental lease agreement
 - Homestead Exemption in the parent's name**
 - Electricity/gas bill
 - Sewage/water bill
 - Telephone bill (landline only)
 - Cable/internet service bill
 - Current official letter from government agency (Department of Social Service, Department of Health & Hospitals, etc.)

*** CURRENT property tax bill can be used as proof IF the homestead exemption is listed on the tax bill. If the homestead exemption is NOT listed on the tax bill, you will need to bring a copy of the actual CURRENT homestead exemption. Tax bills can be printed at www.nolaassessor.com*

4. Proof of income: One of the following documents is required for income verification:
 - Most recent Social Security benefits statement
 - Most recent unemployment compensation statement
 - Alimony as shown in court decree or agreement
 - Most recent pension statements
 - Louisiana Purchase Card Budget Sheet or Benefits Statement
 - Last four consecutive paychecks
 - Letter from employer indicating:
 - o Where you are employed
 - o Your hourly rate of pay
 - o Average hours worked per week

Note: If you cannot provide proof of income but believe you are eligible, please contact an EnrollNOLA Family Resource Center to discuss other options to prove eligibility.

If you are applying for an INF seat for an unborn child, you are still required to verify your residency and income, but you will not need to submit a Birth Certificate at this time.

Please complete eligibility verification as soon as possible to ensure your child's Early Childhood OneApp is processed during this year's Main Round application cycle.

If you have questions or feel that you are receiving this email in error, please contact the EnrollNOLA team by phone at (877-343-4773) or email (OneApp@rsdla.net).

Regards,
EnrollNOLA