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REPORT

FINAL REPORT

Niger NECS Impact Evaluation Report

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The opinions, conclusions, and any errors in this report are the sole responsibility of the authors and do not reflect the official views of MCC or Mathematica.

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ACRONYMS

AME	Association des Mères Educatives (Students' Mothers Association)
APE	Association des Parents d'Elèves (Parent Teacher Association)
ARL	Apprentissage Rapide de la Lecture (Rapid reading curriculum)
ASL	Apprentissage Systématique de la Lecture (Systematic reading curriculum)
BRIGHT	Burkinabé Response to Improve Girls' Chances to Succeed
CI	First Grade
CIERPA	Centre International d'Etudes et de Recherches Sur Les Populations Africaines
CGDES	Comité de Gestion des Etablissements Scolaires
CP	Second Grade
EGRA	Early Grade Reading Assessment
EPDC	Education Policy and Data Center
ERR	Economic rate of return
FAO	Food and Agriculture Organization
GoN	Government of Niger
IMAGINE	IMprove the educAtion of GIrls in NigEr
IRB	Institutional Review Board
ITT	Intent to treat
MCC	Millennium Challenge Corporation
MEP	Ministry of Primary Education
MDI	Minimum detectable impact
NECS	Niger Education and Community Strengthening
NPV	Net present value
NTP	Niger Threshold Program
OLS	Ordinary least squares
PAL	Plan d'Action Locaux (Local action plan)
PDDE	Programme Décennal pour le Développement de l'Éducation
RIGA	Rural Income Generating Activities
ToT	Treatment on the treated
UC-PMC	Unité de Coordination des Programmes du Millenium Challenge
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VIE	Volontaires pour l'Intégration Educative (VIE KANDE NI BAYRA)

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EXECUTIVE SUMMARY

To address some of the development challenges facing Niger, the government of Niger (GoN) partnered with the Millennium Challenge Corporation (MCC) to introduce a three-year Niger Threshold Program (NTP), beginning in 2008. The IMAGINE (IMprove the educAtion of Girls In NigEr) and NECS (Niger Education and Community Strengthening) projects were created under the NTP, working with the United States Agency for International Development (USAID), to improve the educational opportunities available to children, especially girls; to improve literacy; and to strengthen the links between local communities and state structures. Plan International and Aide et Action implemented the projects.[1] MCC hired Mathematica Policy Research to lead rigorous, independent evaluations of the IMAGINE and NECS projects in order to estimate their impacts. In this report, we evaluate the impact of the NECS project and the combined impact of the IMAGINE and NECS projects three years after initial implementation of NECS and seven years after initial implementation of IMAGINE.

The IMAGINE project set out to construct 68 high quality primary schools and implement a set of complementary interventions designed to increase the school enrollment and completion rates of girls in treatment villages. Project implementation began in March 2009; however, because of a constitutional crisis in Niger the complementary interventions were suspended in August 2009 and all remaining project activities were suspended in December 2009. MCC and USAID granted authorization to resume project activities in January 2010, and the project closed on September 30, 2010. By the end of the project, most of the school infrastructure activities were complete, but most of the complementary activities had not been introduced. Following the return to democratic rule, the GoN, MCC, and USAID started the NECS project in 2012 to implement revised versions of the complementary activities interrupted under the original IMAGINE project. The NECS project includes a package of activities designed to increase access to high quality education and to improve reading achievement in local languages.

In this report, we document the main findings from the evaluation of the NECS project. The evaluation builds on the random assignment conducted for the evaluation of the IMAGINE project (as documented in Bagby et al. 2013; Bagby et al. 2014a; Bagby et al. 2015) by randomly assigning a portion of the control villages from the IMAGINE evaluation to the NECS intervention. In addition, all villages that received the IMAGINE intervention were selected to receive the NECS intervention. The random assignment of the two interventions allows us to estimate the impacts of NECS alone (NECS-only) in the IMAGINE control villages as well as the combined impacts of NECS and IMAGINE (NECS & IMAGINE) in IMAGINE villages on key educational outcomes for children age 6 through 12 years, including school enrollment, attendance, and test scores in local languages and French, and mathematics. We examine the implementation of planned NECS activities, and we conduct an investigation of whether investments under IMAGINE were sustained. We then conduct cost analyses in order to evaluate the cost-effectiveness of the NECS project and the combination of the IMAGINE and NECS

[1] The agreement between USAID and Plan International USA was signed in October 2008. VIE Kande ni Bayra, a local NGO, was involved early in the NECS project, but did not stay involved throughout. Readsters, an NGO based in Virginia, joined the project at the end of 2014.

projects relative to other programs in developing countries that seek to improve education outcomes, especially for girls.

Overall, the two projects successfully reached the target villages. The majority of target schools received most NECS activities. Schools demonstrated a significant increase in the presence of a student government and a mentoring program and in the use of local languages for reading instruction in grades 1 and 2 in NECS-only villages compared to control villages. The improvements in school infrastructure and school resources and the girl-friendly features created under the IMAGINE project have largely been sustained. There is no difference in the availability of primary schools in villages in the sample, and so impacts resulting from the projects are a result of a change in the quality of education and educational environment provided and not in access to a school building.

The NECS project alone had a 9.5 percentage point positive impact on primary school enrollment, an 11.1 percentage point positive impact on attendance (measured on the last day that school was open), a 0.15 standard deviation positive impact on normalized local-language test scores, and no impact on French-language test scores in NECS-only villages. Villages where NECS was combined with IMAGINE infrastructure investments experienced a 10.3 percentage point positive impact on primary school enrollment, a 13.6 percentage point positive impact on attendance, a 0.21 standard deviation positive impact on normalized local-language test scores, and no impact on French-language test scores. The impacts of both projects on enrollment and attendance were slightly larger in magnitude for girls than for boys, but these differences in impacts were not statistically significant. Boys in the NECS & IMAGINE group experienced a larger impact on local-language test scores than girls, but there was no significant difference in impacts for boys and girls in the NECS-only group. The impacts of the two projects were also similar for children from varying socioeconomic backgrounds, with the exception of the impact of NECS-only on local-language scores, which was higher for children in the lowest quintile than those in the higher quintiles.

Finally, the cost-benefit analyses estimated that the NECS & IMAGINE project is a relatively costly way of improving enrollment or local-language skills (compared to other programs) and ultimately has a negative economic rate of return. The NECS-only project, while less costly had a small positive economic rate of return.

Mathematica Policy Research, an independent research contractor, conducted the evaluation. The Centre International d'Etudes et de Recherches sur les Populations Africaines (CIERPA), a professional data collection firm located in Niger, performed the evaluation's data collection activities.

A. Evaluation type, questions, methodology

1. Evaluation type

The NECS evaluation design builds on the random assignment conducted for the IMAGINE evaluation. Specifically, the design involves two rounds of clustered random assignment. The first round, conducted in 2008 for the IMAGINE evaluation, called for the random selection of IMAGINE treatment villages from a pool of potential recipient villages identified by Niger's Ministry of Primary Education (MEP) according to a set of criteria (the remaining villages

became the IMAGINE control villages). The criteria specified that villages needed to have a high number of primary school–age girls not enrolled in school, a sufficient number of additional preprimary school–age girls who could enter primary school over the life of the project, a large disparity between girls' and boys' school completion rates, evidence of community interest/engagement, no other donor interventions, a potential water source, and easy access (community located close to a road). All IMAGINE recipient villages were selected to receive the NECS intervention. The second round of random assignment, conducted in November 2012, involved the random selection of some of the IMAGINE control villages to receive NECS.

2. Research questions

The impact evaluation aims to answer the following research questions: (1) What is the impact of NECS intervention activities alone and of NECS in combination with IMAGINE on enrollment, attendance, and learning as measured by test scores? (2) Do impacts differ for girls and boys? and (3) Do impacts differ for children from households with different asset levels? The evaluation also (1) investigates whether the investments made in school infrastructure under the IMAGINE project have been sustained and (2) conducts cost analyses to determine if the NECS project investment was justified from a cost perspective. For both projects, we conduct a cost-effectiveness analysis and a cost-benefit analysis.

3. Methodology

To be compatible with the first round of random assignment for the IMAGINE evaluation, which involved assignment of villages within communes, Mathematica and the project's funders and implementing partners conducted the second round of random assignment of villages within communes as well. That is, we randomly selected a number of villages from the IMAGINE control villages in each commune to receive NECS (together with all the IMAGINE treatment villages in that commune). Consistent with our random assignment design, our estimation strategy consists of comparing the mean outcomes of the evaluation groups at follow-up by using a regression framework with controls for the randomization strata (communes).

We use data that were collected three years after introduction of the full NECS intervention package of activities in 62 villages that received both IMAGINE and NECS, in 87 villages that received only the NECS project, and in 54 control villages. CIERPA collected data in May and June 2016, approximately seven and a half years after random assignment for IMAGINE took place and approximately three and a half years after random assignment for NECS occurred. The main sources of data were a household survey of randomly selected families with school-age children; the results of local- language and French-language reading tests and of math tests administered to children living in households interviewed in the household survey; a school survey administered to officials at the primary school in the village and direct observation of school infrastructure; and a village census used to select households with school-age children. We also use data collected just after the start of the NECS program in October and November 2013; those data provide a baseline data for the NECS-only group.[2]

[2] The already initiated activities included the training of inspectors and teachers and the development of community governance structures related to gender and student recruitment efforts. Activities related to early-grade reading did not begin until after the completion of data collection.

B. Impacts

Our analyses indicate that NECS project activities were implemented with a high degree of fidelity in schools targeted to receive the NECS project. Close to 100 percent of NECS & IMAGINE and NECS-only schools had a student government compared to only 17 percent of control group schools, and student governments in NECS schools were more likely to have conducted literacy promotion activities in the last school year (SY) than those in control schools (Table ES.1). Schools in NECS & IMAGINE and NECS-only villages were also more likely to have a school governance committee (Comité de Gestion des Etablissements Scolaires, or CDGES) that holds regular meetings and has conducted literacy promotion activities during the 2015/2016 school year, to actively offer a mentoring program, and to have a local-language reading curriculum, educational materials, and story books.

Table ES.1. Descriptive statistics demonstrating implementation of NECS project activities in schools

	Means			Difference	
	NECS & IMAGINE group	NECS-only group	Control group	NECS & IMAGINE versus control	NECS-only versus control
School activities (percentage)					
School has student government	97.3	101.9	16.8	80.5***	85.1***
Student government conducted literacy promotion activities during SY 2015–2016	38.2	46.3	0.0	38.2***	46.3***
School has CGDES	99.4	100.0	97.2	2.2	2.8
CGDES conducts regular meetings	88.7	88.4	53.2	35.5***	35.1***
CGDES conducted literacy promotion activities during SY 2015–2016	60.5	64.7	7.5	53.0***	57.3***
School has active mentoring program	69.5	72.6	7.5	62.0***	65.1***
Local-language instruction (percentage)					
School has local-language reading curriculum	97.1	100.7	1.9	95.3***	98.8***
School has local-language educational materials	94.5	100.7	1.9	92.7***	98.8***
School has local-language story books	68.1	81.6	3.0	65.1***	78.7***
Sample size (schools)	**61**	**69**	**48**		

Source: NECS Wave 2 data collection, May and June 2016, school questionnaire.

Note: We tested differences between group means by using two-tailed t-tests. Treatment group means are regression-adjusted, including commune fixed effects and village-level weights. The NECS-only group mean includes a control for village-level enrollment at baseline. Control group means include village-level weights. Regressions use standard errors that are robust to heteroscedasticity. All outcomes are unconditional; for example, "CGDES conducts regular meetings" is counted as zero if school does not have a CGDES. Means greater than 100 are possible for the treatment groups because they are regression adjusted.

***/**/* Difference is statistically significant at the .01/.05/.10 level.

The investments in school infrastructure made under the IMAGINE project have largely been sustained between 2013 and 2016 (Table ES.2). While the IMAGINE project did not increase the number of public schools in IMAGINE villages (all villages, including treatment and control villages, participating in the study have at least one primary school in the village), the project did have positive impacts on the quality of school infrastructure. For example, we found significant increases in the number of classrooms and the number of classrooms with

finished materials in IMAGINE schools in both 2011 and 2013. By 2016, the number of overall classrooms and those with finished materials had increased from 6.5 to 7.2 and from 5.0 to 6.9, respectively. The IMAGINE project also had positive impacts on the quality of school infrastructure, such as on the existence of potable water, toilet facilities, preschools, playgrounds, and teacher housing. We find similar prevalence in 2013 and 2016 for most of the school infrastructure measures that we collected, so the improvements in infrastructure quality from IMAGINE have been largely sustained. In fact, the likelihood of having of a functioning potable water source at IMAGINE schools actually improved from 50.0 percent in 2013 to 75.4 percent in 2016, which is consistent with the planned borehole construction and rehabilitation activities implemented under the NECS project. The one exception is the prevalence of girl-friendly features of the IMAGINE schools—having separate latrines for girls and boys and housing specifically for female teachers—both of which declined by roughly 25 percent between 2013 and 2016, though the presence of latrines and housing did not change.

Table ES.2. Descriptive statistics of sustainability of school infrastructure in IMAGINE villages

	Means			Impacts	
	2016 NECS & IMAGINE schools	2013 IMAGINE schools	2011 IMAGINE schools	2013 IMAGINE schools	2011 IMAGINE schools
Availability of schools (per village)					
Number of public schools per village	1.0	1.1	1.1	-0.1	0.0
Infrastructure (per school)					
Number of:					
Classrooms	7.2	6.5	6.2	1.3***	1.5***
Classrooms made of finished materials	6.9	5.0	5.2	2.3***	3.1***
Percentage of schools with:					
Potable water source present	85.3	79.6	74.1	60.2***	58.7***
Potable water source functioning	75.4	50.0	n/a	40.8***	n/a
Toilet facilities present	96.7	100.0	100.0	60.0***	71.9***
Toilet facilities functioning	93.4	98.1	n/a	69.4***	n/a
Separate latrines	73.8	98.1	94.4	68.8***	77.2***
Preschool facility	96.7	98.1	44.4	74.9***	25.4***
Playground	90.2	96.3	n/a	84.7***	n/a
Teacher housing	96.7	98.1	94.4	88.7***	89.5***
Teacher housing for female teachers	75.0	94.4	n/a	92.8***	n/a
Sample size (village)	**59**	**57**	**57**		
Sample size (schools)	**61**	**54**	**54**		

Source: Dumitrescu et al. 2011; Bagby et al. 2014b; NECS Wave 2 data collection, May and June 2016, school questionnaire.

Note: We tested differences between group means by using two-tailed t-tests. IMAGINE school means include village-level weights. Impacts were estimated with regressions including commune fixed effects and village-level weights. Sample sizes are for the full sample of public schools that responded to the school questionnaire; some regressions may include a smaller size because of missing data. The full sample of non-IMAGINE schools was 124 schools in 121 villages in 2013 and 143 schools in 121 villages in 2011.

***/**/* Difference is statistically significant at the .01/.05/.10 level.

n/a = Not applicable because measure was not collected in that round of data collection.

The NECS & IMAGINE and NECS-only projects provided positive impacts on primary school enrollment and attendance for children age 6 through 12, which is the age in which children would likely be enrolled in primary school in Niger (Table ES.3). Children in NECS & IMAGINE villages were 10.3 percentage points more likely to report school enrollment in the current school year and 13.6 percentage points more likely to report school attendance on the most recent day the school was open than children in control group villages. Similarly, children in NECS-only villages were 9.5 and 11.1 percentage points more likely than children in control group villages to report, respectively, enrollment in and attendance at school. The projects also had a positive impact on local-language reading skills, which is a primary goal of the NECS program. The average normalized local-language test score was 0.21 standard deviations higher for children in NECS & IMAGINE villages and 0.15 standard deviations higher for children in NECS-only villages. The projects produced no statistically significant impacts on French-language test scores. However, we did find positive impacts of 0.13 and 0.10 standard deviations on standardized mathematics test scores in, respectively, NECS & IMAGINE and NECS-only villages (not shown because mathematics scores are not a primary outcome of this study).

Table ES.3. Impact of NECS & IMAGINE and NECS-only on primary child outcomes

	Means			Impacts	
	NECS & IMAGINE group	NECS-only group	Control group	NECS & IMAGINE group	NECS-only group
Child enrolled during SY 2015–2016 (percentage)	79.2	78.3	68.9	10.3***	9.5***
Child attended school on most recent day school was open (percentage)	70.8	68.3	57.2	13.6***	11.1***
Local-language score— normalized (standard deviations)	0.09	0.02	-0.13	0.21***	0.15***
French-language score— normalized (standard deviations)	0.07	0.04	0.00	0.07	0.04
Sample size (children)	**4,103**	**5,752**	**3,325**		
Sample size (villages)	**60**	**82**	**50**		

Source: NECS Wave 2 data collection, May and June 2016, household survey.

Note: We tested differences between group means by using two-tailed t-tests. Treatment group means are regression-adjusted, including commune fixed effects and village-level weights. The NECS-only group mean includes a control for village-level enrollment at baseline. Control group means include village-level weights. Regressions account for clustering within villages. For non-enrolled children, attendance is unconditional on enrollment, meaning that those who are not enrolled are all scored as absent. Normalized scores take child age into account. Sample sizes are for the full sample; some regressions may include a smaller size because of missing data.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

The impact of the NECS & IMAGINE and NECS-only projects on enrollment, attendance, and local-language test scores is significant among both girls and boys (Table ES.4). The difference in impacts between girls and boys is statistically significant only for local language test scores, where the impact of NECS & IMAGINE is larger among boys than among girls. As with the overall sample, neither gender accounts for significant impacts on French-language test scores.

Table ES.4. Impact of NECS & IMAGINE and NECS-only on primary outcomes, by gender

	Means			Impacts	
	NECS & IMAGINE group	NECS-only group	Control group	NECS & IMAGINE group	NECS-only group
Child enrolled during current school year (SY 2015–2016) (percentage)					
Females	77.6	74.7	64.6	13.0***	10.1***
Males	80.7	81.5	72.7	8.0***	8.8***
Significant difference in subgroup impacts				No	No
Child attended school on most recent day school was open (percentage)					
Females	70.0	64.5	53.1	16.9***	11.4***
Males	71.6	71.7	61.0	10.6***	10.6***
Significant difference in subgroup impacts				No	No
Local-language score—normalized (standard deviations)					
Females	0.00	-0.05	-0.15	0.15***	0.10**
Males	0.17	0.08	-0.11	0.28***	0.19***
Significant difference in subgroup impacts				Yes	No
French-language score—normalized (standard deviations)					
Females	-0.01	-0.02	-0.10	0.08	0.07
Males	0.14	0.09	0.07	0.06	0.01
Significant difference in subgroup impacts				No	No
Sample size (children)					
Female	**2,010**	**2,678**	**1,587**		
Male	**2,093**	**3,074**	**1,738**		

Source: NECS Wave 2 data collection, May and June 2016, household survey.

Note: We tested differences between group means by using two-tailed tests. NECS & IMAGINE and NECS-only group means are regression-adjusted, including commune fixed effects and weights. Regressions account for clustering within villages. The reported control group mean is not regression-adjusted, but it does include weights. For non-enrolled children, attendance is unconditional on enrollment, meaning that those who are not enrolled are all scored as absent. Normalized scores take child age into account. Sample sizes are for the full sample; some regressions may include a smaller size because of missing data.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

We also investigate impacts across levels of household assets, separating children into the first quintile of an index of household assets (the poorest group) and into all remaining quintiles (Table ES.5). The NECS & IMAGINE project has significant impacts on enrollment, attendance, and local languages for both groups of children and no significant differences in impacts between the groups. For both groups of children, we also find significant impacts of the NECS-only project on enrollment and attendance, with no differences between the groups. However, we find that NECS-only has a statistically significant impact of 0.26 standard deviations on local language for the lowest quintile and that the impact is significantly larger than the estimated impact for the higher quintiles. Neither group evidences significant impacts on French-language scores.

Table ES.5. Impact of NECS & IMAGINE and NECS-only on primary child outcomes, by socioeconomic status

	Means			Impacts	
	NECS & IMAGINE group	NECS-only group	Control group	NECS & IMAGINE group	NECS-only group
Child enrolled during current school year (SY 2015–2016) (percentage)					
Lowest quintile	76.9	75.3	64.4	12.5***	11.0***
Quintiles 2 through 5	80.3	80.1	71.7	8.6***	8.4***
Significant difference in subgroup impacts				No	No
Child attended school on most recent day school was open (percentage)					
Lowest quintile	70.3	66.0	52.1	18.2***	13.9***
Quintiles 2 through 5	71.2	69.7	60.5	10.7***	9.2***
Significant difference in subgroup impacts				No	No
Local-language score—normalized (standard deviations)					
Lowest quintile	0.04	-0.03	-0.28	0.32***	0.26***
Quintiles 2 through 5	0.11	0.05	-0.03	0.14***	0.08
Significant difference in subgroup impacts				No	Yes
French-language score—normalized (standard deviations)					
Lowest quintile	0.02	0.00	-0.12	0.14	0.12*
Quintiles 2 through 5	0.09	0.06	0.07	0.02	-0.01
Significant difference in subgroup impacts				No	No
Sample size (children)					
Lowest quintile	**1,183**	**2,307**	**1,261**		
Quintiles 2 through 5	**2,838**	**3,313**	**1,992**		

Source: NECS Wave 2 data collection, May and June 2016, household survey.

Note: We tested differences between group means by using two-tailed t-tests. Treatment group means are regression-adjusted, including commune fixed effects and village-level weights. The NECS-only group mean includes a control for village-level enrollment at baseline. Control group means include village-level weights. Regressions account for clustering within villages. For non-enrolled children, attendance is unconditional on enrollment, meaning that those who are not enrolled are all scored as absent. Normalized scores take child age into account. Sample sizes are for the full sample; some regressions may include a smaller size because of missing data.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

In this report, we use cost-effectiveness and cost-benefit analyses to explore further whether the NECS & IMAGINE and NECS-only projects may be justified (Table ES.6). Not surprisingly, the combination of the NECS and IMAGINE projects is less cost-effective than the NECS-only project for both enrollment and local-language test scores because the NECS and IMAGINE projects achieved highly similar impacts; however, the IMAGINE project involved school construction, which is significantly more expensive. With the impacts of the projects, and the assumptions made in the cost analyses that are based on real data from Niger, only the NECS-only project produces a positive economic rate of return of 2 percent, which is below the 10 percent threshold used by MCC to evaluate whether a project generates an adequate return. The cost-effectiveness estimates for the NECS & IMAGINE and NECS-only projects are somewhat high relative to similar projects. From a cost-benefit standpoint, both the NECS & IMAGINE and NECS-only projects produce negative net present value: -$338,393 for NECS & IMAGINE and -$18,049 for NECS-only.

Table ES.6. Cost-effectiveness and cost-benefit estimates of the NECS & IMAGINE and NECS-only projects

	NECS & IMAGINE	NECS-only
Cost-effectiveness[a]		
Enrollment (one additional student-year)	$675	$154
Test scores (one-tenth of a standard deviation)	$121	$24
Total benefits[b]	$11,523	$13,128
Total costs[b]	$349,916	$31,177
Net present value[c]	-$338,393	-$18,049
Cost-benefit ratio[d]	0.03	0.42
ERR[e]	-4%	2%

Note: For all calculations, we assume a 10 percent discount rate. Costs and benefits are in 2009 USD.

[a]Cost-effectiveness for enrollment is calculated by dividing the differences in costs between treatment and comparison villages by the estimated impacts for that outcome. We assume that a single year of exposure to the respective interventions is needed to observe the enrollment effect. For the cost-effectiveness of changes in test scores, we divide the result by 10 in order to express the estimate in terms of the cost per tenth of a standard deviation. We assume that all the years of exposure to the respective interventions are needed to observe the learning effect reflected by the impact on test scores. Average lengths of exposure for test scores are 3.73 years (NECS & IMAGINE) and 2.55 years (NECS-only).

[b]Total benefits include the present value of the total return to education over the working lifetime (15 to 50 years of age) for each birth cohort exposed during the life span of the intervention (30 years). Total costs include the present value of the total costs of the intervention over the same 30-year life span.

[c]Net present value is calculated by subtracting the present value of total costs from present value of total benefits.

[d]The cost-benefit ratio is calculated by dividing the present value of total benefits by the present value of total costs.

[e]The ERR is the discount rate at which the net present value equals zero.

C. Conclusions

In this report, we document the main findings from an impact evaluation of the IMAGINE and NECS projects, which improved the quality of schools in rural Niger across several dimensions including infrastructure, the learning environment and local language reading instruction. Overall, for primary school–age children (6 through 12 years), we observe significant impacts on school enrollment, school attendance, and local-language reading skills for both the combination of the IMAGINE and NECS projects and for the NECS project alone. The projects significantly improved outcomes for both girls and boys and for children across a range of socioeconomic backgrounds. In addition, we found no impact on French-language test scores, suggesting that the NECS project successfully targeted local-language reading skills, as intended, without slowing the development of French-language reading skills.

The results suggest that both the IMAGINE and NECS projects had positive impacts on most educational outcomes. The impacts of the two projects are largely similar to one another and similar to the impacts of the IMAGINE project observed in the three-year evaluation. However, it is uncertain whether the combination of the two projects had additional benefits on enrollment, attendance, or mother tongue early-grade reading skills on children of primary school age beyond the benefits of each program alone. It is possible that the two projects did not have additive benefits when implemented together. For example, the extensive social mobilization campaign that occurred as part of the NECS project may have improved child outcomes in NECS-only villages but may not have had an additional benefit in villages that had already experienced similar benefits from the

IMAGINE project. It is also possible that the benefits of IMAGINE declined over time, and the NECS project had similar impacts on both sets of communities.

We also observed a positive impact on mathematics test scores, an important educational outcome that was not directly targeted by the projects. IMAGINE's investments in school infrastructure, school resources, and girl-friendly school features appear to have been largely sustained over the seven years since project implementation, although the presence of some girl-friendly features has declined since 2013. The NECS-only project appeared to be less cost-effective relative to most similar programs and the project produced a low rate of economic return relative to its costs (its ERR failed to meet MCC standards), but this was largely due to the low returns to education and low incomes that exist in Niger. Because of the high costs of implementing the IMAGINE infrastructure improvements, the NECS & IMAGINE project was relatively less cost-effective than NECS-only or similar programs and produced a negative economic rate of return.

I. INTRODUCTION

A. Overview of the evaluation

To address some of the development challenges facing Niger, the government of Niger (GoN) partnered with the Millennium Challenge Corporation (MCC) to introduce a three-year Niger Threshold Program (NTP), beginning in 2008. The IMAGINE (IMprove the educAtion of Girls In NigEr) and NECS (Niger Education and Community Strengthening) projects were created under the NTP, working with the United States Agency for International Development (USAID), to improve the educational opportunities available to children, especially girls; to improve literacy; and to strengthen the links between local communities and state structures. Plan International and Aide et Action implemented the projects.[3] MCC hired Mathematica Policy Research to lead rigorous, independent evaluations of the IMAGINE and NECS projects in order to estimate their impacts. In this report, we evaluate the impact of the NECS project and the combined impact of the IMAGINE and NECS projects three years after initial implementation of NECS and seven years after initial implementation of IMAGINE.

The IMAGINE project set out to construct 68 high quality primary schools and implement a set of complementary interventions designed to increase the school enrollment and completion rates of girls in treatment villages. Activities included the design and dissemination of training modules for teachers and the implementation of a mobilization campaign in support of girls' education. Project implementation began in March 2009; however, because of a constitutional crisis in Niger the complementary interventions were suspended in August 2009 and remaining activities were suspended in December 2009. MCC and USAID granted authorization to resume project activities in January 2010, and the project closed on September 30, 2010. By the end of the project, 62 of the 68 IMAGINE schools had been constructed; however, most of the complementary activities had not yet started. Following the reinstatement of threshold program assistance to Niger, the GoN, MCC, and USAID initiated the NECS project in 2013 to implement revised versions of the complementary activities interrupted under the original IMAGINE project. The NECS project includes a package of activities designed to increase access to high quality education and to improve student reading achievement and adult literacy.

Mathematica conducted rigorous evaluations of the IMAGINE project both one and three years after the suspension of school construction (Dumitrescu et al. 2011; Bagby et al. 2014b). The evaluations randomly assigned eligible villages to receive the IMAGINE intervention and found positive impacts of the interventions on school enrollment (8.3 percentage points increase in last school year), especially for girls (11.8 percentage points), and on both attendance (7.9 percentage points decrease in being absent more than 2 consecutive weeks[4]) and mathematics scores (0.126 standard deviations increase in normalized math score) by the time of the three-year evaluation. The

[3] The agreement between USAID and Plan International USA was signed in October 2008. VIE Kande ni Bayra, a local NGO, was involved early in the NECS project, but did not stay involved throughout. Readsters, an NGO based in Virginia, joined the project at the end of 2014.

[4] Data for the three-year IMAGINE evaluation were collected prior to the start of the school year. For this reason, we could not ask parents about children's attendance on the previous school day or during the previous 7 days as we had for the one-year evaluation. Instead, we asked parents to recall whether the child had missed two or more consecutive weeks of school during the prior school year.

evaluation of the NECS project builds on the random assignment conducted for the IMAGINE evaluation by randomly assigning roughly two-thirds of the control villages from the IMAGINE evaluation to the NECS intervention. In addition, all villages that received the IMAGINE intervention were selected to receive the NECS intervention. The random assignment of the two interventions allows us to estimate the impacts of NECS in the IMAGINE control villages as well as the combined impacts of NECS and IMAGINE in IMAGINE villages on key educational outcomes, including school enrollment, attendance, and test scores in mathematics, local languages, and French. We also conduct cost analyses of the IMAGINE and NECS projects in order to evaluate the cost-effectiveness of the NECS project and of the combined IMAGINE and NECS projects relative to other programs that aim to improve education outcomes, especially for girls, in developing countries.

B. Primary schooling context in Niger

1. Education system in Niger

Officially, households in Niger may enroll their children in primary school at no charge, although in practice the schools often ask parents to cover some school-related expenditures (not to mention the opportunity costs of the time children spend in school). Primary education in Niger lasts for six years, and, upon completion of primary school, students receive a Certificat de fin d'Etudes du premier Degré. School is officially compulsory between ages 7 and 12, but the GoN does not enforce the law, especially in rural areas, because of several factors, including an inadequate number of schools and parent resistance to school.

2. School enrollment and access to high quality schools

Despite a concerted effort to increase primary school enrollment and completion rates in Niger and improvements over the last decade, these rates remain low. For example, Niger experienced increases in gross enrollment and primary school completion rates of 39 and 41 percentage points, respectively, from 2000 to 2014, but the rates in 2014 were still relatively low at 71 and 59 percent (Table I.1).[5] In fact, Niger's primary school enrollment rate remains one of the lowest in West Africa (Table I.2) and is exacerbated by persistent disparities in enrollment and completion rates between boys and girls. The gap in the percentage of boys and girls who complete primary school in Niger increased from 7 percentage points in 2000 to 13 percentage points in 2014. In addition, rural children lag behind urban children in many education outcomes. According to 2006 Demographic and Health Survey data, 68 percent of children age 7 through 12 in rural areas do not attend school compared to 29 percent of children in urban areas (EPDC 2014b). The urban-rural gap is similar in Mali, but smaller in other neighboring countries such as Nigeria (38 and 13 percent, respectively, not attending school in rural and urban areas) and Côte d'Ivoire (45 and 29 percent, respectively, not attending school in rural and urban areas) (EPDC 2014a; c).

[5] The gross enrollment rate is the total enrollment in a specific level of education, regardless of age, expressed as a percentage of the eligible official age group corresponding to the same level of education in a given school year. For primary education, the rate is calculated by expressing the number of students enrolled in primary levels of education, regardless of age, as a percentage of the actual, official primary school–age population. As a result, the proportion may exceed 100 percent when more students are enrolled in a primary school than there are children in the affected age group because of early or late entrants or repeaters.

Table I.1. Evolution of primary education indicators: Niger 1975–2014

	Gross enrollment rate—primary education (percent)			Completion of primary education (percent)		
	Primary			Gross intake rate to the last grade of primary		
School year	All	Males	Females	All	Males	Females
2014	71	76	65	59	65	52
2010	63	70	57	40	46	35
2005	49	57	41	29	35	23
2000	32	38	26	18	21	14
1995	28	34	21	13	17	10
1990	26	32	19	16	20	11
1985	22	28	16	19	25	14
1980	22	27	16	14	16	11
1975	15	19	11	7	9	5

Source: UNESCO Institute for Statistics (2016).

Table I.2. Gross enrollment rate in primary education: West Africa 2014

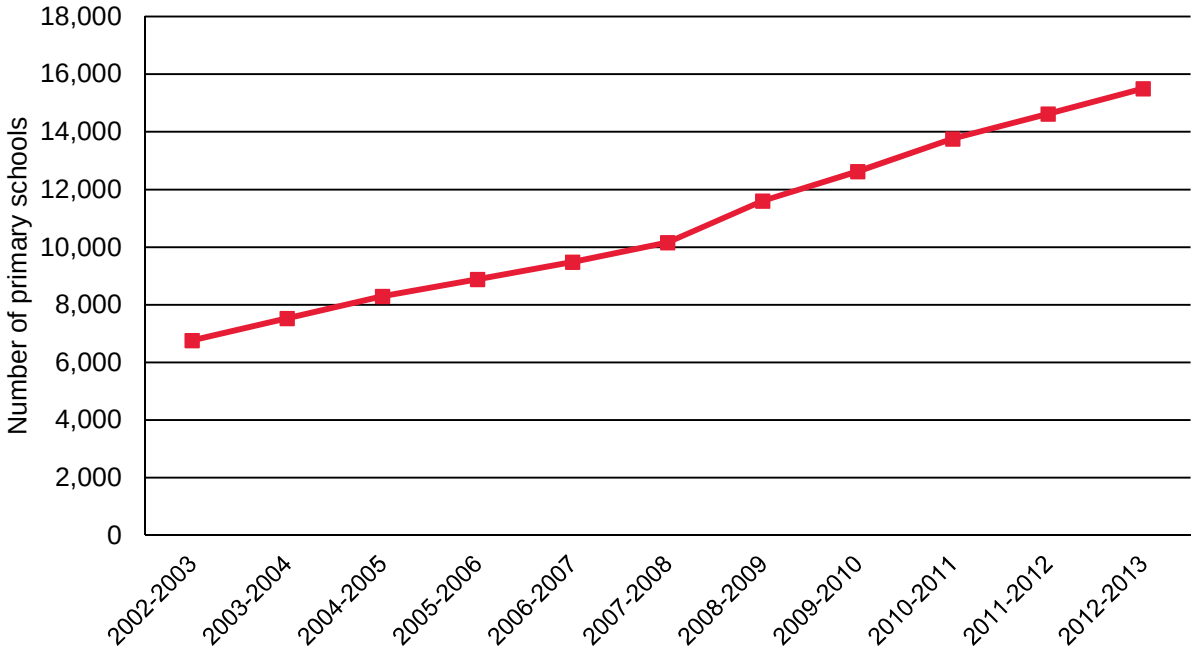
Country	Gross enrollment rate in 2014 (percent)
Benin	126
Burkina Faso	87
Chad	101[a]
Mali	77
Niger	**71**

Source: UNESCO Institute for Statistics (2016).

[a]The most recent gross enrollment rate for Chad is from 2013.

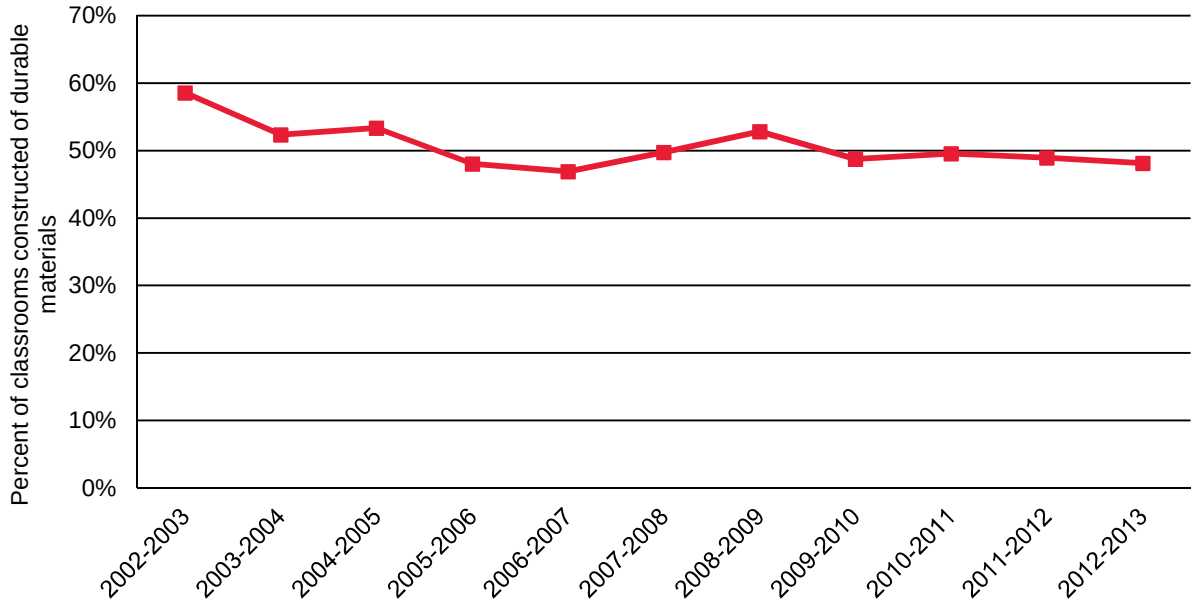
Before implementation of the IMAGINE project, the GoN had launched several initiatives aimed at both improving access to school and promoting girls' education under the Programme Décennal pour le Développement de l'Éducation (PDDE). Under the program, Niger undertook widespread school construction. Between the 2002–2003 and 2008–2009 school years, the number of primary schools increased by over 70 percent, from 6,770 to 11,610 (Figure I.1). School construction has continued to increase, and the number of schools rose to 15,505 by the 2012–2013 school year. During the same period, the percentage of classrooms constructed of durable material and in good repair remained relatively stable at about 50 percent, suggesting that, although the number of schools increased significantly over nearly a decade, the average quality of schools remained unchanged (Figure I.2). Nonetheless, the quality of education improved on other measures. For example, an insufficient supply of textbooks has been a widespread problem in schools in Niger, requiring students to share books. However, in recent years, the ratio of students to textbooks has decreased sharply. For reading, the number of students per textbook declined from 2.5 students in 2003–2004 to 1.4 students in 2012–2013, and, for mathematics, the number of students per textbook declined from 3 students in 2003–2004 to 1.6 students in 2012–2013 (Ministère de l'Enseignement Primaire, de l'Alphabétisation, de la Promotion des Langues Nationales et de l'Education Civique 2013).

Figure I.1. Number of primary schools in Niger: 2002/2003–2012/2013



Source: Ministère de l'Enseignement Primaire, de l'Alphabétisation, de la Promotion des Langues Nationales et de l'Education Civique (2013).

Figure I.2. Percent of classrooms constructed of durable material in Niger: 2002/2003–2012/2013



Source: Ministère de l'Enseignement Primaire, de l'Alphabétisation, de la Promotion des Langues Nationales et de l'Education Civique (2013).

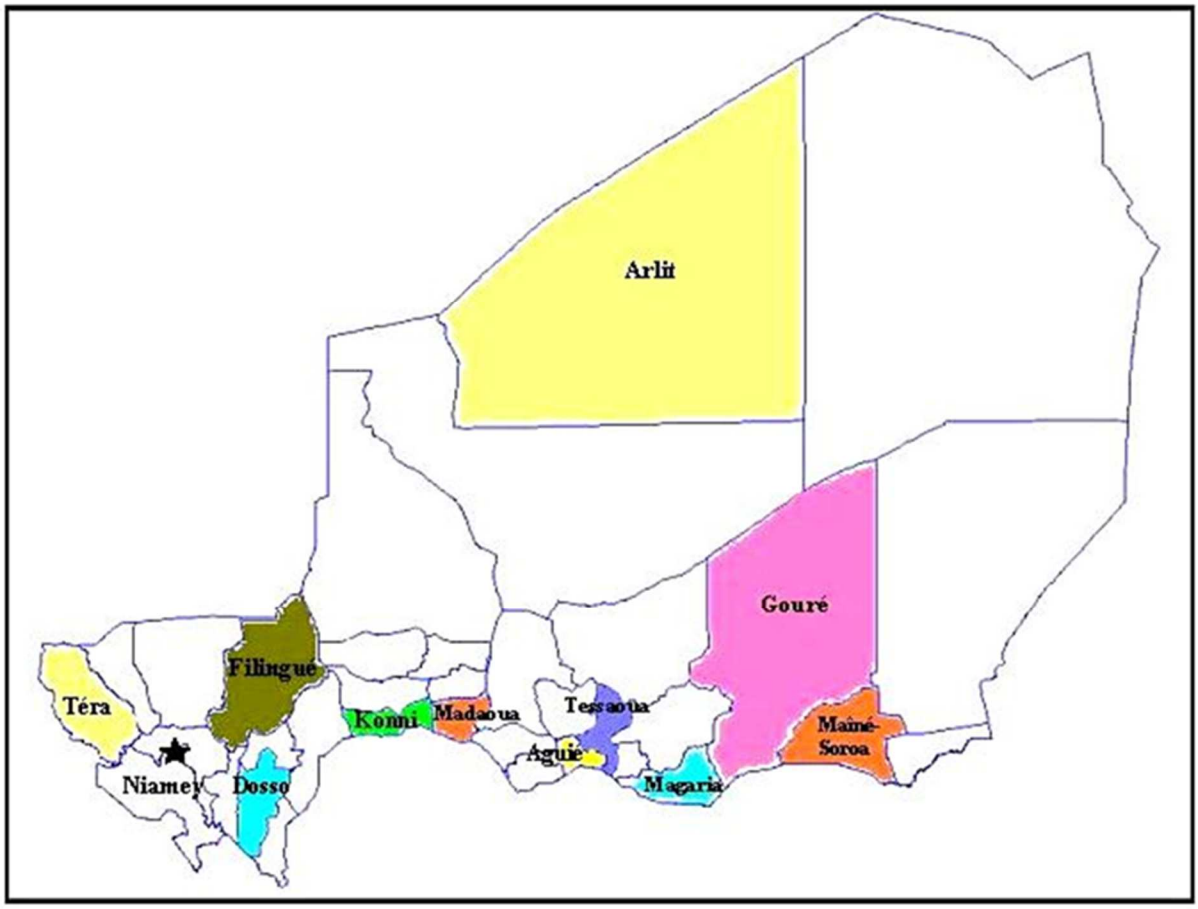
II. OVERVIEW OF IMAGINE AND NECS

A. Project description

1. IMAGINE project history

The NTP was signed in March 2008 and allocated $23.1 million to achieve three development goals: (1) to improve the quality of and access to education for girls; (2) to improve local governance and reduce corruption through increased civil society engagement; and (3) streamline business creation, land access, and titling procedures. Between 2008 and 2011, MCC disbursed $12,015,594 to support girls' primary education, $2,569,850 to reduce corruption, and $312,715 to assist businesses and to improve access to land.

Figure II.1. Implementation of IMAGINE and NECS by department



Source: Dumitrescu et al. (2011).

Implemented by a consortium selected by USAID and led by Plan International, the IMAGINE project aimed to address the girls' education component of the NTP. The project was implemented in 20 communes in 11 departments (highlighted in Figure II.1) in every region of Niger except Niamey. Initially, the regions of Tillabéri and Zinder were selected for participation in the project, but the GoN later added five regions: Agadez, Diffa, Dosso, Maradi, and Tahoua.

The GoN selected 20 communes to participate in IMAGINE from each of the regions, and identified 10 villages in each commune as eligible for the project based on the following criteria: the number of school-age girls in the village, access to water within the village, and distance to a major road. Mathematica and the GoN implemented random assignment of eligible villages to the IMAGINE intervention, with different numbers of villages assigned to treatment within each IMAGINE commune.[6] In total, 68 villages were selected to receive the package of IMAGINE intervention activities, and 133 villages were assigned to the control group.

The package of activities to be received by villages in the IMAGINE intervention included two primary components: (1) the construction of girl-friendly schools (the "hard" interventions) and (2) a series of complementary activities designed to improve the quality of teaching and children's performance and to build support for girls' education (the "soft" or complementary interventions).[7] The schools constructed through the IMAGINE project followed a "girl-friendly" design that called for three classrooms, housing for three female teachers, a preschool, and separate latrines for boys and girls that were equipped with hand-washing stations. In addition, a borehole was to be constructed in conjunction with each newly constructed school in order to provide safe water for the school. The complementary interventions included activities designed to improve the quality of teaching and children's performance, along with community mobilization campaigns in support of girls' education.

Random assignment of the IMAGINE treatment to eligible villages took place in December 2008, with the list of treatment villages finalized in February 2009 after completion of a ground-truthing exercise. Construction of the IMAGINE schools began one month later in March 2009. In total, Plan International constructed 62 functional, girl-friendly schools (of 68 planned) before project activities ended in April 2010 following suspension of the NTP.[8] Given the project's abrupt termination, most of the complementary activities were not implemented under IMAGINE. Only a few complementary activities, such as the provision of textbooks and materials for the schools, were fully implemented. However, all other activities were either partially implemented (e.g., teacher training, mothers' literacy training, and societal awareness campaigns) or not implemented at all (e.g., merit-based awards for female teachers, student tutoring, and hygiene and sanitation education).[9]

2. Objective and activities of the NECS project

After MCC approved the reinstatement of threshold program assistance to Niger in 2011, the GoN, MCC, and USAID designed the NECS project, building on the soft interventions that could not be completed under the IMAGINE project. MCC funded the NECS project by using

[6] More treatment villages were selected in Tillabéri and Zinder because they were originally selected for the project.

[7] The project also included the provision of complementary interventions to villages that bordered treatment villages, but the evaluation does not include those villages because they were not included in the intervention's random assignment.

[8] Plan International used its own funds to complete construction of the 62 schools after the withdrawal of project funds.

[9] Details on the full implementation of each activity appear in the first IMAGINE impact evaluation report and in the final report produced by Plan International (2010). A complete list of activities under IMAGINE and the extent of their implementation appears in Appendix E.

some of the funds initially disbursed for IMAGINE, of which $2 million was allocated to support girls' primary education through the completion and expansion of the girls' education component of the IMAGINE project. The total value of the NTP came to $16,898,160. In addition, USAID contributed funds and agreed with the GoN to undertake the NECS project. The activities were designed to address two strategic objectives. The first is to increase access to high quality education through activities such as borehole construction and maintenance, the mobilization of school governance structures to promote joint initiatives with communities, and the promotion of gender-equitable classrooms and student leadership activities. In addition, the NECS project seeks to engage the community to improve education by supporting school management committees and developing a student mentoring program to foster a healthy school environment and motivate parents to keep their children in school. The project's second objective is to increase student reading achievement by implementing an ambitious early-grade reading curriculum that trains and supports teachers in new methods of reading instruction in the early grades and develops reading material in local languages. The NECS project also aims to promote a culture of reading by building community support for reading and establishing adult literacy programs.

3. NTP logic model

In Table II.1, we present a logic model that shows how the NECS and IMAGINE interventions may plausibly affect the groups and outcomes of interest to the projects. The interventions are listed in the left-hand column, with columns to the right listing the groups targeted by each activity and the outcomes that may plausibly improve in response to each activity. The activities target a variety of groups in the community, including children, teachers, parents and other adults, and school management committees. Together, the NECS and IMAGINE interventions were intended to foster improved school enrollment, attendance, and learning in the short term and perhaps improve longer-term outcomes such as employment and income once the children exposed to the interventions enter the workforce.

Table II.1. NECS and IMAGINE activities and targeted groups and outcomes

Activity	Groups directly affected	Outcomes		
		Short term	Medium term	Long term
Construct new girl-friendly schools**	Students, especially girls	Enrollment, attendance, learning	Academic performance[1]	Employment and income
Provide textbooks**	Students	Access to textbooks, learning		
Introduce early-grade rapid reading program in local languages and provide teacher training and supervision	Teachers, students	Teaching techniques in early-grade reading in local languages, reading ability, learning; teacher capacity and accountability		
Provide reading materials in local languages	Students, adults in community	Access to local-language reading materials, reading ability, learning		
Develop mentoring program	Students	Enrollment, attendance, dropout rate, completion, learning		
Promote gender-equitable classrooms	Teachers, school management committees	Girls' enrollment, attendance, and learning		
Promote leadership training for student government	Students	Student-teacher relations, student autonomy, self-esteem	Attendance, student engagement, academic performance	Employment and income
Support school management committees	School management committees	Community participation in education	Quality of education, support for education	
Establish adult literacy program	Parents and adults in community	Adult literacy, culture of reading	Children's enrollment, attendance, academic performance	
Construct new boreholes*	Students	Access to safe drinking water	Illness, attendance, retention	General health, employment, and income
Facilitate general hygiene and sanitation		Hand washing		
Support deworming		Deworming treatments		

Key assumptions

- Schools are sufficiently functional (for example, in terms of infrastructure and management) to support program interventions.
- An adequate supply of teachers is available with the training and motivation to implement the early-grade reading curriculum.
- The support provided by Ministry of Primary Education (MEP) inspectors and pedagogic supervisors is adequate to monitor implementation of the early-grade reading curriculum.
- Sufficient participation and interest in other project activities will develop among key target groups (for example, adults in the community and school management committees).
- No major disruptive events occur in the target villages (for example, famine or political unrest).

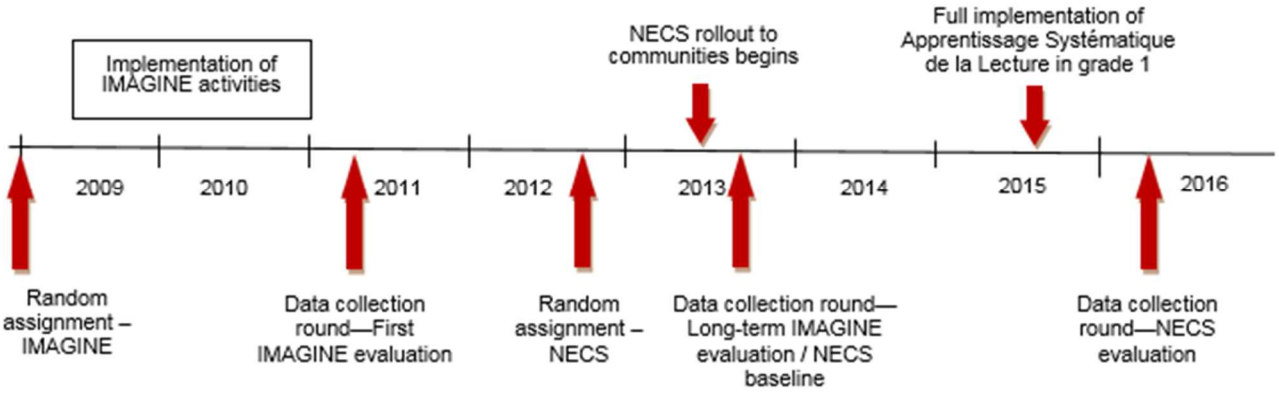
Note: No asterisk indicates an activity that was implemented solely as part of NECS. * indicates an activity that was originally implemented as part of IMAGINE and is being completed as part of NECS. ** indicates an activity that was implemented solely as part of IMAGINE.

[1] Academic performance refers to completion of primary school and subsequent levels of schooling, and to test scores and grades in coursework.

B. NECS implementation summary

In Figure II.2, we provide a broad overview of the timing of the key activities related to implementation of the IMAGINE and NECS projects and evaluations. As described earlier, the random assignment list of the IMAGINE treatment was finalized in February 2009, and construction of the IMAGINE schools began one month later, in March 2009, and ended in April 2010 after suspension of the NTP.

Figure II.2. NTP evaluation timeline: IMAGINE and NECS



Random assignment for the NECS project took place in November 2012, and the initial rollout of NECS project activities began in summer 2013. We planned two rounds of data collection: a first wave before implementation of the NECS activities and another round after implementation (henceforth referred to as "Wave 1" and "Wave 2"). Wave 1 data collection was originally scheduled to occur at the end of the 2012–2013 school year but was delayed until October–November 2013 because of logistical issues.[10] Therefore, given that the IMAGINE intervention had already occurred by the time of Wave 1 data collection, the Wave 1 data functioned as baseline data only for the NECS-only group. Among the NECS project activities starting before Wave 1 data collection were training sessions related to gender and student recruitment efforts and the first of two adult literacy campaigns.[11] However, activities directly related to learning outcomes did not start until after completion of Wave 1 data collection. Below, we highlight major implementation markers:

- **June 2013.** Introduction of NECS activities related to gender sensitivity training of inspectors, teachers, and community participatory groups (Comité de Gestion des Etablissements Scolaires- CGDES, Association des Parents d'Eleves-APE, or Association des Meres-AME); start of adult literacy programs

[10] It was not feasible to measure baseline student outcomes before random assignment for NECS in late 2012.

[11] Two adult literacy campaigns were conducted in 2013 and 2014.

- **January 2014–May 2014.** Implementation in grade 1 of the rapid reading curriculum (Apprentissage Rapide de la Lecture-ARL), developed by Volontaires pour L'Integration Educative (VIE)
- **March 2015–May 2015.** Implementation in grade 1 of new systematic reading curriculum (Apprentissage Systématique de la Lecture-ASL) developed by Readsters[12]
- **2015–2016 school year.** Implementation of full ASL curriculum in grades 1 and 2

At the time of Wave 2 data collection in May and June 2016, NECS quarterly reports indicated that most NECS activities had been fully implemented, with the exception of the construction of boreholes (52 of 59 were functional) and the introduction of the full (Apprentissage Systématique de la Lecture) ASL reading curriculum.[13] The full ASL curriculum was supposed to be implemented in both grades 1 and 2 during the 2015–2016 school year, but a high number of school disruptions (including teacher strikes, teacher absenteeism, late openings, and early closures) impeded completion of the academic year and implementation of the new ASL curriculum in many schools. According to the NECS Quarterly Report—April to June 2016, only 15 percent of grade 1 classrooms and 33 percent of grade 2 classrooms were able to complete the full curriculum over the course of the 2015–2016 school year (Plan International 2016). As a result, although children in NECS intervention villages were exposed to most of the NECS activities for three years by the time of Wave 2 data collection, their exposure to the early-reading curriculum was more limited, so the impacts that we estimate of the package of intervention activities only reflects a partial implementation of the reading curriculum.

[12] Implementation of the new reading curriculum was originally planned for the 2013–2014 school year but was delayed following a change in partners in the NECS consortium. The change resulted in a shift in curricula, from the "accelerated" (ARL) reading approach pioneered by VIE to a new "systematic" (ASL) approach developed by Readsters. As a result, the first cohort of learners was taught reading through ARL and then through ASL. The cohort advanced to grade 3 during the 2015–2016 school year without completing all phases of ASL in grades 1 and 2. In response, the MEP proposed to develop and teach a catch-up program in reading and writing tailored to the needs of the grade 3 students. The catch-up program started on November 25, 2015, in all grade 3 classes in schools receiving NECS, followed by delivery of the traditional grade 3 curriculum in French.

[13] A complete list of activities conducted for the IMAGINE and NECS projects as well as their completion rate is available in Appendix E.

III. LITERATURE—EVIDENCE GAPS FILLED BY THE CURRENT EVALUATION

The IMAGINE and NECS projects constructed girl-friendly schools and introduced several activities aimed at enhancing educational opportunities available to children, particularly girls, while improving literacy and strengthening links between local communities and state structures. This evaluation contributes to a growing body of literature on the types of programs that successfully expand access to high quality education, particularly for girls, and improve early-grade learning in developing countries.

A. Access to high quality schooling

Much of the literature examining the effects of improvements in school infrastructure on school enrollment and student learning has focused on improvements in access to education. Several studies suggest, however, that the construction of high quality schools in underserved communities can improve overall enrollment and student learning and may even reduce gender disparities. For example, evaluations of the construction of village-based schools in communities in northwestern Afghanistan and Pakistan that previously relied on more distant regional schools found that newly constructed schools increased enrollment among both girls and boys and reduced gender disparities in enrollment (Burde and Linden 2013; Barrera-Osorio et al. 2013). In addition, a review of studies by Cuesta et al. found evidence that an improvement in overall school infrastructure, including the quality of physical facilities, had a significantly positive effect on student learning (Cuesta et al. 2015). However, other studies suggest that, although school construction may improve overall schooling outcomes, it may not be sufficient to reduce gender disparities. A study examining the increase in the number of schools in Nepal between 1950 and 1960 reported an increase of 1.37 and 1.39 percentage points, respectively, in the ability of boys to read and write, but no significant impact on girls. According to the authors, the lack of impact was likely attributable to persistent gender discrimination that excluded females from the education system (Shrestha 2014).

One reason that school construction alone may not be sufficient to reduce persistent gender gaps in education outcomes is that traditional schools are not designed to address the needs of female students. Concern about the needs of female students has motivated the design and promotion of "girl-friendly" schools, with features such as separate female and male latrines, housing for female teachers, and gender sensitivity programs, all of which encourage girls to enroll and succeed in school. In addition, a growing body of evidence suggests that girl-friendly designs may in fact support desired educational and societal outcomes. A recent review of education and economic studies conducted between 1990 and 2012 that examine the impact of school infrastructure improvements found modest evidence that access to separate toilets for boys and girls increased student test scores at both the primary and secondary levels (Cuesta et al. 2015).

Mathematica's one- and three-year impact evaluations of the girl-friendly schools constructed under the IMAGINE project in Niger (Dumitrescu et al. 2011; Bagby et al. 2014b)

provide further evidence of the impact of girl-friendly schools.[14] The results from the one-year follow-up evaluation show that the construction of girl-friendly schools in underserved communities resulted in small, positive impacts of 4.3 percentage points on school enrollment, which were driven by improvements in the enrollment of girls, but there were no significant impacts on attendance or test scores (Table III.1). By the time of the three-year evaluation, IMAGINE had not only raised primary school enrollment in the previous school year by 8.3 percentage points, but the schools had also experienced a decrease in absences of more than two consecutive weeks by 7.9 percentage points and an increase in mathematics test scores by 0.13 standard deviations. In addition, the impacts on enrollment, absenteeism, and test scores were significantly greater for girls than for boys, suggesting that the construction of girl-friendly schools can significantly improve education outcomes, particularly for girls, while reducing gender disparities in school outcomes.

Table III.1. One-year and three-year impacts of IMAGINE on important child education outcomes

	One-year impacts[a]	Three-year impacts
School enrollment (percentage points)	4.3**	8.3***
School attendance (percentage points)	1.7	n/a
Absenteeism (percentage points)	n/a	7.9***
Mathematics test scores (standard deviations)	0.03	0.13**
French-language test scores (standard deviations)	0.04	0.07
Sample size		
Number of villages	**178**	**178**
Number of children	**16,351**	**13,069**

Source: Dumitrescu et al. (2011); Bagby et al. (2014b).

Note: Child sample sizes may be smaller depending on the outcome of interest.

[a]The first follow-up estimates are at the village level and may include villages with more than one school. Of the 178 villages in the first follow-up IMAGINE data, 28 villages accounted for surveys completed by two schools, and 9 villages accounted for surveys completed by three schools.

n/a = Not applicable because measure was not collected in that round of data collection.

Mathematica also conducted evaluations of the BRIGHT program in neighboring Burkina Faso. The program included the construction of new girl-friendly primary schools and the delivery of complementary girl-friendly activities, similar to those implemented under IMAGINE and NECS in Niger. The evaluations found enrollment impacts on the order of 15 to 20 percentage points 7 years after school construction, with girls experiencing an 11.4 percentage point greater impact than boys (Kazianga et al. 2016). The 7-year evaluation also found that the test scores of children in BRIGHT communities were between 0.29 and 0.41 standard deviations higher than those in comparison communities and that the improvement was 0.21 standard deviations greater for girls than for boys. Mathematica's 10-year evaluation of the BRIGHT program found that improvements in enrollment and test scores were largely sustained, although the magnitude of the impacts had greatly declined for younger children who had

[14] Nearly all complementary activities in the IMAGINE project were either partially implemented or not implemented at all because of suspension of the NTP nine months into the project; therefore, the evaluations of the IMAGINE project are essentially evaluations of the construction of girl-friendly schools (Chapter II).

reached primary school age only after the BRIGHT program had ceased supporting the complementary activities (Davis et al. 2016). The results imply that the complementary activities may have played an important role in the estimated impacts of BRIGHT, but the evaluation could not differentiate between the impact of the schools and the impact of the complementary activities because all BRIGHT villages received the same package of interventions.

B. Literacy and local-language instruction

Low reading levels across much of Africa have motivated many researchers to examine the effects of bundled early-grade reading programs on student learning, and several studies suggest that early-grade reading programs can improve reading ability. For example, researchers conducted a randomized control trial in Liberia to examine the impact of different packages of reading activities and found that reading skills increased significantly for the treatment group that received a more comprehensive intervention package, with an overall effect of 0.79 standard deviations across all reading tasks (Piper and Korda 2010). A randomized control trial in Egypt estimated the effect of a phonics intervention in which teachers administered an early-grade reading package and received coaching and feedback from classroom observations for six months. At the end of the school year, students in the intervention schools could read three times as many syllables per minute, twice as many familiar words, and nearly twice as many words in a passage as students in control schools (USAID Egypt 2011). A randomized control trial in Kenya estimated the impacts of a three-year program that created and disseminated new teaching and classroom materials, provided professional development training to teachers, and implemented innovative teaching methods. The study found large, significant improvements in literacy skills as measured through the Early Grade Reading Assessment (EGRA) and in the percentage of students reading at the benchmark level in both Kiswahili and English (RTI International 2014).

Development organizations and governments in developing countries have recently shown an increasing interest in programs designed around reading instruction in local languages. A 2008 UNESCO report conducted a thorough literature review of studies on local-language instruction in developing countries (Smits et al. 2008). The review focused largely on case studies and found that teaching in a local language is often associated with a lower risk of children dropping out of school or repeating grades and with improved school performance, including the ability to read nonlocal languages. In addition, the authors of the review used data from 26 countries representing 160 languages to analyze the association between local-language instruction and schooling outcomes over larger populations. They found that local-language instruction is associated with higher school attendance, even when controlling for socioeconomic characteristics and urban/rural status. The relationship is especially strong in rural areas, which typically account for lower school attendance and worse performance outcomes.

The value of local-language instruction may extend beyond the ability to read in the local language. In reviewing the rationale for local-language instruction, Abadzi (2006) argued that children can effectively learn a second language only after they achieve a certain level of proficiency in their mother tongue, and evidence suggests that a student's ability to read in his or her local language is an important determinant of reading performance in a second language. For example, students in schools in Mali that adopted a "pedagogie convergente," in which students begin their schooling by learning mostly their mother language and gradually transition to their

second language (French), are five times less likely to repeat a grade and three times less likely to drop out of school than other students (Bender et al. 2005). In addition, a UNICEF study in Vietnam found that preschool students taught in their local language scored higher on several basic comprehension tasks conducted in their second language, Vietnamese (UNICEF 2011).

C. The NECS evaluation

The NECS evaluation adds to the existing bodies of literature by evaluating whether a bundled intervention of complementary activities, including adult literacy, community engagement, gender training, an early-grade reading curriculum, and local-language instruction, can improve education outcomes such as enrollment, attendance, and learning in reading. By testing children in both their mother language and French, the evaluation also assesses the extent to which local-language instruction, bundled with complementary activities in recipient villages, affects early-grade reading skills in students' mother languages as well as in the national language of instruction. In addition, as an extension of the IMAGINE evaluation, the NECS evaluation provides new evidence on the enrollment and learning effects generated by combining improvements in school access and infrastructure with complementary community- and classroom-level activities.

IV. IMPACT EVALUATION DESIGN

A. Evaluation type

The NECS evaluation uses the two rounds of clustered random assignment of the IMAGINE and NECS interventions. We conducted the first round at the end of 2008 for the IMAGINE evaluation and randomly assigned the IMAGINE intervention to a subset of eligible villages identified by the Ministry of Primary Education (MEP). We conducted the second round of random assignment in November 2012 and randomly assigned the NECS intervention to a subset of the IMAGINE control villages (NECS was also implemented in all of the IMAGINE treatment villages). The two rounds of random assignment yield three groups of villages for the evaluation (Table IV.1). The villages in Group C did not receive either the IMAGINE or NECS intervention and thus serve as the control group for both Group A—the villages that received both IMAGINE and NECS (NECS & IMAGINE)—and Group B— the villages that received NECS but did not receive IMAGINE (NECS-only).

Table IV.1. Groups of villages under the NECS evaluation design

	Received NECS	Did not receive NECS
Received IMAGINE	A 62 villages	
Did not receive IMAGINE	B 87 villages[a]	C 54 villages (control group)

[a]Group B (NECS-only) originally consisted of 88 villages, but we dropped one village from the evaluation for logistical and security reasons (Section IV.D.). The baseline report provides more detail.

B. Evaluation questions

To evaluate the impact and costs of the IMAGINE and NECS projects, the evaluation of the NECS project addresses six primary research questions as follows:

Sustainability of IMAGINE

1. Have the investments made under the IMAGINE project been sustained?

Impact on key outcomes

2. What is the combined impact of the NECS and IMAGINE projects on key educational outcomes?
    a. Primary education enrollment
    b. Learning as measured by test scores
    c. Attendance rates
3. What is the impact of just the NECS project on these key educational outcomes?

Impact on subgroups

4. Do the estimated impacts differ for girls and boys?
5. Do the estimated impacts differ for children from households with different asset levels?

Cost analyses

6. Was the NECS project investment justified from a cost perspective?
    a. What was the project's cost-effectiveness?
    b. What was the project's cost benefit?
    c. What was the project's economic rate of return (ERR)?

The first and second research question examine whether the activities planned under the NECS program were implemented in NECS villages and whether the infrastructure constructed under the IMAGINE project has been sustained. We examine the presence of and activities related to student governments, school management committees, mentoring programs, local-language instruction, and adult literacy programs in NECS villages and the presence, functionality, and use of IMAGINE-specific infrastructure (such as high quality classrooms, toilet facilities, and teacher lodging) in IMAGINE villages and then compare these elements to those available in non-NECS and non-IMAGINE villages, respectively. The analyses will guide our interpretation of the NECS estimates and provide valuable long-term evidence on the sustainability of the IMAGINE program. For example, if the impacts estimated for the combined NECS and IMAGINE programs and the NECS program alone are similar, the analyses will allow us to examine the possibility that the IMAGINE program's infrastructure may have fallen into a state of disrepair and has little connection to NECS.

The third, fourth, and fifth research questions assess the effects of NECS on important educational outcomes. They directly follow from the hypothesis that, by addressing some of the major obstacles to education in the target communities, the NECS program can affect both the quantity and quality of the education experienced by children in these communities. The evaluation will enable us to estimate the impacts of NECS both in combination with the improved infrastructure developed by the IMAGINE project in the first NTP (question 1) and as a stand-alone program (question 2). Evaluating and comparing these impacts separately will provide useful evidence for MCC, the MEN, Plan International, and other stakeholders on the extent to which improved infrastructure, which can be extremely costly, interacts with complementary activities.

The sixth and seventh research questions explore differences in the estimated impacts across subgroups defined by gender and level of household assets. Given that cultural and other factors may pose greater obstacles to education for girls than for boys, improved education outcomes for girls is a policy priority for the GoN as reflected in the girl-friendly features of IMAGINE and NECS project activities. Similarly, obstacles to education may be greater for children from households with high versus low levels of poverty (proxied in our evaluation by household assets), but it is uncertain whether the NECS intervention can reduce disparities in educational outcomes for households with different levels of assets.

We also conduct detailed cost analyses to examine whether the NECS program is economically justified (question 8). The cost analyses (1) determine the per-dollar cost of the estimated impacts of the project (cost-effectiveness), (2) compare the project's potential benefits and costs in monetary terms (cost-benefit analysis), and (3) compute the project's ERR. Positive impacts from the IMAGINE and NECS projects are likely to benefit the cohorts of children

exposed to project activities for the rest of their lives. Continued enrollment in school is likely to result in future years' increased earnings for these children and their families. To assess whether investments in projects such as IMAGINE and NECS are sustainable, we must compare the cost of the interventions to potential benefits. The ERR of an intervention provides a summary statistic of the economic merit of a public investment by comparing a program's benefits and cost.

The assumption underlying the impact evaluation is that the random assignments of the IMAGINE and NECS interventions resulted in treatment and control groups that we expect to be equivalent at the time of the random assignments. Under such an assumption, we expect that villages randomly assigned to receive IMAGINE (group A) were equivalent to the IMAGINE control villages (groups B and C) at the time of the IMAGINE random assignment in 2008. Similarly, we expect that villages in groups B and C were equivalent to one another at the time of the second random assignment in 2012, but we do not expect groups B and C to be equivalent to group A in 2012 because of the impact of the IMAGINE program on group A. As a result, any differences in outcomes that we observe in the follow-up between groups A and C and between groups B and C may be attributed to the effect of the interventions.[15] Under these assumptions, comparisons of outcomes between groups A and C at follow-up provide an estimate of the combined impact of NECS and IMAGINE relative to households that received neither intervention, whereas comparisons of outcomes at follow-up for groups B and C provide an estimate of the impact of NECS alone relative to households that received neither NECS nor IMAGINE.

Given the implementation of the NECS interventions as a package in all villages, the evaluation design does not allow us to evaluate the impact of individual components of the interventions. In addition, we will not be able to differentiate between the impacts of IMAGINE and the impacts of NECS in the NECS & IMAGINE group because all of the villages that received IMAGINE also received NECS.

C. Methodology

1. Random assignment

We conducted the random assignment of NECS according to the following steps:

- **Finalize the list of villages for NECS random assignment.** The villages included in the NECS evaluation are the same 204 villages across 20 communes that the MEP identified as eligible for the original IMAGINE project. Drawing on Plan International's data, we identified the 62 villages that were the recipients of an IMAGINE school in each commune and removed them from consideration for NECS random assignment.[16] All of these 62 villages were assigned to

[15] Given that the MEP purposefully identified eligible villages according to certain criteria, such villages are not necessarily comparable to other villages in Niger.

[16] We identified the villages based on their actual IMAGINE status (whether an IMAGINE school was constructed) rather than on their original IMAGINE random assignment status because USAID wanted to ensure that all actual IMAGINE villages received NECS. Ideally, we would have preferred to identify these villages according to their IMAGINE random assignment status because random assignment guarantees group equivalence. In practice, the difference affected categorization of 13 of the 204 villages and has some implications for the analysis, as discussed in Section V.D.

receive NECS and form group A for the evaluation (NECS & IMAGINE). We included the remaining 142 villages, which are spread across all 20 communes, in the random assignment process that determined groups B (NECS-only) and C (control).

- **Allocate the number of NECS-only villages across communes.** To allocate eligible villages to the NECS intervention, we had to satisfy several criteria. First, we had to ensure that the total number of NECS villages (NECS & IMAGINE and NECS-only) met the implementation targets of Plan International and Aide et Action—78 villages in the 11 Plan International communes and 72 villages in the 9 Aide et Action communes. Second, per the MEP's request, we wanted to ensure actual and perceived fairness in the allocations across communes. Third, we needed to protect against attrition by ensuring that our proposed allocation included at least 2 villages in each commune assigned to each of the treatment and control groups.[17]

  To meet all of the criteria, we allocated the 88 NECS-only villages across the communes by using the overall fraction of villages to be allocated to the treatment group for each implementing partner. We allocated 42 of the 74 eligible villages (57 percent) in the 11 Plan International communes to the NECS intervention. We carried out a similar allocation for the Aide et Action communes, allocating 68 percent of villages eligible for random assignment to receive NECS in each Aide et Action commune. We also made minor adjustments to the final allocations to ensure that the totals were correct after rounding and that we attained the minimum of 2 villages in each treatment and control group in each commune. In Table IV.2, we present the final allocation.

- **Conduct random assignment.** We conducted random assignment at a public meeting in Niamey in November 2012. All key stakeholders, including MEP representatives and implementing partners, attended the meeting. For each commune, we listed on an individual sheet of paper the name of each village eligible for random assignment and then randomly drew the names of villages out of a bag. The first villages drawn in each commune were assigned to receive NECS up to the total number of NECS villages allocated to that commune (Table IV.2).

[17] If we had (for example) only one control village in a commune and, for some reason, were unable to collect data in that village, we excluded the entire commune from any comparisons involving the control group. The reason is that the design relies on within-commune assignment, and there would be no control village in that commune.

Table IV.2. Allocation of villages to evaluation groups by commune

Region	Commune ID	NECS & IMAGINE villages	NECS-only villages	Control villages	Total villages	Implementing partner
Agadez	1	2	2	6	10	Plan International
Diffa	2	2	5	3	10	Aide et Action
Dosso	3	2	5	3	10	Plan International
	19	2	5	3	10	Plan International
Maradi	4	2	6	2	10	Aide et Action
	5	2	7	3	12	Aide et Action
	6	2	7	3	12	Aide et Action
	7	2	5	3	10	Aide et Action
Tahoua	8	2	5	3	10	Plan International
	9	2	5	3	10	Plan International
	10	2	5	3	10	Plan International
	11	2	5	3	10	Plan International
Tillaberi	12	6	2	2	10	Plan International
	13	5	3	2	10	Plan International
	14	6	2	2	10	Plan International
	15	5	3	2	10	Plan International
Zinder	20	3	5	2	10	Aide et Action
	18	2	6	2	10	Aide et Action
	16	6	2	2	10	Aide et Action
	17	5	3	2	10	Aide et Action
Total		**62**	**88**	**54**	**204**	

- **Make adjustments to the final list.** After random assignment, we had to drop from the NECS project one of the 88 villages assigned to the NECS-only group (in commune number 1) because of logistical and security reasons. We replaced it with a village from outside the original list of eligible villages (in commune number 12). We do not include either the original or the replacement village in the evaluation, although we collected data in the replacement village for monitoring purposes.

2. Impact estimation strategy

As is consistent with our random assignment design, we adopt an estimation strategy that uses a regression framework to compare the mean outcomes of the evaluation groups at follow-up. We estimate the impact of the combined IMAGINE and NECS projects (research question 3) by using the following ordinary least squares model (OLS) for NECS & IMAGINE (group A) and control villages (group C):

$$Y_{ihjk,post} = \alpha + \beta IMAGINE_NECS_j + \delta_k + \varepsilon_{ihjk}, \qquad (1)$$

where $Y_{ihj,post}$ is the outcome for child i in household h in village j in commune k at the 2016 follow-up; $IMAGINE_NECS_j$ is a binary indicator that is 1 if village j is in NECS & IMAGINE group and 0 if it is in the control group; δ_k is a vector of binary indicators, one for each commune k; and ε_{ihjk} is a random error term. The parameter of interest in equation (1) is β, which gives the estimated average impact of the combined IMAGINE and NECS projects on the outcomes of

interest. Because NECS & IMAGINE villages have already experienced three years of IMAGINE at the start of the NECS program, the parameter β should be interpreted as the impact of three years of IMAGINE alone, plus two years of IMAGINE combined with the package of NECS interventions.

We account for the fact that outcomes among individuals and households in the same village (the level of random assignment) are likely to be correlated by clustering the standard errors at the village level for regressions at the child or household levels. For regressions at the village or school level we use standard errors that are robust to heteroscedasticity. In addition, because the fraction of NECS & IMAGINE and control villages varies by commune, treatment status may be correlated with commune, which could result in biased estimates. As a result, we weight villages in our analyses by the inverse of their probability of selection.

We estimate the impact of the package of NECS interventions alone (research question 2) by using the following OLS model for NECS-only (group B) and control villages (group C):

$$Y_{ihjk,post} = \alpha + \beta NECS_j + \delta_k + \pi A_{jk,pre} + \varepsilon_{ihjk} \qquad (2)$$

Equation (2) is almost identical to equation (1), with two main differences. First, the treatment variable is now $NECS_j$, a binary indicator that is 1 if village j is in the NECS-only group and 0 if it is in the control group. Second, the model controls for average baseline school enrollment in village j, $A_{jk,pre}$, in order to account for baseline differences in enrollment between the NECS-only and control groups. The parameter of interest in equation (2) is again β, which gives the estimated average impact of the package of NECS interventions on the outcome of interest (research question 2).

We include the village-level average of enrollment in equation (2) to control for differences in enrollment between the NECS-only and control villages in Wave 1 (discussed in more detail in Section IV.G) and is the main reason that we estimate the combined impacts of NECS and IMAGINE and the impacts of NECS-only in separate models rather than in a single model.[18] It is not appropriate to control for enrollment in 2013 measured during Wave 1 in the comparison of the NECS & IMAGINE and control groups in equation (1) under the random assignment design. The two groups in that model are equivalent only at the original IMAGINE randomization in 2008. The true enrollment average for the model in equation (1) would be outcomes collected before 2008, but it was not feasible to collect data before 2008. Therefore, we must separately estimate the combined impacts of NECS and IMAGINE and the impacts of NECS-only if we want to include the NECS baseline enrollment average as a control in the analysis.

3. Estimating impacts for in-school children

The analyses described above are designed to provide "intent to treat" (ITT) estimates of the impacts of the interventions, that is, the average impact of the interventions on the full sample of children regardless of their subsequent schooling decisions. This design provides measures of the impact of the intervention on measures such as attendance and test scores that are not biased by

[18] We also estimated the impacts of the NECS-only intervention without baseline enrollment, and our conclusions are unchanged. Results available upon request.

the decision whether to enroll in school or to attend school once enrolled. However because a main component of the NECS program focuses on school-based learning (particularly the early-grade reading component in grades 1 and 2), it is reasonable to expect that most of the NECS impacts on learning are concentrated among children enrolled in school (or "in-school children"). NECS partners have therefore expressed a strong interest in estimating the impacts on learning for the sample of in-school children in early grades. However, such estimates are problematic because of the potential for selection bias. The estimates could over- or understate the true effect of the program because other aspects of the intervention may induce systematic differences across research groups in the characteristics of children who enroll in or stay in school. For example, if the program encourages children from more disadvantaged backgrounds to enroll in school, then the results might take the form of lower scores, which would decrease the resulting impact estimates and dampen our estimate of the program's true effect. Therefore, even though we could conduct additional analyses in which we restrict the estimates in equations (1) and (2) to the sample of in-school children, we would have to interpret the estimates with caution because of the potential for bias associated with selection into enrollment.

An alternative approach to obtaining unbiased estimates for the sample of in-school children is to adjust the estimates from equations (1) and (2) based on the enrollment rate in treatment villages (NECS-only or NECS & IMAGINE). For example, if the enrollment rate in treatment villages is 80 percentage points, we could use a Bloom adjustment (Bloom 1984) to divide the impact estimates by 0.8, effectively inflating the estimates by 25 percent.[19] The major assumption underlying the adjustment is that the impact on learning for out-of-school children in treatment communities is zero, which may be plausible given NECS's and IMAGINE's school focus.[20] If the assumption holds, the "treatment on the treated" (ToT) estimates may be interpreted as the impact of enrollment in an NECS school on all children who experience the in-school NECS program. Crucially, valid ToT estimates still require village-level ITT estimates from equations (1) and (2) to perform the Bloom adjustment.

4. Comparing the estimated impact of intervention groups

We compare the results of equation (1) and (2) by simultaneously estimating the two equations and directly comparing the estimated impact of each intervention.[21]

[19] In terms of regression models, an instrumental variables (IV) approach (Imbens and Angrist 1994) may also be used. This approach regresses the learning outcome on an indicator for enrollment in a treatment school, with village treatment status used as an "instrument" to adjust for any selection bias.

[20] NECS might still produce impacts on the test scores of out-of-school children despite the school-based focus of the reading component. For example, positive spillovers could occur if (1) enrolled siblings share reading materials with non-enrolled siblings, (2) other components of NECS such as adult literacy training affect out-of-school children in the community, or (3) a child not currently in school enrolls and benefits from the program for some period. These possible impacts should be considered as caveats with respect to the validity of the adjusted estimates.

[21] In order to test hypotheses across more than one equation, we must first determine the covariance of the estimated coefficients in each of the equations. We do this by simultaneously estimating the two models using the "suest" (or seemingly unrelated estimation) command in Stata. This command combines the parameters and variance/covariance matrix that we estimate for each equation and provides a single variance/covariance matrix for the two equations together. In order to include the probability weights from our preferred specification, we manually adjusted all measures included in the models by our preferred weights, which required suppressing the constant in each regression. Unfortunately, because of an underlying issue with the "suest" command, estimating models with

In addition, as an alternative robustness test, we estimate the following OLS model by pooling the NECS & IMAGINE (group A), NECS-only (group B), and control villages (group C):

$$Y_{ihjk,post} = \alpha + \beta_1 IMAGINE_NECS_j + \beta_2 NECS_j + \delta_k + \pi A_{jk,pre} + \varepsilon_{ihjk} \quad (3)$$

The model is similar to equations (1) and (2) however it includes two sets of treatment measures: *IMAGINE_NECS$_j$*, a binary indicator that is 1 if village *j* is in the NECS & IMAGINE group and 0 if it is in the NECS-only or control group; and *NECS$_j$*, a binary indicator that is 1 if village *j* is in the NECS-only group and 0 if it is in either the NECS & IMAGINE or control group. Like equation (2), the model controls for average baseline school enrollment in village *j*, *A$_{jk,pre}$*, thereby accounting for baseline differences in enrollment between the NECS-only and control groups. Because the true baseline school enrollment for the NECS & IMAGINE villages is not available, *A$_{jk,pre}$* is set to the average value of the measure in the NECS-only and control groups. As with equations (1) and (2), we cluster the standard errors at the village level and include the appropriate weights for each analysis. In equation (3), β_1 and β_2, respectively, provide the impact estimates for NECS & IMAGINE and NECS-only that are roughly equivalent to the impact estimates, β, from equations (1) and (2). Finally, we compare the estimated impacts of the NECS & IMAGINE and NECS-only groups by performing pair-wise comparisons of the estimated values of β_1 and β_2.

D. Additional analyses

In addition to the impact estimates described above, we conduct the following analyses:

Estimate impacts for subgroups. We evaluate whether there is variation in the estimated impacts across subgroups. Subgroups of interest include those defined by gender and by household asset levels (research questions 6 and 7). We also explore variation in impacts by other subgroups of interest, such as those defined by the age of or highest grade attained by the child. The impacts for a particular subgroup are evaluated by including appropriate interaction terms in equations (1) and (2) above:

$$Y_{ihjkg,post} = \alpha + \beta_1 IMAGINE_NECS_j + \beta_2 SUBGROUP_g + \beta_3 SUBGROUP_g * IMAGINE_NECS_j + \delta_k + \varepsilon_{ihjk} \quad (4)$$

$$Y_{ihjkg,post} = \alpha + \beta_1 NECS_j + \beta_2 SUBGROUP_g + \beta_3 SUBGROUP_g * NECS_j + \delta_k + \pi A_{jk,pre} + \varepsilon_{ihjk} \quad (5)$$

To assess whether the impact of the project was different for girls than boys, or for poor households compared to less-poor households, we estimate a similar regression to that which is described in equations (1) and (2) above, but add a subgroup indicator variable, *SUBGROUP$_g$*, and an interaction between the subgroup and treatment indicators as explanatory variables in

suppressed constants results in standard errors that are slightly different from the standard errors that are estimated separately. The differences are extremely small and have no effect on the magnitude of the estimated impacts, so we believe that the differences have no meaningful impact on the significance of the estimated differences that we present in the report.

equations (4) and (5). In both equations, the coefficient on the interaction variable (β_3) represents the difference in impacts between one subgroup and another. So, for gender, the coefficient β_3 in equation (4) represents the difference in impacts of NECS & IMAGINE on girls and boys. Similarly, in equation (5) the coefficient β_3 represents the difference in impacts of NECS-only on girls and boys.

- **Evaluate the sustainability of the IMAGINE infrastructure.** We evaluate whether the infrastructure constructed under the IMAGINE project has been sustained six years after the program's conclusion by first comparing the infrastructure in the IMAGINE treatment group (group A) in 2016 to the infrastructure measured in 2013 in the long-term IMAGINE evaluation and then comparing the 2016 infrastructure in the IMAGINE treatment group, the NECS-only group (group B), and the NECS control group (group C). We conduct the second set of analyses by using regression models analogous to equations (1) and (2).

E. Sensitivity checks

We also conduct several analyses to test the sensitivity of our findings:

- **Account for differences between IMAGINE assignment status and actual IMAGINE status.** During the IMAGINE project, 13 villages in five communes did not adhere to the IMAGINE random assignment. Eight villages assigned to the IMAGINE treatment did not construct an IMAGINE school, and an IMAGINE school was constructed in 2 control villages and in 3 villages that did not meet the eligibility criteria for IMAGINE random assignment.

  The difference between IMAGINE assignment status and actual IMAGINE status affected the roster of villages included in the NECS evaluation. We identified the villages eligible for NECS random assignment based on their actual IMAGINE status rather than on their original IMAGINE assignment status, thus ensuring compatibility with implementation plans. We are concerned that the movement of villages across research groups after we carried out IMAGINE random assignment may have disrupted the baseline equivalence of the original IMAGINE treatment and control groups that provide the basis for the estimates of the combined impacts of IMAGINE and NECS (i.e., comparisons between groups A and C).[22]

  To address this concern, we investigate the sensitivity of our combined NECS and IMAGINE impact estimates to the exclusion of the villages that violated IMAGINE random assignment.[23] If the estimates differ substantively from those for the full sample, we will prioritize the former because the assumptions underlying the random assignment

[22] This is not an issue for the comparison of groups B and C—the NECS-only estimates—because the equivalence of the groups relies only on the new round of NECS random assignment.

[23] The results may be interpreted as the combined impact of NECS and IMAGINE with sample attrition of the villages in groups A and C that violated IMAGINE random assignment. The number of dropped villages —five in group A and three in group C—falls well within the acceptable limits for the equivalence between treatment and control groups to be maintained in a random assignment design. For example, the number is within the limits specified by the research standards of the U.S. Department of Education's What Works Clearinghouse for random assignment designs.

design are more likely to be satisfied. In total, we exclude 9 NECS & IMAGINE villages (15 percent of total), 10 NECS-only villages (12 percent of total), and 9 control villages (18 percent of total).

- **Account for bilingual schools.** The Unité de Coordination des Programmes du Millennium Challenge (UC-PMC) in Niger has expressed concern that approximately five of the villages in the NECS evaluation are the home to bilingual schools in which early-grade instruction in local languages is the norm. Because local-language/early-grade reading is a major component of the NECS program, comparisons of bilingual and non-bilingual schools may not be appropriate. We therefore explore the sensitivity of our results to excluding from the analysis the approximately five villages with bilingual schools.[24] In total, we exclude 1 NECS & IMAGINE village (2 percent of total), 1 NECS-only village (1 percent of total), and 3 control villages (6 percent of total).
- **Accounting for schools on strike.** The 2015–2016 school year accounted for several school disruptions, including repeated teacher strikes. The NECS team estimated that schools were closed for approximately 60 days. Some schools were closed at the time of data collection. Recognizing that significant school closures could have compromised NECS activities, we conduct additional analyses on our primary child outcomes, excluding schools that were on strike at the time of data collection.[25] In total, we exclude 12 NECS & IMAGINE villages (20 percent of total), 21 NECS-only villages (26 percent of total), and 9 control villages (18 percent of total).

F. Sampling strategy and power calculations

1. Sampling

Our sampling strategy calls for a representative sample of school-age children in every village in the sample, including both in-school and out-of-school children. We randomly sampled eligible households with school-age children (age 6 through 12) in each community and selected all school-age children within those households.[26] In Table IV.3, we provide an overview of the sample household and child characteristics.

Overall, household characteristics are consistent with the households in our Wave 1 NECS 2013 data collection. The average household size is 7.4 persons. Nearly all households have floors made of natural material (usually dirt) and basic roofing material. In terms of asset ownership, 47 percent own a radio, and 56 percent own a telephone—for an increase of about 5 percentage points from Wave 1. Among household heads, 7.4 percent are female and 15.1 percent have completed primary school. Of the children in the sample, 47.6 percent are female, and the average age is 8.8 years.

[24] We capture bilingual status using a list of bilingual schools provided by UC-PMC at the start of NECS.

[25] We do not have a master list of schools that were on strike during the school year. We determine the strike schools to be those that were closed at the time of data collection or that were marked as fully or partially on strike in the school register data. Both measures are based on the data collectors' reports.

[26] During Wave 1, we collected data on children age 5 through 14. For Wave 2, we restricted our sample to children age 6 through 12 because those children were the most likely to have participated in NECS project activities.

Table IV.3. Summary of household and child characteristics

	Full sample
Household	
Household size	7.4
Floor made mainly out of (percentage):	
Natural material	97.1
Rudimentary material	1.5
Finished material	1.4
Roof made mainly out of (percentage):	
Natural material	24.2
Rudimentary material	72.1
Finished material	3.7
Assets (percentage):	
Radio	47.2
Telephone—mobile or fixed	56.0
Watch	21.5
Bicycle	8.7
Animal-drawn cart	38.4
Cattle	42.9
Camels	1.9
Household head	
Female (percentage)	7.4
Average age	45.9
Completed primary school (percentage)	15.1
Completed secondary school (percentage)	6.7
Children	
Female (percentage)	47.6
Average age	8.8
Sample size (children)	**13,186**
Sample size (households)	**7,513**
Sample size (villages)	**192**

Source: NECS Wave 2 data collection, May and June 2016, household survey.

Note: Mean values are unadjusted and do not account for clustering within villages. Sample sizes are for the full sample; some outcomes may include a smaller size because of missing data.

2. Power calculations

To determine the size of the effects that we will be able to detect with our projected sample size, we computed minimum detectable impacts (MDI)—the smallest impacts that our design will be able to statistically distinguish from zero. MDIs depend critically on sample size (both the number of villages and the number of respondents within each village), on assumptions about key parameters (such as the intracluster correlation coefficient and the regression R-squared), on the power with which we would like to detect effects (typically 80 percent), and on the variance of the outcome (which, for binary outcomes, depends crucially on the baseline level of the outcome). In Table IV.3, we show the MDIs for several outcomes of interest. To the extent possible, we use parameter estimates obtained from the IMAGINE evaluation to calculate the MDIs.

Table IV.4. Minimum detectable impacts for NECS evaluation design

	Number of villages (number of children)		Minimum detectable impacts (percentage of baseline mean)		
	Treatment group	Control group	Enrollment (percentage points)	Attendance (percentage points)	Test scores (standard deviations)
NECS & IMAGINE					
Research group	A	C			
Full sample	60	51	7.9	8.1	0.16
	(4,200)	(3,570)	(13.5%)	(16.7%)	
Subgroup (50 percent)	60	51	8.4	8.6	0.17
	(2,100)	(1,785)	(14.3%)	(17.7%)	
Subgroup (20 percent)	60	51	9.8	9.9	0.20
	(840)	(714)	(16.6%)	(20.5%)	
NECS-only					
Research group	B	C			
Full sample	82	51	7.3	7.3	0.15
	(5,740)	(3,570)	(13.3%)	(14.1%)	
Subgroup (50 percent)	82	51	7.7	7.7	0.15
	(2,870)	(1,785)	(14.1%)	(14.9%)	
Subgroup (20 percent)	82	51	8.9	8.9	8
	(1,148)	(714)	(16.2%)	(17.2%)	

Source: Authors' calculations using data from the IMAGINE and NECS evaluations to estimate key parameters where possible.

Note: MDIs are for a two-tailed test with 80 percent power and 95 percent level of significance, computed with the following formula:

$$MDI = 2.8 * \sqrt{\rho(1-R_v^2) * \left(\frac{1}{N_T} + \frac{1}{N_C}\right) + (1-\rho)(1-R_i^2) * \left(\frac{1}{rnN_T} + \frac{1}{rnN_C}\right)} * \sqrt{\sigma^2},$$

where ρ is the intracluster correlation coefficient (assumed to be 0.1 to 0.15 for test scores and other outcomes based on IMAGINE and NECS Wave 1 data); R^2_v and R^2_i are the regression R-squared values that indicate the amount of variation explained by controls at the village and individual levels, respectively (both assumed to be 0.1 for the impact of NECS & IMAGINE, 0.2 for the impact of NECS-only); N_T and N_C are the village sample sizes for the treatment and control groups; n is the child sample size per village (100 with an assumed 40 households and 1.5 to 2.5 eligible children per household depending on the sample of villages based on IMAGINE and NECS data); and r is the survey response rate (assumed to be 100 percent based on the IMAGINE data). The term σ^2 is the variation in the outcome, which is 1 for normalized test scores and equal to $p(1-p)$ for a binary outcome with baseline rate p (assumed to be 55 to 59 percentage points for enrollment and 48 to 52 percentage points for attendance based on NECS data for control villages for the NECS analyses).

The MDIs for the combined impacts of NECS and IMAGINE on the enrollment and attendance rates are, respectively, 7.9 and 8.1 percentage points (or, respectively, 13.5 and 16.7 percent of the expected baseline means). These MDIs suggests that we can detect only relatively large impacts on enrollment and attendance outcomes. However, in the case of test scores, we can normalize scores by age and make use of the full sample and therefore detect an impact of approximately 0.16 standard deviations, which falls within the range of test score impacts typically expected for a relatively successful educational intervention.

We expect the MDIs for the impact of NECS-only to be lower than the MDIs for the combined impacts of NECS and IMAGINE because the number of villages contributing to the

NECS-only estimates is larger than the number of villages contributing to the combined NECS and IMAGINE estimates. However, the MDIs for NECS-only may be higher. Owing to insecurity in the region, we were unable to collect Wave 2 data in the villages located in the Diffa region, thereby reducing the control group sample by three villages, the NECS & IMAGINE sample by two villages, and the NECS-only sample by five villages.[27] Therefore, the MDIs for the impact of NECS-only are 7.3 percentage points (13.3 percent of the mean) for enrollment and 7.3 percentage points (14.1 percent of the mean) for attendance. For test scores, the MDI is approximately 0.15 standard deviations, which again is smaller than the corresponding MDI for NECS & IMAGINE. The MDIs for the ITT estimates of long-term evaluation of IMAGINE are of similar magnitude.

As discussed, we are interested in analyzing impacts on several subgroups—for example, those defined by gender and various levels of household assets. Although the individual sample sizes for the subgroup analyses will be smaller than the full sample, we expect the power for the analyses to be only slightly lower because the correlation of outcomes within villages implies that the number of villages—not the number of individuals—is critical in determining power (Table IV.4).[28] For example, for a subgroup comprising one half of the full sample (such as girls), the MDIs are only about 5 to 6 percent higher than for the full sample. For a smaller subgroup comprising one-fifth of the full sample (such as children between age 6 and 7 at end-line), the MDIs are about 20 to 22 percent higher than for the full sample.

G. Assessing the evaluation design

1. Similarity of study groups

Mathematica conducted an evaluation of village, household, and child characteristics as well as of child educational outcomes in NECS-only and NECS control villages in Wave 1 (Bagby et al. 2015). A selection of the characteristics that we evaluated are presented in Table IV.5. We found that NECS-only and control groups were equivalent on most baseline measures, although we did find some small differences in a few baseline school and household characteristics and child outcomes. Schools in the control village were more likely to be bilingual and to have separate toilets for boys and girls than schools in NECS-only villages, and households in the control villages appeared to have more durable walls and roofs than households in NECS-only villages. We also found statistically significant differences in baseline school enrollment and absenteeism between children in the study groups, but not in children's baseline test scores. We explored the potential reasons for the small differences observed in the data, including early intervention effects and lack of adherence to random assignment. Our findings suggest that the differences were likely attributable to chance, and as discussed before, we control for baseline village-level enrollment in all of our impact analyses of the NECS-only group.

[27] One additional control group village in the Agadez region was not visited during Wave 2 data collection due to insecurity. This village is included in the power calculations but not in any of the tables presenting Wave 2 results.

[28] The fact that the samples of villages are not balanced across groups does not greatly affect the size of our MDIs and poses no threat to the validity of our results.

Table IV.5. Comparison of village, school, household, and child characteristics among study groups at NECS baseline (2013)

	Means		Significance of difference between means
	NECS-only group	Control group	
Village population and demographics			
Number of eligible households in village	115.8	105.7	
Percent of households in village with school-age children	71.8	71.8	
Sample schools			
School is bilingual (%)	26.5	9.6	**
Outside programs in community (%)	36.0	25.0	
Number of classrooms	5.4	5.2	
Percent of schools with:			
Potable water source present	19.6	23.1	
Toilet facilities present	49.9	34.6	*
Separate toilets for boys and girls	40.7	20.8	***
Teacher lodging -- females only	0.9	1.9	
Household			
Roof made mainly out of (%):			
Natural material	34.1	32.1	
Rudimentary material	64.1	59.0	*
Finished material	2.3	8.0	***
Dwelling walls made mainly out of (%):			
Natural material	67.1	66.9	
Rudimentary material	26.3	21.7	*
Finished material	1.2	3.6	***
Assets (%):			
Radio	47.1	46.7	
Telephone -- mobile or fixed	53.6	51.7	
Watch	30.8	29.4	
Bicycle	11.5	10.8	
Animal-drawn cart	29.1	31.9	
Cattle	35.4	34.3	
Camels	2.5	3.2	
Household head			
Completed schooling (%):			
Primary school	20.7	22.2	
Secondary school	7.1	8.4	
Madrassa school	0.3	0.2	
Literate (%)	29.6	30.4	
Primary child measures			
Enrolled during previous school year (SY 2012-2013) (%)	53.8	58.8	**
Absent more than 2 consecutive weeks during previous school year (SY 2012-2013) (%)	52.0	48.3	*
French score - normalized (standard deviations)	0.0	0.0	
Local language score - normalized (standard deviations)	0.0	0.0	
Test for joint significance of primary child measures			
F-statistic		1.8	
p-value		0.11	
Sample size (villages)	**87**	**54**	
Sample size (schools)	**87**	**54**	
Sample size (households)	**3,342**	**2,049**	
Sample size (children)	**7,464**	**4,480**	

Source: Bagby et al. 2015.

Note: We tested differences between group means using two-tailed t-tests. Treatment group means are regression-adjusted, including commune fixed effects and village-level weights. Control group means include village-level weights. Village and school-level regressions use standard errors that are robust to heteroscedasticity. Household and child-level regressions account for clustering within villages.

***/**/* Difference is statistically significant at the .01/.05/.10 level.

Table IV.6. Comparison of village characteristics among study groups

	Means			Differences	
	NECS & IMAGINE group	NECS-only group	Control group	NECS & IMAGINE versus control	NECS-only versus control
Village population and demographics					
Number of eligible households in village	106.5	109.0	103.1	3.4	6.0
Number of households in village	139.1	144.9	135.5	3.5	9.3
Number of school-age (age 6–12) children in village	228.3	239.1	228.2	0.1	10.9
Number of school-age (age 6–12) girls	113.1	115.4	111.6	1.6	3.9
Number of school-age (age 6–12) boys	115.1	123.7	116.6	-1.5	7.0
Percentage of households in village with:					
School-age children	76.9	74.4	76.2	0.7	-1.8
School-age girls	54.5	52.7	53.3	1.2	-0.5
School-age boys	53.9	54.5	54.1	-0.2	0.3
Female head of household	6.4	6.4	5.9	0.5	0.5
Sample population and demographics					
Number of households	39.9	39.8	38.5	1.4*	1.3
Number of school-age (age 6–12) children	69.5	69.8	66.9	2.6	2.9
Number of school-age (age 6–12) girls	33.6	32.7	31.9	1.7	0.8
Number of school-age (age 6–12) boys	35.9	37.1	34.5	1.0	2.1
Percentage of households with:					
Girls age 6–12	62.9	61.5	62.2	0.7	-0.8
Boys age 6–12	65.4	66.9	66.4	-1.3	0.4
Percentage of households speaking:					
Hausa	66.6	65.6	65.5	1.1	0.0
Zarma	20.9	24.1	22.7	-1.8	1.4
Kanuri	7.7	8.8	6.9	0.8	1.9
Other local language 1	3.7	1.9	0.8	2.8	1.0
Other local language 2	0.7	-0.7	3.6	-2.9*	-4.3**
Sample size (villages)	**60**	**82**	**50**		

Source: NECS Wave 2 data collection, May and June 2016, village census and household survey.

Note: We tested differences between group means by using two-tailed t-tests. Treatment group means are regression-adjusted, including commune fixed effects and village-level weights. The NECS-only group mean includes a control for village-level enrollment at baseline. Control group means include village-level weights. Regressions use standard errors that are robust to heteroscedasticity.

***/**/* Difference is statistically significant at the .01/.05/.10 level.

We next use the Wave 2 data to compare the village, school, household, and child characteristics among all three study groups. Given that IMAGINE or NECS is unlikely to affect these characteristics, we expect to find that the groups are similar across the various measures. We find that the sample is balanced on village characteristics across the three study arms (Table

IV.6). We note only two significant differences (both at the 10 percent level) across 40 comparisons (5 percent of comparisons), a finding that is well within the range of what we would expect to find by chance.

We do find a few statistically significant differences in school characteristics among study groups (Table IV.7). NECS-only schools opened, on average, in 1987, about five years earlier than control group schools, and the difference is significant at the 5 percent level. In addition, we find that both NECS & IMAGINE and NECS-only schools are more likely than control groups to rely on outside programming, even when excluding NECS and IMAGINE programs and Plan Niger or Aide et Action programs. The results seem to reflect the large number of UNICEF and French Development Agency projects in NECS & IMAGINE schools and the large number of Project Luxembourg projects in NECS-only schools, supporting what we learned from USAID during NECS implementation: that the NECS project was able to crowd in sources of funding from other donors.

Table IV.7. Comparison of school characteristics among study groups

	Means			Differences	
	NECS & IMAGINE group	NECS-only group	Control group	NECS & IMAGINE versus control	NECS-only versus control
School characteristics					
Year school opened	1995	1987	1992	2.51	-5.40**
School changed location (percentage)	29.0	20.9	16.0	12.9	4.8
School has outside programming (excluding NECS or IMAGINE) (percentage)	22.6	18.7	5.6	17.0***	13.1**
UNICEF	12.5	0.0	0.0	12.5***	0.0
World Vision	2.2	0.0	0.0	2.2	0.0
Project Luxembourg— development	2.2	4.8	0.0	2.2	4.8*
French Development Agency	8.3	0.8	0.0	8.3**	0.8
Cooperation Suisse	-0.7	0.8	3.6	-4.4*	-2.9*
Japan International Cooperation Agency	6.0	2.1	0.0	6.0**	2.1
Concern International	0.0	0.0	0.0	0.0	0.0
School has a school feeding program (percentage)	3.3	10.0	3.9	-0.6	6.1
Teacher characteristics					
Percentage with:					
Advanced degrees	8.4	6.1	7.1	5.9	-0.9
Fewer than five years of experience	52.7	56.7	51.3	1.0	6.0
Five but fewer than 10 years of experience	23.4	24.8	23.8	0.8	1.0
Ten or more years of experience	24.3	17.1	21.4	2.1	-4.7
Sample size (schools)	**61**	**69**	**48**		

Source: NECS Wave 2 data collection, May and June 2016, school questionnaire.

Note: We tested differences between group means by using two-tailed t-tests. Treatment group means are regression-adjusted, including commune fixed effects and village-level weights. The NECS-only group mean includes a control for village-level enrollment at baseline. Control group means include village-level weights. Regressions use standard errors that are robust to heteroscedasticity.

***/**/* Difference is statistically significant at the .01/.05/.10 level.

n/a = Indicates that, because there was no variation in the outcome, regression estimates were not obtained.

At the household and child levels, our samples appear to be largely similar across study groups (Table IV.8). Within the 58 comparisons between the NECS & IMAGINE group and the control group, we find only 5 statistically significant differences. Between the NECS-only and control groups, we find 12 statistically significant differences. Households in NECS-only villages are more likely to own a bicycle, to have piped water during the rainy season, and to have a household head who speaks French. They are also less likely to have had a household member go to bed hungry in the past seven days. The differences between the NECS-only and control groups are slightly greater than what we would expect by chance and may indicate that NECS-only households are better off than control group households. However, the differences overall are small and not statistically significant in Wave 1.

Table IV.8. Comparison of household and child characteristics among study groups

	Means			Differences	
	NECS & IMAGINE group	NECS-only group	Control group	NECS & IMAGINE versus control	NECS-only versus control
Household					
Household size	7.5	7.4	7.3	0.2	0.0
Floor made mainly out of (percentage):					
Natural material	96.1	97.5	96.3	-0.3	1.2
Rudimentary material	1.9	0.6	2.3	-0.4	-1.6**
Finished material	2.1	1.9	1.4	0.7	0.5
Roof made mainly out of (percentage):					
Natural material	22.5	23.2	26.1	-3.7	-2.9
Rudimentary material	74.3	72.4	70.1	4.1	2.3
Finished material	3.3	4.4	3.7	-0.5	0.7
Dwelling walls made mainly out of (percentage):					
Natural material	75.7	76.6	75.6	0.1	1.0
Rudimentary material	20.5	20.1	21.7	-1.2	-1.5
Finished material	1.8	1.7	1.1	0.7	0.6
Assets (percentage)					
Radio	47.6	47.4	46.3	1.2	1.0
Telephone— mobile or fixed	56.5	56.8	55.4	1.2	1.4
Watch	20.8	23.6	21.2	-0.4	2.4
Bicycle	8.7	9.6	9.0	-0.4	0.6
Animal-drawn cart	38.9	39.6	37.7	1.3	2.0
Cattle	46.5	44.2	39.6	6.9***	4.6*
Camels	1.9	1.5	1.4	0.4	0.1
Main source of water during rainy season (percentage)					
Piped water	27.9	32.7	23.8	4.0	8.9**
Tube well or borehole	30.2	20.8	25.3	4.9	-4.4
Covered well	17.5	20.9	22.1	-4.6	-1.2
Traditional well	20.9	22.8	22.8	-1.9	0.0
Primary type of toilet used (percentage)					
Modern toilet	1.6	2.4	1.6	0.0	0.8
Improved latrine	6.8	7.4	7.7	-0.9	-0.3
Traditional latrine	11.2	13.2	10.7	0.5	2.5
Bush/in nature	80.4	77.0	80.0	0.3	-3.0
Average number of meals per day	2.6	2.6	2.6	0.0	0.0
Household member gone to bed hungry in previous seven days (percentage)	23.4	19.1	23.8	-0.4	-4.6**

	Means			Differences	
	NECS & IMAGINE group	NECS-only group	Control group	NECS & IMAGINE versus control	NECS-only versus control
Member of household permitted to use cell phone (if cell phone is owned) (percentage)					
Head	93.0	91.7	92.5	0.4	-0.9
Spouse	64.3	64.8	62.8	1.4	2.0
Child	23.4	20.0	21.9	1.5	-2.0
Grandchild	0.5	0.9	0.6	-0.1	0.3
Parent	2.4	2.6	1.6	0.8	1.0**
Sibling	3.5	3.8	3.5	0.0	0.3
Aunt/uncle	0.2	0.2	0.1	0.1	0.1
Niece/nephew	0.3	0.5	0.1	0.2	0.4**
Adopted/foster/step child	0.4	0.3	0.2	0.2	0.1
Not related	0.3	0.5	0.1	0.2	0.4**
Household head					
Female (percentage)	6.6	7.9	8.0	-1.4	-0.1
Average age	46.47	45.64	45.61	0.86*	0.03
Completed primary school (percentage)	15.0	17.4	14.5	0.4	2.9*
Completed secondary school (percentage)	7.1	7.1	6.6	0.5	0.5
Speaks (percentage)					
Hausa	67.0	66.6	66.6	0.5	0.1
Zarma	21.7	24.9	23.6	-1.8	1.3
Kanuri	6.7	7.2	7.1	-0.4	0.1
Other local language 1	3.7	1.5	0.7	3.0	0.8
Other local language 2	0.5	-0.4	1.7	-1.2	-2.1*
Other local languages	0.2	0.3	0.3	-0.1	0.0
Francophone (percentage)	17.8	21.4	16.6	1.2	4.8***
Children					
Female (percentage)	48.5	46.8	47.8	0.7	-1.0
Average age	8.9	8.8	8.8	0.1*	0.1
Speaks (percentage)					
Hausa	64.7	63.0	65.6	-0.9	-2.6
Zarma	23.1	26.6	24.1	-1.0	2.5
Kanuri	6.4	7.4	7.2	-0.8	0.1
Other local language 1	4.6	2.4	0.6	4.1	1.9*
Other local language 2	1.0	0.4	2.2	-1.2	-1.8
Other local languages	0.2	0.3	0.3	-0.1	0.0
Sample size (children)	**4,104**	**5,757**	**3,325**		
Sample size (households)	**2,393**	**3,203**	**1,917**		

Source: NECS Wave 2 data collection, May and June 2016, household survey.

Note: We tested differences between group means by using two-tailed t-tests. Treatment group means are regression-adjusted, including commune fixed effects and village-level weights. The NECS-only group mean includes a control for village-level enrollment at baseline. Control group means include village-level weights. Regressions account for clustering within villages. Sample sizes shown are for the full sample; some regressions may include a smaller size because of missing data.

***/**/* Difference is statistically significant at the .01/.05/.10 level.

2. Generalizability of results

The GoN selected the villages to be included in the evaluation and did not intend the sample to be representative of all villages in Niger. However, descriptive statistics compared at baseline suggest that the households in the sample may be similar to rural households in all of Niger on

the basis of asset ownership and household facilities. Even so, the evaluation results may not reflect the activities that take place in any rural school in Niger and therefore should be interpreted accordingly.

H. Wave 2 data collection strategy

In this section, we describe (1) the 2016 NECS Wave 2 data collection effort, (2) the instruments used in data collection, and (3) the data cleaning process.

1. Data collection training and process

Mathematica oversaw the collection of data from rural households and schools in conjunction with our local partner, the Centre International d'Etudes et de Recherches sur Les Populations Africaines (CIERPA), a professional data collection firm located in Niger.

To conduct the 2016 Wave 2 data collection, CIERPA conducted an extensive interviewer training session that covered the village census, random selection of eligible households, basic interviewing procedures, and a review of each question in the questionnaires. The school and household questionnaires were written in French; however, French is rarely spoken in rural villages. Therefore, local interviewers from diverse ethnic and linguistic backgrounds in Niger who are fluent in both French and the local dialects used the French questionnaire to pose the questions in the correct dialect of the local language (using the appropriate words and idioms for the given village). Many of the interviewers who were part of the 2016 Wave 2 also participated in the NECS Wave 1 or EGRA data collection. CIERPA paired interviewers according to their local languages and interview experience (veteran interviewers were matched with new team members in order to provide extra guidance).

Mathematica and CIERPA worked closely together to prepare for each round of data collection. For each round of data collection, Mathematica participated for the full duration of all training sessions, including the observation of field practice in neighborhoods and schools located near the training site. All interviewers took an inter-rater reliability test of the child reading assessments. Interviewers who scored below average had the opportunity to retake the test. If they failed to meet the threshold a second time, they were dropped from the interviewer list. After training, the data collection team retained 44 interviewers to collect village, household, child, and school data. Interviewers were split into teams of 3 interviewers led by an experienced field supervisor and included both male and female interviewers. The teams were assigned to a region and conducted interviews concurrently throughout the country. Before data collection, Mathematica obtained approval from the GoN to conduct the survey in sample villages and approval from a United States–based Institutional Review Board for the data collection plan and instrumentation.[29]

The household survey sample was selected in the field. CIERPA interviewers visited all 204 villages for the NECS study. Upon arriving in a village, interviewers conducted a census of all households in the village and then used the census (1) to identify the households eligible for the sample as well as the associated school-age children (ages 6 through 12) and (2) to obtain the village's population characteristics. Using their census information, CIERPA interviewers then

[29] Western Institutional Review Board (http://www.wirb.com/).

randomly selected 40 eligible households from the village for the sample. In villages with fewer than 40 eligible households, the interviewers selected all eligible households for the sample. The census form appears in Appendix A. To allow the greatest length of time for the delivery of project activities, the NECS 2016 Wave 2 data collection took place in May through June 2016, at the end of the school year in the final year of the project, approximately two and a half years after the start of NECS project activities in schools. We believe that it is reasonable to see impacts on teachers and students within such a period. In addition, conducting the child assessments at the end of the school year allows students to benefit from a full year of instruction in the local-language reading curriculum.

2. Instruments

Mathematica developed two questionnaires for follow-up data collection: a school questionnaire and a household questionnaire, which included questions directed towards the parents as well as children, including assessments of reading in local language and French and of math skills.

a. Questionnaire design

Mathematica designed the school questionnaire to gather information about the schools attended by the children in each village.[30] The school questionnaire also includes a module to collect data from each school's student register to verify the enrollment and attendance of each child identified in the household questionnaire. A full version of the school questionnaire appears in Appendix B. The school questionnaire consists of the following modules:

School characteristics. The module collects general information about the characteristics of the school, such as whether the school is public, private, or a madrassa; the year the school was established; the languages of instruction; enrollment by gender and grade for the 2014–2015 and 2015–2016 school years; advancement rates from grade 2 to grade 3; student attendance on the day of data collection (by gender and grade); the number of days that the school was open; various programs and materials offered by the school; and questions about the reading curriculum.

School physical structure. The module collects information about the school's infrastructure, such as the number of classrooms; the number of classrooms that are usable on rainy days; the availability of seats and desks; the availability of blackboards; and the availability of cupboards, tables, and chairs for teachers. In addition, interviewers inquired about the type of water supply and latrines available at the school; maintenance performed on school infrastructure; and the existence of a preschool, a playground, or teacher housing. The school respondent also reports on his or her level of satisfaction with the existing infrastructure.

School personnel structure. In this module, interviewers collected information about the teachers at the school, including their number, gender, level of experience, number of absences, and amount of training. The module also asks about student governments, school

[30] Interviewers visited up to three public schools attended by children in each village within a 10-kilometer area.

management committees, parent/teacher associations, mentorship programs, teacher training and inspections.

School register. For each school, the module verifies the enrollment status and attendance of children identified in the household survey. Using the official school register, interviewers verified each child's enrollment status, grade, number of absences during the last seven days that the school was open, and the number of days the child was absent per month since the start of the 2015–2016 school year. In addition, interviewers directly observed whether each child was in the classroom on the day of the school visit.

The household questionnaire includes questions related to the characteristics and opinions of the household and school-age children residing in the household as well as assessments of the reading and mathematics ability of all school-age children. A full version of the household questionnaire appears in Appendix C (household and child questionnaires) and Appendix D (reading and mathematics assessments). The household questionnaire consists of the following modules:

Household characteristics. The module collects information about the head of household, household demographic characteristics, and participation in literacy or parents' groups. It also collects information about housing and the household, including location of the residence, construction materials used in the house, available water sources, and proxies for household wealth, such as ownership of cattle, telephones, or radios.

Household listing form. In this module, the respondent provides a complete list of all children age 6 through 12 who reside in the household and basic information about each child, including his or her relationship to the household head, gender, age, and school enrollment status. The module also includes measures of whether the child is working and of parent attitudes toward the education of each child.

Education module. The module collects information on all children age 6 through 12 in the household who attended school at any time during the 2015–2016 school year. Questions ask about access to textbooks, distance to school, and the reasons that the parents sent the child to a given school. The respondent also reports absences from school on the most recent day the school was open, absences during the previous seven days that the school was open, whether the child has a mentor, and whether the child has received deworming treatment.

Opinions of children. In this module, children answer questions about their experiences in school, whether they were enrolled in the current year, and whether they want to go to school.

Local-language assessment. Interviewers administer the module to all children age 6 through 12 regardless of their school enrollment status. The children participate in receptive and expressive oral assessments as well as in an oral reading comprehension assessment based on a short story. The interviewers then show the children preprinted cards and ask them to identify letters, read basic words, and perform simple passage reading and comprehension. The language of each test is the principal language of reading instruction in the village school—Hausa, Zarma, Kanuri, or two other local languages. Below we provide detail on the development of the reading assessments.

French-language assessment. Interviewers administer the module to all children age 6 through 12 regardless of school enrollment status. The French-language assessment is equivalent to

the local-language assessments and includes the same modules. It is administered after the test in the local language.

Mathematics assessment. The interviewers administer the module to all children age 6 through 12 regardless of school enrollment status. The interviewers ask children to count to 10 and then show them preprinted cards and ask them to identify numbers, count items, indicate the greater of a pair of numbers, identify a geometric form, and perform simple addition, subtraction, multiplication, and division. The assessment includes two oral problem-solving questions.

b. Local-language and French-language reading assessments

Mathematica created reading assessments that focus on five domains of reading skills that researchers have identified as strong predictors of reading ability–oral language, letter recognition, word reading, oral reading fluency, and reading comprehension. Mathematica based the assessments on the EGRA and designed them to measure the same reading skills at approximately the same level of difficulty in each language. In addition, given the low levels of education in Niger and concerns regarding floor effects (that is, the problem of having a large percentage of the sample with a score of zero), we included receptive and expressive oral skills. We worked with local education experts throughout the assessment development process and used grade-specific Nigerien schoolbooks and teaching tools to ensure an appropriate level of difficulty and to identify examples of assessment questions. The MEP and relevant stakeholders reviewed all materials to verify the appropriateness of the questions within the Nigerien context. Mathematica and CIERPA vetted and piloted the questionnaires and assessments, providing a high level of confidence in the materials' face validity and reliability. The assessments are sufficiently short to limit respondent burden, are tightly linked to the NECS reading intervention, and allow for sufficient variation in overall test scores.

In Table IV.9, we present the specific subtasks (or outcomes) for each of the five domains measured as part of the language assessments. Within each subtask, the enumerators mark the correct number of responses in each line or section of the subtask as well as the time remaining and total number of correct responses. As is consistent with EGRA procedures and in what is sometimes referred to as an "early stop rule," enumerators are directed to mark an "autostop" if the child is unable to answer an item correctly in the first row or section of a subtask. In addition, as is standard practice in the EGRA, subtasks 4 through 6 are time-constrained in order to limit the length of the assessment, help with assessing response automaticity, and reduce the burden on the child (RTI 2016).

Table IV.9. Reading assessments in French and local languages

Early reading domain	Early-reading subtask (outcome)	Description of questions in NECS survey
Oral language	Receptive oral vocabulary knowledge	The child is given simple instructions to be followed.
	Expressive oral vocabulary knowledge	The child is asked to identify parts of the body and objects in the environment that the administrator points out.
	Listening comprehension	A text is read aloud to the child, and questions about the text are posed thereafter.
Letter recognition	Timed letter identification	The child is given 60 seconds to identify letter names and/or their sounds.
Familiar word reading	Timed familiar word reading	The child is given 60 seconds to read simple common words.
Oral reading fluency	Reads connected text accurately (number of words read correctly) and at a sufficient rate (number of words read correctly in 60 seconds)	The child is given 60 seconds to read words in connected text.
Reading comprehension	Responds to questions about the text just read	The test administrator asks the child reading comprehension questions about the text the child just read.

i. Internal consistency and reliability of language assessments

For each language, we calculated the Cronbach's alpha for each subtask and for the assessment as a whole. Cronbach's alpha is one of the most widely used measures of internal consistency reliability for multi-item tests. It calculates the intercorrelation between test items. The higher the intercorrelation coefficient between the test items, then the more we can say that the test items measure a given concept in the same way (Tavakol and Dennick 2011). Scores range from 0 (items within the test are completely uncorrelated) to 1 (items are perfectly correlated). The literature on Cronbach's alpha cites 0.7 to 0.95 as an acceptable range for establishing internal consistency within test items (Tavakol and Dennick 2011). Bland and Altman (1997) specify that an alpha of 0.7 to 0.8 is sufficient when comparing groups, whereas an alpha above 0.9 is critical in clinical settings. For this reason and in accordance with previous early-grade reading studies, we consider 0.7 or higher an acceptable alpha that reflects a high degree of internal consistency across test items.[31]

In Table IV.10, we display the alpha scores for each subtask and for the overall test in each language. For subtasks 1 through 3 and subtask 7, we calculated the Cronbach's alpha by using individual item responses (an item refers to a single question). For instance, in the listening comprehension task, for each of the five questions posed, a child received a 1 if he or she correctly answered the question and a 0 if he or she incorrectly answered the question. For subtasks 4 through 6, we calculated the Cronbach's alpha by using row scores. A row refers to a grouping of letters or words on the questionnaire. For instance, in the letter identification task, interviewers

[31] Nonetheless, use of the Cronbach's alpha as a measure of internal consistency reliability involves some drawbacks. The value of alpha is affected by the length of the test, and alpha may underestimate the reliability of the test if different test items measure different underlying concepts (Tavakol and Dennick 2011). In addition, according to the EGRA toolkit (RTI International 2016), the fact that some language assessment tasks have a time limit is likely to inflate the alpha score. However, the extent of the associated bias is not known, and the Cronbach's alpha continues to find widespread use for calculating the internal consistency of early-grade reading tests.

showed children preprinted pages with 10 rows of 10 letters each. Scores were the sums of the number of letters correctly identified in each row, resulting in 10 row scores for the subtask.

Table IV.10. Internal consistency reliability (Cronbach's alpha) by language of assessment

	Scale reliability coefficient					
Subtask	Hausa	Zarma	Kanuri	Other local language 1	Other local language 2	French
Subtask 1: Receptive oral language	0.88	0.78	0.85	0.82	0.48	0.92
Subtask 2: Expressive oral language	0.87	0.84	0.83	0.86	0.88	0.93
Subtask 3: Listening comprehension	0.80	0.76	0.77	0.76	0.87	0.84
Subtask 4: Letter identification	0.86	0.86	0.79	0.81	0.92	0.89
Subtask 5: Familiar word reading	0.89	0.84	0.77	0.83	0.94	0.90
Subtask 6: Oral reading fluency	0.93	0.91	0.93	0.83	0.95	0.94
Subtask 7: Reading comprehension	0.88	0.75	0.67	0.64	0.90	0.85
Overall test	0.61	0.54	0.47	0.63	0.65	0.74

Source: NECS Wave 2 data collection, April and May 2016, household survey.

The alpha scores presented in Table IV.10 indicate that the assessments developed for each language have a relatively high degree of internal consistency. The Cronbach's alpha for individual subtasks exceeds 0.70 for almost all subtasks. Alpha shows the degree to which multiple test items measure the same skill; thus, a higher score is preferred. The Cronbach's alpha is lower for the overall test, ranging from 0.47 to 0.74, probably reflecting the wide level of skills measured by the test: from understanding basic spoken instructions to reading and comprehending written material.

ii. Correlation of subtasks within each language assessment

In addition to calculating the Cronbach's alpha for each subtask and the overall assessments, we analyze the correlation between subtasks within each language assessment in order to examine consistency between similar subtasks. We expect performance on adjacent subtasks to be the most closely correlated because the subtasks are arranged in increasing order of difficulty. The findings presented in Table IV.11 confirm that, for the most part, adjacent subtasks are highly correlated with one another within each language and that the correlations are statistically significant.

We observe similar trends across all six languages, with adjacent subtasks more highly correlated and the correlation decreasing the further apart subtasks appear. The adjacent subtasks that appear to be least correlated in all languages are subtasks 2, 3, and 4 (expressive oral language, listening comprehension, and letter identification, respectively), probably reflecting greater disparities in scores due to the different nature of each of the tasks. Even though most children are able to provide at least one correct response in the expressive oral language subtask (subtask 2), we observe a large drop-off in subtask 3 (oral comprehension) and an even larger drop-off in subtask 4 (letter identification).

Table IV.11. Correlation of scores between subtasks, by language

	Subtask 1	Subtask 2	Subtask 3	Subtask 4	Subtask 5	Subtask 6	Subtask 7
A. Hausa							
Subtask 1: Receptive oral language	1						
Subtask 2: Expressive oral language	0.72***	1					
Subtask 3: Listening comprehension	0.35***	0.41***	1				
Subtask 4: Letter identification	0.14***	0.16***	0.3***	1			
Subtask 5: Familiar word reading	0.10***	0.12***	0.22***	0.58***	1		
Subtask 6: Oral reading fluency	0.08***	0.1***	0.2***	0.51***	0.79***	1	
Subtask 7: Reading comprehension	0.08***	0.11***	0.21***	0.43***	0.71***	0.84***	1
B. Zarma							
Subtask 1: Receptive oral language	1						
Subtask 2: Expressive oral language	0.67***	1					
Subtask 3: Listening comprehension	0.35***	0.41***	1				
Subtask 4: Letter identification	0.14***	0.16***	0.29***	1			
Subtask 5: Familiar word reading	0.06***	0.09***	0.19***	0.56***	1		
Subtask 6: Oral reading fluency	0.04**	0.07***	0.15***	0.38***	0.79***	1	
Subtask 7: Reading comprehension	0.04**	0.04**	0.09***	0.23***	0.51***	0.65***	1
C. Kanuri							
Subtask 1: Receptive oral language	1						
Subtask 2: Expressive oral language	0.77***	1					
Subtask 3: Listening comprehension	0.36***	0.44***	1				
Subtask 4: Letter identification	0.12***	0.15***	0.24***	1			
Subtask 5: Familiar word reading	0.06**	0.07**	0.13***	0.5***	1		
Subtask 6: Oral reading fluency	0.01	0.03	0.03	0.3***	0.5***	1	
Subtask 7: Reading comprehension	0.02	0.03	0.02	0.25***	0.45***	0.81***	1
D. Other local language 1							
Subtask 1: Receptive oral language	1						
Subtask 2: Expressive oral language	0.81***						
Subtask 3: Listening comprehension	0.27***	0.33***					
Subtask 4: Letter identification	0.17*	0.16*	0.27***				
Subtask 5: Familiar word reading	0.16*	0.18**	0.03***	0.53***			
Subtask 6: Oral reading fluency	0.13	0.18**	-0.01***	0.48***	0.83***		
Subtask 7: Reading comprehension	0.07	0.11	0.08***	0.33***	0.6***	0.65***	1
E. Other local language 2							
Subtask 1: Receptive oral language	1						
Subtask 2: Expressive oral language	0.58***						
Subtask 3: Listening comprehension	0.52***	0.46***					
Subtask 4: Letter identification	0.14	0.17	0.14				
Subtask 5: Familiar word reading	0.14	0.21	0.21	0.8***			
Subtask 6: Oral reading fluency	0.13	0.18	0.34*	0.56***	0.69***		
Subtask 7: Reading comprehension	0.12	0.19	0.31	0.59***	0.71***	0.97***	1
F. French							
Subtask 1: Receptive oral language	1						
Subtask 2: Expressive oral language	0.72***						
Subtask 3: Listening comprehension	0.37***	0.35***					
Subtask 4: Letter identification	0.57***	0.51***	0.29***				
Subtask 5: Familiar word reading	0.52***	0.47***	0.39***	0.74***			
Subtask 6: Oral reading fluency	0.44***	0.41***	0.43***	0.63***	0.82***		
Subtask 7: Reading comprehension	0.41***	0.39***	0.58***	0.45***	0.66***	0.76***	1

Source: NECS Wave 2 data collection, April and May 2016, household survey.

***/**/* Correlation is statistically significant at the .01/.05/.10 level.

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V. IMPACT FINDINGS

In this chapter, we present our estimates of the combined impact of the NECS and IMAGINE projects as well as our estimates of the impact of the NECS-only project. In Section A, we discuss our evaluation of the implementation of NECS and the sustainability of IMAGINE activities. In Section B, we describe overall impacts on our primary outcomes as well as impacts by gender and socioeconomic status. In Section C, we examine impacts on additional child-level outcomes, including alternative measures of enrollment and attendance and subtask scores on individual language assessments. In Section D, we explore other impact-related questions, such as impacts on parent attitudes, school infrastructure and availability, teacher practices and characteristics, and primary child outcomes by child age. Finally, in Section E, we show that our results are robust to several model specifications.

A. Evaluated implementation of NECS and sustainability of IMAGINE

1. NECS implementation details

To complement implementation reports provided by the NECS team, we collected a wide range of data to measure exposure to NECS activities in schools and households. In Tables V.1 and V.2, we present the proportion of schools (Table V.1) and communities and households (Table V.2) that had implemented or participated in various NECS activities at the time of the NECS Wave 2 data collection. All NECS & IMAGINE and NECS-only schools received the NECS project, but not every component of the NECS project was fully implemented in all schools. By the end of the 2015–2016 school year, almost all schools in NECS & IMAGINE and NECS-only villages had an elected student government that had developed an action plan (Table V.1). Those schools had, on average, 8.7 to 9.6 children in student government, with a nearly even split between boys and girls. About one-third to one-half of NECS schools had student governments that conducted literacy promotion activities. In comparison, only 17 percent of control group schools had a student government, less than a third of those student governments had developed an action plan, and none had conducted literacy promotion activities.

Table V.1. Descriptive statistics demonstrating implementation of NECS activities in schools

	Means			Differences	
	NECS & IMAGINE group	NECS-only group	Control group	NECS & IMAGINE versus control	NECS-only versus control
Student government					
School has student government (percentage)	97.3	101.9	16.8	80.5***	85.1***
Student government is elected (percentage)	95.5	100.4	16.8	78.8***	83.6***
Student government is appointed (percentage)	1.7	1.5	0.0	1.7	1.5
Student government developed action plan (percentage)	95.9	98.2	6.5	89.3***	91.7***
Student government conducted literacy promotion activities during SY 2015–2016 (percentage)	38.2	46.3	0.0	38.2***	46.3***
Number of students in student government	8.7	9.6	1.4	7.3***	8.2***
Girls	4.2	4.2	0.6	3.6***	3.6***
Boys	4.4	5.4	0.8	3.7***	4.7***
School management committee (percentage)					
School has any school management committee	100.0	100.0	100.0	0.0	0.0
School has mothers' association (AME)	96.3	98.2	80.4	15.9**	17.8***
School has PTA (APE)	97.0	99.3	92.5	4.4	6.8
School has CGDES	99.4	100.0	97.2	2.2	2.8
CGDES has regular meetings	88.7	88.4	53.2	35.5***	35.1***
CGDES developed action plan	98.5	100.6	95.3	3.2	5.3
CGDES conducted literacy promotion activities during SY 2015–2016	60.5	64.7	7.5	53.0***	57.3***
CGDES has received any funding this year	52.6	45.1	14.2	38.5***	30.9***
CGDES received NECS funding this year	5.5	4.7	0.0	5.5	4.7**
Any CGDES member has received training in borehole maintenance in past year	59.5	4.3	5.0	54.5***	-0.7
Any CGDES member has received training in importance of local- language reading in past year	29.3	19.3	1.9	27.4***	17.4***
Any CGDES member has received training in mentoring in past year	42.5	44.6	8.4	34.1***	36.2***
Any CGDES member has received adult literacy training in past year	41.4	36.7	7.6	33.8***	29.1***
Mentoring					
School has active mentoring program (percentage)	69.5	72.6	7.5	62.0***	65.1***
Number of students participating in mentoring program	16.91	23.14	1.44	15.47***	21.70***
Girls	8.32	10.70	0.58	7.74***	10.12***
Boys	8.59	12.44	0.86	7.73***	11.58***

	Means			Differences	
	NECS & IMAGINE group	NECS-only group	Control group	NECS & IMAGINE versus control	NECS-only versus control
Local-language instruction (percentage)					
School has local-language reading curriculum	97.1	100.7	1.9	95.3***	98.8***
School has local-language educational materials	94.5	100.7	1.9	92.7***	98.8***
Respondent satisfied with educational materials available at school	66.9	43.0	0.0	66.9***	43.0***
New local-language reading curriculum taught in first grade (CI in Niger)	99.9	92.8	1.9	98.0***	90.9***
New local-language reading curriculum taught in second grade (CP in Niger)	96.7	90.2	0.0	96.7***	90.2***
School has local-language story books	68.1	81.6	3.0	65.1***	78.7***
Local-language story books used for classroom instruction	47.2	60.5	0.0	47.2***	60.5***
Sample size (schools)	**61**	**69**	**48**		

Source: NECS Wave 2 data collection, May and June 2016, school questionnaire.

Note: We tested differences between group means by using two-tailed t-tests. Treatment group means are regression-adjusted, including commune fixed effects and village-level weights. The NECS-only group mean includes a control for village-level enrollment at baseline. Control group means include village-level weights. Regressions use standard errors that are robust to heteroscedasticity. All outcomes are unconditional; for example, "student government has an action plan" is counted as zero if school does not have a student government. Means greater than 100 are possible for the treatment groups because they are regression adjusted.

***/**/* Difference is statistically significant at the .01/.05/.10 level.

All schools in the sample had put in place some type of school management committee, but those in NECS & IMAGINE and NECS-only villages were much more active than those in control villages. The CGDESs in NECS & IMAGINE and NECS-only schools were more likely than those in control group schools to have held regular meetings, conducted literacy promotion activities, received funding in the past year, and participated in a variety of training sessions. Further, schools in both treatment groups were about 60 to 65 percentage points more likely than schools in the control group to have established a mentoring program.

Almost all NECS & IMAGINE and NECS-only schools implemented a local-language reading curriculum. The majority of treatment schools reported that they had on hand local-language story books, and 47 to 60 percent of schools reported that they used the books for classroom instruction. Almost no control group schools reported that they had instituted a local-language reading curriculum or used local-language materials.

The implementation of NECS activities in communities is also evident in the participation of adults in community events, although the differences between treatment group households and control group households is smaller than the differences observed between schools in each study group (Table V.2). In the NECS & IMAGINE and NECS-only villages, 10.3 and 11.6 percent of households, respectively, noted that an adult member had participated in literacy training in the past year compared to just 2.9 percent of households in control villages. Adults in treatment communities were also about 3 to 5 percentage points more likely than adults in control villages to have participated in community events related to literacy and reading in the past year.

Table V.2. Descriptive statistics demonstrating implementation of NECS activities in communities and households

	Means			Differences	
	NECS & IMAGINE group	NECS-only group	Control group	NECS & IMAGINE versus control	NECS-only versus control
Any adult member of household (percentage)					
Participating in literacy training (ever)	18.9	20.6	13.5	5.5***	7.1***
Participating in literacy training in past year	10.3	11.6	2.9	7.4***	8.8***
Currently participating in literacy training	6.1	6.4	1.4	4.7***	5.0***
Participating in community event related to literacy and reading (ever)	7.6	10.1	4.2	3.3***	5.8***
Participated in community event related to literacy and reading in past year	4.5	6.5	1.6	3.0***	4.9***
Participated in activities with the CGDES, AME, or APE in past year	25.9	23.6	25.2	0.8	-1.5
Sample size (households)	**2,393**	**3,203**	**1,917**		

Source: NECS Wave 2 data collection, May and June 2016, household survey.

Note: We tested differences between group means using two-tailed t-tests. Treatment group means are regression-adjusted, including commune fixed effects and village-level weights. The NECS-only group mean includes a control for the village-level enrollment at baseline. Control group means include village-level weights. Regressions account for clustering within villages. Sample sizes shown are for the full sample; some regressions may include a smaller size due to missing data.

***/**/* Difference is statistically significant at the .01/.05/.10 level.

2. Sustainability of IMAGINE activities

Another question of relevance to the NECS & IMAGINE villages is whether the infrastructure investments made under the IMAGINE project have been maintained over the long term. We found no impact of the IMAGINE project on the presence of and number of public schools available in IMAGINE villages in 2011 and 2013, but we did find improvements in numerous measures of school infrastructure, including the number of classrooms and the availability of potable water, toilets, preschools, playgrounds, and teacher housing (Table V.3). We also found improvements in features that were designed to make the IMAGINE schools more girl friendly—separate toilets for girls and boys and housing for female teachers.

Table V.3. Descriptive statistics of sustainability of school infrastructure in IMAGINE villages

	Means			Impacts	
	2016 NECS & IMAGINE schools	2013 IMAGINE schools	2011 IMAGINE schools	2013 IMAGINE schools	2011 IMAGINE schools
Availability of schools (per village)					
Number of public schools per village	1.0	1.1	1.1	-0.1	0.0
Infrastructure (per school)					
Number of:					
Classrooms	7.2	6.5	6.2	1.3***	1.5***
Classrooms made of finished materials	6.9	5.0	5.2	2.3***	3.1***
Percentage of schools with:					
Potable water source present	85.3	79.6	74.1	60.2***	58.7***
Potable water source functioning	75.4	50.0	n/a	40.8***	n/a
Toilet facilities present	96.7	100.0	100.0	60.0***	71.9***
Toilet facilities functioning	93.4	98.1	n/a	69.4***	n/a
Separate latrines	73.8	98.1	94.4	68.8***	77.2***
Preschool facility	96.7	98.1	44.4	74.9***	25.4***
Playground	90.2	96.3	n/a	84.7***	n/a
Teacher housing	96.7	98.1	94.4	88.7***	89.5***
Teacher housing for female teachers	75.0	94.4	n/a	92.8***	n/a
Sample size (village)	**59**	**57**	**57**		
Sample size (schools)	**61**	**54**	**54**		

Source: Dumitrescu et al. 2011; Bagby et al. 2014b; NECS Wave 2 data collection, May and June 2016, school questionnaire.

Note: We tested differences between group means by using two-tailed t-tests. IMAGINE school include village-level weights. Impacts were estimated with regressions including commune fixed effects and village-level weights. Sample sizes are for the full sample of public schools that responded to the school questionnaire; some regressions may include a smaller size because of missing data. The full sample of non-IMAGINE schools was 124 schools in 121 villages in 2013 and 143 schools in 121 villages in 2011.

***/**/* Difference is statistically significant at the .01/.05/.10 level.

n/a = Not applicable because measure was not collected in that round of data collection.

Three years later, in 2016, the infrastructure improvements implemented under IMAGINE appear to have been largely sustained. Between 2013 and 2016, the number of classrooms and classrooms with finished materials increased from 6.5 to 7.2 and from 5.0 to 6.9, respectively. We also find similar infrastructure quality in schools in IMAGINE villages in 2013 and 2016 for most of the measures of school infrastructure quality that we collected. For example, the

likelihood of a school having toilet facilities declined slightly from 100 to 96.7 percent. In addition, the likelihood of having of a functioning potable water source at IMAGINE schools actually improved from 50.0 percent to 75.4 percent, which is consistent with the planned borehole construction and rehabilitation activities under the NECS project. However, IMAGINE schools also became somewhat less girl friendly between 2013 and 2016 with the likelihood of having separate latrines for girls and boys and housing for female teachers both decreasing by roughly 25 percent between 2013 and 2016.

Comparing across treatment groups in 2016, we find no differences in the availability of a public school or the number of public schools in each village, but we also find that villages in the NECS & IMAGINE group had, on average, 2.0 more classrooms per village than control group villages and 2.3 more finished classrooms (Table V.4). The results are similar to the impacts we found three years after project implementation, when we determined that IMAGINE villages had 1.5 more classrooms and 2.4 more finished classrooms than control villages. In addition, in villages receiving IMAGINE, schools have more usable classrooms, more blackboards, and more classrooms that may be used in the rain than those not receiving IMAGINE.

We also find statistically significant impacts on infrastructure outcomes for the NECS-only group. For instance, schools in the NECS-only group have, on average, 7.4 classrooms compared to 5.2 classrooms in control group schools. As we discuss later, in comparison to the other study groups, the difference may result from the fact that the NECS-only group accounted for a larger percentage of schools with missing school questionnaire data as a consequence of teacher strikes during the data collection period. It is possible that the schools on strike at the time of data collection were smaller than those not striking, making the NECS-only schools in our sample appear larger than the full group of NECS-only schools.

To test such a hypothesis, we looked at the data collected in IMAGINE and control villages in 2011. Although it is likely that some schools will have changed over time, the size of the control group schools that were later randomly assigned to receive NECS-only may provide an indication of the characteristics of striking schools. We find that the striking schools in the NECS-only group had fewer classrooms, on average, than all other schools in the NECS-only group in the 2011 data (4.5 versus 5.0 classrooms). In addition, the striking schools had fewer classrooms with a blackboard (3.5 versus 4.7 classrooms) and fewer classrooms with a visible blackboard (2.0 versus 3.5 classrooms). Although not conclusive, the evidence does suggest that the NECS-only schools that were on strike during Wave 2 of data collection may have been different, on average, than the NECS-only schools that were not on strike.

Table V.4. Impact of NECS & IMAGINE and NECS-only on school and classroom availability and school infrastructure

	Means			Impacts	
	NECS & IMAGINE group	NECS-only group	Control group	NECS & IMAGINE group	NECS-only group
Availability					
Public school available in village (percentage)	100.0	100.0	100.0	0.0	0.0
Number of public schools per village	1.1	1.0	1.1	0.0	-0.1*
Number of classrooms per village	7.6	7.4	5.6	2.0***	1.9***
Number of classrooms constructed of finished materials per village	5.0	3.8	2.7	2.3***	1.1**
Infrastructure					
Number of (per school):					
Classrooms	6.9	7.4	5.2	1.7***	2.2***
Usable classrooms	6.5	7.3	4.9	1.6***	2.4***
Classrooms constructed of finished materials	4.5	3.8	2.5	2.0***	1.4**
Blackboards	6.5	6.2	4.6	1.8***	1.6***
Visible blackboards	6.0	5.5	3.5	2.4***	2.0***
Classrooms usable in the rain	4.9	3.8	2.8	2.0***	0.9*
Percentage of schools with:					
Seats and desk space for each student	21.0	18.1	19.2	1.8	-1.1
Sufficient seats for up to 50 students in each class	20.0	10.2	8.0	11.9**	2.2
Sufficient desks for up to 50 students in each class	22.2	4.9	11.8	10.5	-6.8
Potable water source	81.8	15.9	18.7	63.1***	-2.8
Potable water source functioning	72.8	14.2	15.3	57.5***	-1.1
Toilet facilities	95.4	48.1	25.0	70.4***	23.1***
Toilet facilities functioning	89.9	40.5	22.2	67.7***	18.3**
Separate latrines	75.8	24.3	12.5	63.3***	11.8*
Preschool facility	95.5	28.1	26.1	69.4***	2.0
Playground	89.3	32.2	35.3	54.0***	-3.1
Teacher housing	94.7	4.0	17.7	77.0***	-13.7**
Teacher housing for female teachers	65.3	2.4	0.0	64.8***	2.4
Last time toilets were serviced					
Less than one month ago (percentage)	50.5	88.4	34.8	15.7	53.6*
In the past one to five months (percentage)	34.0	10.9	40.4	-6.4	-29.6
More than five months ago (percentage)	15.5	0.7	24.7	-9.2	-24.0
Other					
School is public (percentage)	100.0	100.0	100.0	0.0	0.0
School overenrolled (percentage)	33.0	29.1	34.9	-1.8	-5.7
Average number of weeks school was open during the last academic year (SY 2014–2015)	29.2	29.4	28.8	0.4	0.7
Average number of hours per day students are typically at school	6.4	6.4	6.2	0.1*	0.1*
Enrolled students who live outside the village (percentage)	10.1	7.3	10.5	-0.4	-3.2
School has complete set of textbooks for each student (percentage)	75.2	61.7	49.1	26.1***	12.7
Respondent's opinion of when children should be able to read (percentage)					
Grade 1	28.4	29.9	18.8	9.6	0.2
Grade 2	43.2	33.1	35.8	7.4	0.5
Grade 3	20.8	35.3	39.7	-19.0**	0.0
Grade 4	5.4	0.3	5.6	-0.2	1.0
Grade 5	2.2	1.4	0.0	2.2	0.3
Grade 6	0.0	0.0	0.0	0.0	0.0
Respondent's opinion of what "able to read" means (percentage)					
Recite text	58.1	49.1	61.8	-3.7	-12.6
Memorize text	39.9	41.3	31.0	9.0	10.3
Understand text	57.8	49.8	49.3	8.5	0.5
Sample size (schools)	**61**	**69**	**48**		

Source: NECS Wave 2 data collection, May and June 2016, school questionnaire.

Note: We tested differences between group means by using two-tailed t-tests. Treatment group means are regression-adjusted, including commune fixed effects and village-level weights. The NECS-only group mean includes a control for village-level enrollment at baseline. Control group means include village-level weights. Regressions use standard errors that are robust to heteroscedasticity. Sample sizes are for the full sample of public schools responding to the school questionnaire; some regressions may include a smaller size because of missing data.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

We find that, as compared to schools in control group villages, schools in NECS & IMAGINE villages are more likely to have a functioning potable water source, functioning and separate latrines, a preschool facility, a playground, teacher housing, and teacher housing for female teachers. These impacts are large and statistically significant. For instance, NECS & IMAGINE schools are 57.5 percentage points more likely than control group schools to have a functioning potable water source and 67.7 percentage points more likely to have functioning toilet facilities. The results demonstrate that schools in IMAGINE villages remain much more likely than schools in other villages to include the infrastructure components specified in the construction of IMAGINE schools. In addition, the infrastructure investments have been largely maintained. Overall, 72.8 percent of NECS & IMAGINE schools have a functioning potable water source, 89.9 percent have operational toilet facilities, 75.8 percent have separate latrines for boys and girls, and 94.7 percent have teacher housing. In Table V.4, we also find that NECS-only schools are about 18 to 23 percentage points more likely to have toilet facilities present and functioning than control group schools and 14 percentage points less likely to have teacher housing, even though functioning toilet facilities and teacher housing were not components of the NECS project. We find no other statistically significant impacts of NECS-only on school infrastructure.

Finally, we might expect the construction of new, high quality schools under IMAGINE to affect whether a school is overenrolled, the amount of time a school is open, and whether children travel from outside the village to attend the school. We might also expect to see improvements in the availability of textbooks in response to IMAGINE's provision of textbooks as well as increased reading in response to NECS's focus on early-grade reading. We do find that schools in NECS & IMAGINE villages are more likely than schools in control villages to have on hand a complete set of textbooks for each student, but we do not find statistically significant impacts for either treatment group on whether a school is overenrolled, how many weeks it was open during the previous school year, the percentage of students living outside the village, or respondents' expectations for children's reading progress.

Table V.5. Impact of NECS & IMAGINE and NECS-only on teacher characteristics and practices and school curriculum

	Means			Impacts	
	NECS & IMAGINE group	NECS-only group	Control group	NECS & IMAGINE group	NECS-only group
Teacher behavior (percentage)					
Typical teacher is absent					
No absence	53.9	54.6	56.2	-2.2	-1.6
Once a week	43.1	40.6	31.7	11.4	8.9
Two to three times a week	2.4	3.5	9.3	-6.9	-5.8
More than three times a week	0.6	1.2	2.8	-2.2	-1.6
School director is somewhat satisfied or satisfied with teachers at the school	74.1	64.8	81.2	-7.1	-16.4*
Time spent on reading activities					
Number of minutes per day grade 1 teacher spends on reading activities (total)	71.6	77.7	69.0	2.6	8.7*
Number of minutes per day grade 2 teacher spends on reading activities (total)	69.8	76.7	66.4	3.4	10.3*
Number of minutes per day grade 1 teacher spends on reading activities (student-on-task)	10.6	13.2	7.8	2.8	5.4**
Number of minutes per day grade 2 teacher spends on reading activities (student-on-task)	10.8	12.6	7.9	2.9	4.7**
Number of minutes per day grade 1 teacher spends on reading activities (teacher-led)	38.9	45.6	43.7	-4.8	1.9
Number of minutes per day grade 2 teacher spends on reading activities (teacher-led)	41.5	46.5	42.7	-1.2	3.8
Teacher characteristics					
Sufficient number of teachers (percentage)	66.8	60.4	36.4	30.5***	24.0**
Percentage female	47.9	34.5	34.6	13.3**	-0.1
Percentage receiving:					
Preservice training in teaching reading	43.0	39.0	25.4	17.6***	13.6
Professional development training in reading	20.8	25.9	14.4	6.4	11.4*
Training in local-language reading	40.3	46.2	0.5	39.9***	45.8***
Training in equal treatment of boys and girls	28.2	15.8	3.5	24.8***	12.3***
School curriculum					
School is bilingual (according to school director) (percentage)	62.2	44.9	6.5	55.7***	38.3***
Primary teaching language for reading in grade 1 is (percentage):					
French	31.9	30.0	92.6	-60.7***	-62.6***
Hausa	49.0	47.5	7.4	41.6***	40.2***
Zarma	9.7	11.0	0.0	9.7**	11.0**
Kanuri	9.4	9.1	0.0	9.4**	9.1**
Other local language 1	0.0	2.3	0.0	0.0	2.3
Other local language 2	0.0	0.0	0.0	0.0	0.0
Primary teaching language for reading in grade 2 is (percentage):					
French	27.4	33.4	90.7	-63.3***	-57.3***
Hausa	50.2	40.9	9.3	40.9***	31.7***
Zarma	13.2	14.0	0.0	13.2***	14.0**
Kanuri	9.2	9.4	0.0	9.2**	9.4**
Other local language 1	0.0	2.2	0.0	0.0	2.2
Other local language 2	0.0	0.0	0.0	0.0	0.0
Sample size (schools)	**61**	**69**	**48**		

Source: NECS Wave 2 data collection, May and June 2016, school questionnaire.

Note: We tested differences between group means by using two-tailed t-tests. Treatment group means are regression-adjusted, including commune fixed effects and village-level weights. The NECS-only group mean includes a control for

village-level enrollment at baseline. Control group means include village-level weights. Regressions use standard errors that are robust to heteroscedasticity. Sample sizes are for the full sample of public schools that responded to the school questionnaire; some regressions may include a smaller size because of missing data.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

n/a = Indicates that, because there was no variation in the outcome, regression estimates were not obtained.

NECS activities included components targeted to teachers, such as training in teaching local-language reading and promoting a gender-equitable classroom environment. In Table V.5, we show that NECS & IMAGINE had no impact on teacher absenteeism, school director satisfaction with teachers in the school, or time spent on reading activities in grades 1 and 2. NECS-only had a positive impact on the time teachers spent on student-on-task reading activities in both grades 1 and 2, but the impact was fairly small (about five minutes per day), with no impact on time spent on reading activities overall.

We do, however, find widespread impacts on teacher characteristics and school curriculum. Schools in NECS & IMAGINE villages have a higher percentage of female teachers than control villages, probably because of the availability of teacher housing targeted to females under IMAGINE. In addition, teachers in NECS & IMAGINE schools were more likely than teachers in control schools to have received preservice training in reading instruction. We find positive impacts for both treatment groups on whether the number of teachers in the school meets MEP standards, the percentage of teachers trained in local-language reading and equal treatment of boys and girls, and whether the primary teaching language in grades 1 and 2 is a local language. The results are consistent with NECS activities aimed at teacher training and instituting a local-language reading curriculum in grades 1 and 2.

B. Estimated impact on key outcomes

1. Impacts on enrollment, attendance, and reading scores

The primary outcomes of interest in the evaluation are child enrollment, attendance, and reading assessment scores in local languages and French. We find that both the NECS & IMAGINE and NECS-only projects had a positive impact on enrollment and attendance.[32] Specifically, children in villages that received both NECS and IMAGINE were 10.3 and 13.6 percentage points, respectively, more likely to have been enrolled during the current school and to have attended school on the most recent day school was open (Table V.6) than children in control group villages. Similarly, enrollment and attendance among children in NECS-only villages were 9.5 and 11.1 percentage points, respectively, higher than among children in control villages.

The evaluation of the IMAGINE project conducted three years after project implementation found that IMAGINE increased enrollment in the previous school year by 8.3 percentage points. We find a 10.3 percentage point impact of NECS & IMAGINE on enrollment seven years after implementation of IMAGINE.

[32] Even though these outcomes are binary, we conduct these analyses using an OLS model because of ease of interpretation. However, we also conduct these analyses by using a logit model and find that both NECS & IMAGINE and NECS-only projects had statistically significant and positive impacts on enrollment and attendance.

Several components of the NECS project may have led to increased enrollment and attendance. Improvements in the school learning environment through mentoring and gender-equitable classrooms may have spurred children's desire to attend school, and the adult literacy program and activities of the school management committees may have encouraged parents to send their children to school and ensure regular attendance. Finally, improved health resulting from the construction and maintenance of boreholes and toilettes may have increased child attendance.

Table V.6. Impact of NECS & IMAGINE and NECS-only on primary child outcomes

	Means			Impacts	
	NECS & IMAGINE group	NECS-only group	Control group	NECS & IMAGINE group	NECS-only group
Child enrolled during SY 2015–2016 (percentage)	79.2	78.3	68.9	10.3***	9.5***
Child attended school on most recent day school was open (percentage)	70.8	68.3	57.2	13.6***	11.1***
Local-language score—normalized (standard deviations)	0.09	0.02	-0.13	0.21***	0.15***
French-language score—normalized (standard deviations)	0.07	0.04	0.00	0.07	0.04
Sample size (children)	**4,103**	**5,752**	**3,325**		
Sample size (villages)	**60**	**82**	**50**		

Source: NECS Wave 2 data collection, May and June 2016, household survey.

Note: We tested differences between group means by using two-tailed t-tests. Treatment group means are regression-adjusted, including commune fixed effects and village-level weights. The NECS-only group mean includes a control for village-level enrollment at baseline. Control group means include village-level weights. Regressions account for clustering within villages. For non-enrolled children, attendance is unconditional on enrollment, meaning that those who are not enrolled are all scored as absent. Normalized scores take child age into account. Sample sizes are for the full sample; some regressions may include a smaller size because of missing data. Sample sizes range from 4,022 to 4,103 for the NECS & IMAGINE group, 5,623 to 5,752 for the NECS-only group, and 3,253 to 3,325 for the control group.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

In addition to finding to positive impacts on enrollment and attendance, we report that both the NECS & IMAGINE and NECS-only projects had a positive impact on local-language test scores, though not on French-language test scores. The scores in Table V.6 are the total scores across all seven subtasks of each language assessment, normalized by child age and the assessment language. Children in NECS & IMAGINE and NECS-only villages scored on average 0.21 and 0.15 standard deviations higher, respectively, than children in the control group. These impacts fit within the range of what the education literatures considers moderate to large effects (Banerjee et al. 2013). Two studies of programs with instructional interventions found impacts on test scores that ranged from 0.14 to 0.35 standard deviations (Banerjee et al. 2007; He et al. 2008) while a school construction program with complementary activities in Burkina Faso achieved impacts of 0.29 to 0.40 standard deviations on French-language and mathematics scores. Given that one of the primary activities of NECS was to implement an early-grade rapid reading curriculum in local languages, the result is encouraging. Our findings suggest that, when the school environment is conducive to learning, the new local-language reading curriculum delivered by teachers trained in early-grade reading techniques and armed with local-language reading materials can lead to improvements in student learning.

In addition, although we do not find statistically significant positive impacts for either treatment group on French-language test scores, we do not find negative impacts. The transition to reading instruction in local languages in grades 1 and 2 may not yet have improved reading in French, and reading in French has not been negatively affected despite the decrease in instruction in French. In Section C, we further examine French- and local-language test scores separately by subtask, language, and grade.

2. Subgroup impacts on enrollment, attendance, and reading scores

In this section we present impacts separately for different subgroups, including gender, socio-economic status, and literacy of the household head.

Table V.7. Impact of NECS & IMAGINE and NECS-only on primary outcomes, by gender

	Means			Impacts	
	NECS & IMAGINE group	NECS-only group	Control group	NECS & IMAGINE group	NECS-only group
Child enrolled during current school year (SY 2015–2016) (percentage)					
Females	77.6	74.7	64.6	13.0***	10.1***
Males	80.7	81.5	72.7	8.0***	8.8***
Significant difference in subgroup impacts				No	No
Child attended school on most recent day school was open (percentage)					
Females	70.0	64.5	53.1	16.9***	11.4***
Males	71.6	71.7	61.0	10.6***	10.6***
Significant difference in subgroup impacts				No	No
Local-language score—normalized (standard deviations)					
Females	0.00	-0.05	-0.15	0.15***	0.10**
Males	0.17	0.08	-0.11	0.28***	0.19***
Significant difference in subgroup impacts				Yes	No
French-language score—normalized (standard deviations)					
Females	-0.01	-0.02	-0.10	0.08	0.07
Males	0.14	0.09	0.07	0.06	0.01
Significant difference in subgroup impacts				No	No
Sample size (children)					
Female	**2,010**	**2,678**	**1,587**		
Male	**2,093**	**3,074**	**1,738**		

Source: NECS Wave 2 data collection, May and June 2016, household survey.

Note: We tested differences between group means by using two-tailed tests. NECS & IMAGINE and NECS-only group means are regression-adjusted, including commune fixed effects and weights. Regressions account for clustering within villages. The control group mean is not regression-adjusted but does include weights. For non-enrolled children, attendance is unconditional on enrollment, meaning that those who are not enrolled are all scored as absent. Normalized scores take child age into account. Sample sizes are for the full sample; some regressions may include a smaller size because of missing data. We tested differences in subgroup impacts by using a regression model with an intervention group-gender interaction term. We estimated the significance of the difference by using a two-tailed t-test of the interaction term; we tested for significance at the 5 percent level.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

We find that both the NECS & IMAGINE and NECS-only projects had statistically significant impacts on enrollment, attendance, and local-language reading scores among both

boys and girls (Table V.7). The impacts on enrollment and attendance are descriptively larger for girls than for boys, but the differences are not statistically significant. However, for local-language reading scores, the impacts are greater for boys than for girls in both groups, and the difference between boys and girls is statistically significant in the NECS & IMAGINE group at the 5 percent level. In addition, we find that girls' normalized local-language and French-language scores fall at or below the mean across all study groups.

Table V.8. Impact of NECS & IMAGINE and NECS-only on primary child outcomes, by socioeconomic status

	Means			Impacts	
	NECS & IMAGINE group	NECS-only group	Control group	NECS & IMAGINE group	NECS-only group
Child enrolled during current school year (SY 2015–2016) (percentage)					
Lowest quintile	76.9	75.3	64.4	12.5***	11.0***
Quintiles 2 through 5	80.3	80.1	71.7	8.6***	8.4***
Significant difference in subgroup impacts				No	No
Child attended school on most recent day school was open (percentage)					
Lowest quintile	70.3	66.0	52.1	18.2***	13.9***
Quintiles 2 through 5	71.2	69.7	60.5	10.7***	9.2***
Significant difference in subgroup impacts				No	No
Local-language score—normalized (standard deviations)					
Lowest quintile	0.04	-0.03	-0.28	0.32***	0.26***
Quintiles 2 through 5	0.11	0.05	-0.03	0.14***	0.08
Significant difference in subgroup impacts				No	Yes
French-language score—normalized (standard deviations)					
Lowest quintile	0.02	0.00	-0.12	0.14	0.12*
Quintiles 2 through 5	0.09	0.06	0.07	0.02	-0.01
Significant difference in subgroup impacts				No	No
Sample size (children)					
Lowest quintile	**1,183**	**2,307**	**1,261**		
Quintiles 2 through 5	**2,838**	**3,313**	**1,992**		

Source: NECS Wave 2 data collection, May and June 2016, household survey.

Note: We tested differences between group means by using two-tailed t-tests. Treatment group means are regression-adjusted, including commune fixed effects and village-level weights. The NECS-only group mean includes a control for village-level enrollment at baseline. Control group means include village-level weights. Regressions account for clustering within villages. For non-enrolled children, attendance is unconditional on enrollment, meaning that those who are not enrolled are all scored as absent. Normalized scores take child age into account. Sample sizes are for the full sample; some regressions may include a smaller size because of missing data. We tested differences in subgroup impacts by using a regression model with an intervention group-quintile group interaction term. We estimated the significance of the difference by using a two-tailed t-test of the interaction term.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

We also compare impacts of NECS & IMAGINE and NECS-only for children of different socioeconomic status. Impacts of the NECS-only and NECS & IMAGINE projects are larger among children in the lowest quintile of a household quality index, but the difference is statistically significant only for the NECS-only group for local-language test scores. Children in the lowest quintile experienced an impact of 0.26 standard deviations compared to 0.08 standard deviations among children in the higher quintiles (Table V.8).

Table V.9. Impact of NECS & IMAGINE and NECS-only on primary child outcomes, by literacy of head of household

	Means			Impacts	
	NECS & IMAGINE group	NECS-only group	Control group	NECS & IMAGINE group	NECS-only group
Child enrolled during current school year (SY 2015–2016) (percentage)					
Illiterate head of household	76.8	75.5	64.8	12.0***	10.7***
Literate head of household	84.4	83.8	77.3	7.1**	6.6***
Significant difference in subgroup impacts				No	No
Child attended school on most recent day school was open (percentage)					
Illiterate head of household	68.3	65.2	54.2	14.1***	11.0***
Literate head of household	76.5	74.7	64.4	12.1***	10.3***
Significant difference in subgroup impacts				No	No
Local-language score—normalized (standard deviations)					
Illiterate head of household	0.05	-0.03	-0.15	0.21***	0.12**
Literate head of household	0.17	0.15	-0.06	0.23***	0.21***
Significant difference in subgroup impacts				No	No
French-language score—normalized (standard deviations)					
Illiterate head of household	0.00	-0.04	-0.06	0.06	0.02
Literate head of household	0.22	0.21	0.12	0.10	0.09
Significant difference in subgroup impacts				No	No
Sample size (children)					
Illiterate head of household	**2,900**	**4,035**	**2,209**		
Literate head of household	**1,174**	**1,677**	**1,079**		

Source: NECS Wave 2 data collection, May and June 2016, household survey.

Note: We tested differences between group means by using two-tailed t-tests. Treatment group means are regression-adjusted, including commune fixed effects and village-level weights. The NECS-only group mean includes a control for village-level enrollment at baseline. Control group means include village-level weights. Regressions account for clustering within villages. For non-enrolled children, attendance is unconditional on enrollment, meaning that those who are not enrolled are all scored as absent. Normalized scores take child age into account. Sample sizes are for the full sample; some regressions may include a smaller size because of missing data. We tested differences in subgroup impacts by using a regression model with an intervention group-quintile group interaction term. We estimated the significance of the difference by using a two-tailed t-test of the interaction term.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

Literate parents could directly improve the effectiveness of the local-language reading program on child reading test scores by providing support and help to their children at home. It is also possible that a parent or adult household member's literacy level may reflect broader factors such as a child's home learning environment and the parent's attitudes toward schooling that could affect the child's learning outcomes. To study this plausible relationship, we estimate impacts on the primary child outcomes by the head of household's literacy level. Because adult literacy was an expected outcome of the NECS project, this analysis could be affected by the impact of NECS on adult literacy. However, the evaluation found no impacts on whether the household head is literate (Table V.17), which suggests that the impact of NECS on adult literacy is not a significant factor.

We again find significant impacts of both NECS & IMAGINE and NECS-only on enrollment, attendance, and local-language test scores for both groups and no significant impacts on French-language scores (Table V.9). The impacts on enrollment and attendance are

descriptively larger for children with an illiterate household head, but the differences are not significant. Similarly, the impacts on local-language test scores are descriptively larger for children with a literate household head, but the differences are not significant. As a result, it appears that impacts of both interventions did not significantly vary as a function of the literacy of the household head.

3. Differences in impacts between NECS & IMAGINE and NECS-only

We next compare the estimated impacts of the NECS & IMAGINE and NECS-only interventions on our primary outcomes presented in Table V.5 (as described in Section IV). We also compare the estimated impacts of the two interventions for girls and for boys in order to investigate whether girls continued to experience larger impacts in enrollment and attendance, as was observed in both IMAGINE follow-up evaluations. We find no significant differences in the estimated impacts of the NECS & IMAGINE and NECS-only interventions for either girls or boys across all primary outcomes (Table V.10).

Table V.10. Comparison of the impact of NECS & IMAGINE and NECS-only on primary child outcomes, overall and by gender

	Impacts		
	NECS & IMAGINE group	NECS-only group	Difference in impacts for the two groups
Child enrolled during current school year (SY 2015–2016) (percentage)			
All children	10.3***	9.5***	0.9
Females	13.0***	10.1***	2.9
Males	8.0***	8.8***	-0.8
Child attended school on most recent day school was open (percentage)			
All children	13.6***	11.1***	2.5
Females	16.9***	11.4***	5.5
Males	10.6***	10.6***	0.0
Local-language score—normalized (standard deviations)			
All children	0.21***	0.15***	0.06
Females	0.15***	0.10**	0.04
Males	0.28***	0.19***	0.09
French-language score—normalized (standard deviations)			
All children	0.07	0.04	0.03
Females	0.08	0.07	0.02
Males	0.06	0.01	0.05
Sample size (children)			
All children	**4,103**	**5,752**	**3,325**
Female	**2,010**	**2,678**	**1,587**
Male	**2,093**	**3,074**	**1,738**

Source: NECS Wave 2 data collection, May and June 2016, household survey.

Note: We tested differences between group means by using two-tailed t-tests. Treatment group means are regression-adjusted, including commune fixed effects and village-level weights. The NECS-only group mean includes a control for village-level enrollment at baseline. Control group means include village-level weights. Regressions account for clustering within villages. For non-enrolled children, attendance is unconditional on enrollment, meaning that those who are not enrolled are all scored as absent. Normalized scores take child age into account. Sample sizes are for the full sample; some regressions may include a smaller size because of missing data. We tested differences in subgroup impacts by using a regression model with an intervention group-gender interaction term. We estimated the significance of the difference by using a two-tailed t-test of the interaction term. Differences in impacts were estimated using simultaneous estimation of both treatment models for each outcome (using the "suest" command in STATA).

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

C. Estimated impact on secondary outcomes

Our primary measures of enrollment and attendance are enrollment during the current school year and attendance on the last day that school was open, as measured in the household survey. We also estimated impacts on several other enrollment and attendance measures constructed from household survey and school register data. The impacts on these measures largely correspond with the impacts on our primary outcomes. NECS & IMAGINE increased child enrollment across all secondary measures by 10.1 to 13.9 percentage points, and NECS-only increased enrollment by 8.7 to 9.5 percentage points (Table V.11). As with our primary measure of enrollment, the impacts are all statistically significant.

Table V.11. Impact of NECS & IMAGINE and NECS-only on additional enrollment and attendance outcomes

	Means			Impacts	
	NECS & IMAGINE group	NECS-only group	Control group	NECS & IMAGINE group	NECS-only group
Child was enrolled during SY 2015–2016, according to school register (percentage)	72.3	67.4	58.4	13.9***	9.0***
Child attended school during SY 2015–2016, according to child (percentage)	79.5	78.1	69.4	10.1***	8.7***
Child currently enrolled in school, according to household survey (percentage)	78.5	77.8	68.4	10.1***	9.4***
Child ever enrolled in school, according to household survey (percentage)	81.4	80.5	71.0	10.4***	9.5***
Child enrolled during SY 2014–2015, according to household survey (percentage)	71.5	68.6	59.7	11.9***	9.0***
Number of days child attended during last seven days, according to household survey	4.9	4.5	3.8	1.1***	0.7***
Number of days child attended during last seven days, according to school register	3.4	3.1	2.4	1.0***	0.7***
Child present on day of school visit, according to school register (percentage)	61.4	49.3	41.7	19.7***	7.7**
Attendance during most recent month school was open, according to school register (percentage)	66.6	58.2	52.9	13.7***	0.1
Average attendance over the school year, according to school register (percentage)	67.1	60.3	53.2	13.9***	0.1**
Sample size (children-household survey)	**4,103**	**5,755**	**3,325**		
Sample size (children-school register)	**3,473**	**4,655**	**2,766**		
Sample size (villages)	**60**	**82**	**50**		

Source: NECS Wave 2 data collection, May and June 2016, household survey.

Note: We tested differences between group means by using two-tailed t-tests. Treatment group means are regression-adjusted, including commune fixed effects and village-level weights. The NECS-only group mean includes a control for village-level enrollment at baseline. Control group means include village-level weights. Regressions use standard errors that are robust to heteroscedasticity. For non-enrolled children, attendance is unconditional on enrollment, meaning that those who are not enrolled are all scored as absent. Sample sizes are for the full sample; some regressions may include a smaller size because of missing data.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

NECS & IMAGINE increased attendance across all secondary measures, and NECS-only increased attendance for all but one secondary measure (attendance during the last month of school). Children in NECS & IMAGINE villages had attended approximately one more day of

school in the last seven days than children in control villages and were nearly 20 percentage points more likely to have been present on the day of data collection. In NECS-only villages, those impacts were smaller, at 0.7 days and 8 percentage points, respectively, but were still statistically significant.

Table V.12. Impact of NECS & IMAGINE and NECS-only on school-level enrollment and attendance outcomes

	Means			Impacts		Sample sizes (schools)		
	NECS & IMAGINE group	NECS-only group	Control group	NECS & IMAGINE group	NECS-only group	NECS & IMAGINE group	NECS-only group	Control group
Count of children enrolled in SY 2015–2016								
Grade 1	50.5	53.9	45.8	4.7	8.1	60	69	41
Grade 2	44.9	58.0	38.4	6.5	19.6***	60	67	41
Grade 3	44.8	59.1	41.0	3.8	18.1***	61	69	45
Grade 4	41.4	52.4	32.3	9.2*	20.1	58	55	40
Grade 5	38.1	43.3	28.2	9.9*	15.1**	55	61	41
Grade 6	52.0	52.4	43.8	8.2	8.6	61	67	46
Count of children enrolled in SY 2014–2015								
Grade 1	46.6	60.5	40.5	6.1	20.0***	59	68	43
Grade 2	47.7	62.0	39.5	8.2	22.5***	60	68	43
Percentage of enrolled students present on day of data collection								
Grade 1[a]	76.9	84.4	66.7	10.2	17.7*	39	51	27
Grade 2[b]	76.9	89.8	65.5	11.4	24.4***	40	48	24
Sample size (villages)	**59**	**69**	**43**					

Source: NECS Wave 2 data collection, May and June 2016, school questionnaire.

Note: We tested differences between group means by using two-tailed t-tests. Treatment group means are regression-adjusted, including commune fixed effects and village-level weights. The NECS-only group mean includes a control for village-level enrollment at baseline. Control group means include village-level weights. The attendance outcomes have smaller sample sizes because some schools were on strike at the time of data collection. Randomization was conducted at the village-level.

[a]Percentage of enrolled students present on the day of data collection in grade 1 is the number of children counted as present in grade 1 by interviewers divided by the count of children enrolled in grade 1 in SY 2015–2016 (multiplied by 100).

[b]Percentage of enrolled students present on the day of data collection is the number of children counted as present in grade 2 by interviewers divided by the count of children enrolled in grade 2 in SY 2015–2016 (multiplied by 100).

***/**/*Impact estimate is statistically significant at the .01/.05/.10 level.

We also estimated the impact on school enrollment counts for the 2014–2015 and 2015–2016 school years for several grade levels (Table V.12). Across most measures, we found enrollment to be higher in NECS-only schools than in control group schools. We found that NECS & IMAGINE schools had higher total enrollment than control group schools in grades 4 and 5 in the 2015–2016 school year, but not in grade 1 or 2. In addition, NECS-only schools had a similar number of or more students enrolled in the two school years than did NECS & IMAGINE schools. The difference in school enrollment counts may reflect the fact that a larger percentage of NECS-only schools (16 percent) versus NECS & IMAGINE schools (2 percent) reported data missing from the school questionnaire as a result of strikes. If striking schools were smaller on average than nonstriking schools, we could overestimate the average enrollment counts of NECS-only schools.

Table V.13. Impact of NECS & IMAGINE and NECS-only on school dropout and transition

	Means			Impacts		Sample sizes (children)		
	NECS & IMAGINE group	NECS-only group	Control group	NECS & IMAGINE group	NECS-only group	NECS & IMAGINE group	NECS-only group	Control group
Enrolled in grade 3 (percentage)[a]	48.3	46.6	41.1	7.3***	5.2***	4,084	5,722	3,312
Failed to complete SY 2015–2016 (percentage)[b]	0.8	0.6	0.6	0.2	0.0	3,261	4,173	2,278
Failed to complete SY 2014–2015 (percentage)[c]	0.9	1.2	1.7	-0.8**	-0.5	2,938	3,615	1,979
Ever enrolled but no longer enrolled (percentage)[d]	3.3	3.1	3.6	-0.3	-0.5	3,366	4,309	2,346
Enrolled in SY 2014–2015 but did not enroll in SY 2015–2016 (percentage)[e]	1.6	1.3	1.8	-0.2	-0.5	2,943	3,622	1,984
Attended same grade during SY 2014–2015 and SY 2015–2016 (percentage)[f]	10.6	9.6	11.0	-0.4	-1.4	2,882	3,563	1,946
Sample size (villages)	**60**	**82**	**50**					

Source: NECS Wave 2 data collection, May and June 2016, household survey.

Note: We tested differences between group means by using two-tailed t-tests. Treatment group means are regression-adjusted, including commune fixed effects and village-level weights. The NECS-only group mean includes a control for village-level enrollment at baseline. Control group means include village-level weights. Regressions account for clustering within villages. Sample sizes (villages) are for the full sample. Some regressions include a smaller sample size because of conditional outcomes. For example, "Failed to complete SY 2014–2015" is defined only for children who were enrolled in SY 2014–2015.

[a]A child has ever enrolled in grade 3 if the highest grade he or she achieved was grade 3 or higher or if he or she was enrolled in grade 3 or higher during SY 2014–2015 or SY 2015–2016. This outcome is defined for the entire sample.

[b]A child failed to complete SY 2015–2016 if he or she was enrolled at any time during SY 2015–2016 but not enrolled at the time of data collection, near the end of SY 2015–2016. This outcome is defined only for children who were enrolled in SY 2015–2016.

[c]A child failed to complete SY 2014–2015 if he or she was enrolled at any time during SY 2014–2015 but did not complete SY 2014–2015. This outcome is defined only for children who were enrolled in SY 2014–2015.

[d]A child was ever enrolled but no longer enrolled if he or she was listed as having attended preschool or primary or secondary school (ever) or if he or she was enrolled in SY 2014–2015 or SY 2015–2016. This outcome is defined only for children who have ever been enrolled.

[e]This outcome is defined only for children who were enrolled in SY 2014–2015.

[f]This outcome is defined only for children who were enrolled in both SY 2014–2015 and SY 2015–2016.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

We are also interested in evaluating the impact of the program on whether children drop out of school or transition between grades. Because we did not follow the same children from Wave 1 to Wave 2, we cannot directly observe transitions in school enrollment for the same children. We nonetheless present results of analyses of measures related to dropout and transition in Table V.13, but we note that the analyses rely on cross-sectional samples such that the estimated impacts are probably biased and need to be interpreted with caution. For example, in trying to capture the dropout rate, we analyze whether students were enrolled at some point during the current school year but not enrolled at the time of data collection (near the end of the school year). However, the programs may also have affected enrollment at the beginning of the school year, preventing the measure of enrollment from fully reflecting the impact of the interventions on student dropout rates. Yet, for enrollment in grade 3, which is measureable for the entire sample and is therefore unbiased, we find positive impacts for both the NECS & IMAGINE and

NECS-only groups. The measure is an alternative to "transition to grade 3," which would be biased in this analysis.

Table V.14. Impact of NECS & IMAGINE and NECS-only on additional test scores

	Means			Impacts	
	NECS & IMAGINE group	NECS-only group	Control group	NECS & IMAGINE group	NECS-only group
Local-language score—average percentage correct across all tasks	37.5	36.6	35.1	2.4***	1.5***
French-language score—average percentage correct across all tasks	11.1	10.3	9.9	1.1	0.4
Mathematics score— normalized (standard deviations)	0.08	0.05	-0.05	0.13**	0.10**
Mathematics score— raw number (maximum = 18)	5.88	5.67	5.19	0.69***	0.49**
Sample size (children)	**4,028**	**5,635**	**3,263**		
Sample size (villages)	**60**	**82**	**50**		

Source: NECS Wave 2 data collection, May and June 2016, household survey.

Note: We tested differences between group means by using two-tailed t-tests. Treatment group means are regression-adjusted, including commune fixed effects and village-level weights. The NECS-only group mean includes a control for village-level enrollment at baseline. Control group means include village-level weights. Regressions account for clustering within villages. Local-language and French-language average-percent correct scores are calculated by taking the average of the percent correct on each subtask. In this way, each subtask is weighted equally, even though some subtasks contained more items than others. Normalized scores take child age into account. Sample sizes are for the full sample; some regressions may include a smaller size because of missing data.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

We also investigate the impact of the program on student learning by estimating impacts on raw French- and local-language scores (measured as the average percentage of items correct across the seven subtasks in each assessment) and on normalized and raw scores from a mathematics assessment. As with the normalized scores, we find impacts on raw local-language scores for both treatment groups and no impacts on raw French-language scores (Table V.14). We find that children in the NECS & IMAGINE group scored 2.4 percentage points higher than children in the control group and that NECS-only children scored 1.5 percentage points higher (increases of 6.8 and 4.3 percent, respectively, from a control group mean of 35.1 percent). Although neither NECS nor IMAGINE included interventions focused on mathematics instruction, we find statistically significant improvements in both the raw and normalized mathematics scores in both treatment groups. Children in the NECS & IMAGINE and NECS-only groups scored 0.13 and 0.10 standard deviations, respectively, higher than the control group. These impacts on the mathematics assessment are substantial and suggest an overall increase in learning in NECS and IMAGINE schools. In addition, it appears that improvements in local-language test scores did not come at the expense of improvements in mathematics scores and in fact, unlike French, suggest complementary benefits of the NECS activities to learning in mathematics. These improvements could result from improved enrollment and attendance in school, improved teaching, or an improved learning environment.

As described, the local-language and French-language assessments each consisted of seven subtasks that measured early-grade reading skills ranging from receptive and expressive oral language to reading comprehension. In Tables V.14 and V.15, we present the estimated impacts on each subtask, by language and grade.[33] To account for the fact that we evaluate tests for multiple sub-tasks within each language domain, we evaluate the significance of the estimated impacts in Tables V.15 and V.16 using the Benjamini-Hochberg adjustment (Benjamini and Hochberg 1995). It is also important to note that, even though we present scores separately by language, scores should not be compared across languages because languages differ in their complexity; moreover, some languages may take longer to learn than other languages. As a result, a finding of higher raw scores in Hausa than in Zarma, for example, would not necessarily indicate that children speaking Hausa or attending schools that provide instruction in Hausa are learning to read faster than children who speak Zarma. It could simply mean that, on average, it takes longer to learn Zarma than Hausa.

Table V.15. Additional reading outcomes: Reading skills by test language

	Means			Impacts	
Language	NECS & IMAGINE group	NECS-only group	Control group	NECS & IMAGINE group	NECS-only group
Panel A. French					
Subtask 1: Receptive oral language (maximum = 10)	2.6	2.5	2.4	0.2	0.0
Subtask 2: Expressive oral language (maximum = 10)	2.5	2.6	2.6	-0.1	-0.1
Subtask 3: Listening comprehension (maximum = 5)	0.1	0.1	0.1	0.0	0.0
Subtask 4: Letter identification (maximum = 100)	9.2	8.5	6.0	3.2***	2.5***
Subtask 5: Familiar word reading (maximum = 50)	2.4	2.1	1.8	0.6	0.3
Subtask 6: Oral reading fluency (maximum = 48)	2.2	1.8	1.7	0.5	0.1
Subtask 7: Reading comprehension (maximum = 5)	0.2	0.2	0.2	0.0	0.0
Sample size (children)	**4,028**	**5,634**	**3,263**		
Sample size (villages)	**60**	**82**	**50**		
Panel B. Hausa					
Subtask 1: Receptive oral language (maximum = 10)	9.4	9.3	9.3	0.1	-0.1
Subtask 2: Expressive oral language (maximum = 10)	9.1	8.9	9.0	0.1	-0.1
Subtask 3: Listening comprehension (maximum = 5)	2.9	2.7	2.6	0.2**	0.1
Subtask 4: Letter identification (maximum = 100)	8.9	8.8	3.6	5.3***	5.2***
Subtask 5: Familiar word reading (maximum = 50)	2.2	1.8	1.1	1.1***	0.7***
Subtask 6: Oral reading fluency (maximum = 37)	2.1	1.8	0.9	1.1***	0.9***
Subtask 7: Reading comprehension (maximum = 5)	0.4	0.3	0.2	0.2**	0.1***
Sample size (children)	**2,452**	**3,812**	**2,317**		
Sample size (villages)	**36**	**53**	**33**		

[33] In Appendix, F, we describe in detail reading skills for children enrolled in grade 1 or 2 during the previous school year. This analysis is similar to that presented in the NECS EGRA Descriptive Study Round 1 report (Bagby et al. 2014b) and the NECS baseline report (Bagby et al. 2015).

Language	Means			Impacts	
	NECS & IMAGINE group	NECS-only group	Control group	NECS & IMAGINE group	NECS-only group
Panel C. Zarma					
Subtask 1: Receptive oral language (maximum = 10)	9.3	9.2	9.1	0.2	0.0
Subtask 2: Expressive oral language (maximum = 10)	9.2	9.0	9.0	0.2	0.1
Subtask 3: Listening comprehension (maximum = 5)	2.7	2.7	2.4	0.3	0.2
Subtask 4: Letter identification (maximum = 100)	6.0	8.6	3.5	2.5**	5.1***
Subtask 5: Familiar word reading (maximum = 50)	1.2	1.2	1.0	0.2	0.3
Subtask 6: Oral reading fluency (maximum = 37)	0.8	0.7	0.7	0.1	0.1
Subtask 7: Reading comprehension (maximum = 5)	0.0	0.0	0.0	0.0	0.0
Sample size (children)	**1,208**	**1,147**	**711**		
Sample size (villages)	**19**	**19**	**11**		
Panel D. Kanuri					
Subtask 1: Receptive oral language (maximum = 10)	9.3	9.2	9.4	-0.1	-0.2**
Subtask 2: Expressive oral language (maximum = 10)	8.9	8.9	9.1	-0.1	-0.2
Subtask 3: Listening comprehension (maximum = 5)	3.0	2.9	2.7	0.3	0.1
Subtask 4: Letter identification (maximum = 100)	6.0	5.6	1.3	4.8***	4.3***
Subtask 5: Familiar word reading (maximum = 50)	0.6	0.9	0.1	0.5***	0.8**
Subtask 6: Oral reading fluency (maximum = 30)	0.2	0.4	0.1	0.1	0.3**
Subtask 7: Reading comprehension (maximum = 5)	0.0	0.0	0.0	0.0	0.0**
Sample size (children)	**287**	**627**	**176**		
Sample size (villages)	**4**	**9**	**3**		
Panel E. Other local language 1					
Subtask 1: Receptive oral language (maximum = 10)	9.3	8.5	n/a	n/a	n/a
Subtask 2: Expressive oral language (maximum = 10)	8.7	7.9	n/a	n/a	n/a
Subtask 3: Listening comprehension (maximum = 5)	1.9	4.0	n/a	n/a	n/a
Subtask 4: Letter identification (maximum = 100)	8.7	10.1	n/a	n/a	n/a
Subtask 5: Familiar word reading (maximum = 50)	2.7	1.2	n/a	n/a	n/a
Subtask 6: Oral reading fluency (maximum = 33)	2.3	0.7	n/a	n/a	n/a
Subtask 7: Reading comprehension (maximum = 5)	0.1	0.0	n/a	n/a	n/a
Sample size (children)	**81**	**49**	**0**		
Sample size (villages)	**2**	**1**	**0**		
Panel F. Other local language 2					
Subtask 1: Receptive oral language (maximum = 10)	n/a	n/a	9.7	n/a	n/a
Subtask 2: Expressive oral language (maximum = 10)	n/a	n/a	9.4	n/a	n/a
Subtask 3: Listening comprehension (maximum = 5)	n/a	n/a	3.1	n/a	n/a
Subtask 4: Letter identification (maximum = 100)	n/a	n/a	14.2	n/a	n/a
Subtask 5: Familiar word reading (maximum = 50)	n/a	n/a	8.5	n/a	n/a
Subtask 6: Oral reading fluency (maximum = 33)	n/a	n/a	6.0	n/a	n/a
Subtask 7: Reading comprehension (maximum = 5)	n/a	n/a	1.5	n/a	n/a
Sample size (children)	**0**	**0**	**59**		
Sample size (villages)	**0**	**0**	**3**		

Source: NECS Wave 2 data collection, May and June 2016, household survey.

Note: We tested differences between group means by using two-tailed t-tests and the Benjamini-Hochberg adjustment for multiple comparisons (Benjamini and Hochberg 1995). Treatment group means are regression-adjusted, including commune fixed effects and village-level weights. The NECS-only group mean includes a control for village-level enrollment at baseline. Control group means include village-level weights. Regressions account for clustering within villages. Local-language and French-language average-percent correct scores are calculated by taking the average of the percent correct on each subtask. In this way, each subtask is weighted equally, even though some contained more items than others. Sample sizes are for the full sample; some regressions may include a smaller size because of missing data.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

In all languages, we find a statistically significant improvement in several reading skills across languages. We find an impact on letter identification (subtask 4), the first of the subtasks that requires reading print, for both the NECS & IMAGINE and NECS-only interventions (Table V.15). We also find impacts for at least one of the interventions on familiar word reading (subtask 5) in three of the four languages. The NECS early-grade reading curriculum focused on learning the names and sounds of letters and on learning how to string two and three syllables together into words. The letter identification and familiar word reading subtasks measure both skills, which show room for improvement in that average scores for receptive and expressive oral language (subtasks 1 and 2) in local languages are relatively high in all study groups (except in French, as expected). It is interesting to note an improvement in letter identification in French, which is a skill that is largely translatable from one language to another given that the majority of letters are common across the languages of interest.

We also find positive impacts on oral reading fluency and reading comprehension (subtasks 6 and 7) in Hausa for both treatment groups and in Kanuri for the NECS-only group, but the magnitude of the impacts is relatively small. We are not able to estimate impacts for the other local languages because the assessments in those languages took place either in treatment villages only or in control villages only. However, we see that the level of reading skills in those languages is similar to the levels in the other languages.

In addition to looking at subtask scores by language, we look at scores by the highest grade achieved by each student in order to see which grades might be driving the overall impact on the local-language score. As expected, we find no impacts on either children without schooling or children with only a preschool education (Table V.16). Among children whose highest achieved grade is grade 1, we find positive impacts in both treatment groups on letter identification and familiar word reading (subtasks 4 and 5). Among children whose highest achieved grade is grade 2, we find impacts on all subtasks requiring the reading of print (subtasks 4 through 7) and, for grade 3, impacts for the same subtasks as well as for oral comprehension. We find impacts on letter identification only among children who have reached grade 4. The results indicate that NECS, which was implemented in grades 1 and 2, has improved reading skills for children exposed to the project at some point in those grades, though to different degrees.[34]

Despite the improvements in reading associated with the project, the results in Table V.16 show that reading skills remain poor. For instance, children in grade 2 in the NECS & IMAGINE and NECS-only groups are able to identify, on average, only 11 and 13 letters, respectively, in one minute (out of a possible 100 letters). Clearly, individual subtask scores increase with the highest grade achieved, but the increases are small. For instance, children in the control group in grade 1 are able to identify, on average, only 0.9 letters in one minute (out of a possible 100 letters), and children in the control group in grade 4 can, on average, identify just 6.9 letters in one minute . Impacts on letter identification are greatest in grades 2 and 3, with children in the treatment groups able to identify between 7.0 and 10.4 letters per minute more than children in the control group.

[34] The original local-language reading curriculum was implemented in the 2013–2014 school year in grade 1 only. The new ASL curriculum was implemented in grade 1 only during the last three months of the 2014–2015 school year and in grades 1 and 2 for the full 2015–2016 school year. Thus, students who were enrolled in grade 4 in the 2015–2016 school year would never have received NECS local-language instruction.

Table V.16. Additional reading outcomes: Reading skills by highest grade achieved

	Means			Impacts	
	NECS & IMAGINE group	NECS-only group	Control group	NECS & IMAGINE group	NECS-only group
Panel A. No schooling					
Subtask 1: Receptive oral language (maximum = 10)	8.9	8.6	8.8	0.1	-0.2
Subtask 2: Expressive oral language (maximum = 10)	8.5	8.2	8.4	0.0	-0.2
Subtask 3: Listening comprehension (maximum = 5)	2.2	2.0	2.1	0.1	0.0
Subtask 4: Letter identification (maximum = 100)	0.4	0.3	0.1	0.3	0.1
Subtask 5: Familiar word reading (maximum = 50)	0.1	0.1	0.1	0.1	0.0
Subtask 6: Oral reading fluency (maximum differs by language)	0.1	0.1	0.0	0.1	0.0
Subtask 7: Reading comprehension (maximum = 5)	0.0	0.0	0.0	0.0	0.0
Sample size (children)	**722**	**1,433**	**951**		
Sample size (villages)	**57**	**80**	**44**		
Panel B. Preschool					
Subtask 1: Receptive oral language (maximum = 10)	8.5	8.6	8.8	-0.3	-0.2
Subtask 2: Expressive oral language (maximum = 10)	7.7	7.2	8.0	-0.3	-0.8
Subtask 3: Listening comprehension (maximum = 5)	1.2	1.5	1.3	-0.1	0.2
Subtask 4: Letter identification (maximum = 100)	1.1	2.7	0.8	0.3	1.8
Subtask 5: Familiar word reading (maximum = 50)	0.5	0.5	0.4	0.1	0.0
Subtask 6: Oral reading fluency (maximum differs by language)	0.3	0.2	0.4	0.0	-0.2
Subtask 7: Reading comprehension (maximum = 5)	0.1	0.1	0.1	0.0	0.0
Sample size (children)	**213**	**83**	**102**		
Sample size (villages)	**46**	**32**	**24**		
Panel C. Grade 1					
Subtask 1: Receptive oral language (maximum = 10)	9.1	8.8	9.1	0.0	-0.3*
Subtask 2: Expressive oral language (maximum = 10)	8.6	8.4	8.8	-0.1	-0.3**
Subtask 3: Listening comprehension (maximum = 5)	2.2	2.0	2.1	0.1	-0.1
Subtask 4: Letter identification (maximum = 100)	6.1	4.9	0.9	5.1***	3.9***
Subtask 5: Familiar word reading (maximum = 50)	0.5	0.4	0.3	0.3*	0.2
Subtask 6: Oral reading fluency (maximum differs by language)	0.4	0.3	0.3	0.1	0.0
Subtask 7: Reading comprehension (maximum = 5)	0.1	0.1	0.1	0.0	0.0
Sample size (children)	**628**	**888**	**474**		
Sample size (villages)	**59**	**82**	**47**		
Panel D. Grade 2					
Subtask 1: Receptive oral language (maximum = 10)	9.4	9.3	9.5	0.0	-0.1*
Subtask 2: Expressive oral language (maximum = 10)	9.1	9.2	9.1	0.0	0.1
Subtask 3: Listening comprehension (maximum = 5)	2.7	2.7	2.6	0.1	0.1
Subtask 4: Letter identification (maximum = 100)	10.8	13.0	2.6	8.2***	10.4***
Subtask 5: Familiar word reading (maximum = 50)	1.9	1.8	0.5	1.4***	1.3***
Subtask 6: Oral reading fluency (maximum differs by language)	1.9	1.7	0.3	1.6***	1.4***
Subtask 7: Reading comprehension (maximum = 5)	0.2	0.3	0.1	0.1**	0.2***
Sample size (children)	**604**	**880**	**426**		
Sample size (villages)	**60**	**81**	**47**		

	Means			Impacts	
	NECS & IMAGINE group	NECS-only group	Control group	NECS & IMAGINE group	NECS-only group
Panel E. Grade 3					
Subtask 1: Receptive oral language (maximum = 10)	9.6	9.5	9.5	0.1	0.1
Subtask 2: Expressive oral language (maximum = 10)	9.4	9.3	9.2	0.2*	0.0
Subtask 3: Listening comprehension (maximum = 5)	3.2	3.1	2.9	0.3**	0.2
Subtask 4: Letter identification (maximum = 100)	11.4	11.9	4.4	7.0***	7.5***
Subtask 5: Familiar word reading (maximum = 50)	2.4	1.8	1.1	1.3***	0.7*
Subtask 6: Oral reading fluency (maximum differs by language)	1.8	1.6	0.8	1.1***	0.8***
Subtask 7: Reading comprehension (maximum = 5)	0.3	0.3	0.1	0.2***	0.1***
Sample size (children)	**631**	**968**	**468**		
Sample size (villages)	**60**	**82**	**49**		
Panel F. Grade 4					
Subtask 1: Receptive oral language (maximum = 10)	9.7	9.6	9.8	-0.1	-0.2**
Subtask 2: Expressive oral language (maximum = 10)	9.5	9.4	9.6	-0.1	-0.1
Subtask 3: Listening comprehension (maximum = 5)	3.4	3.3	3.3	0.1	0.1
Subtask 4: Letter identification (maximum = 100)	10.2	10.1	6.9	3.3**	3.1**
Subtask 5: Familiar word reading (maximum = 50)	2.8	2.5	2.3	0.5	0.2
Subtask 6: Oral reading fluency (maximum differs by language)	2.6	2.1	1.7	0.9	0.4
Subtask 7: Reading comprehension (maximum = 5)	0.4	0.4	0.3	0.1	0.1
Sample size (children)	**450**	**501**	**243**		
Sample size (villages)	**59**	**76**	**44**		

Source: NECS Wave 2 data collection, May and June 2016, household survey.

Note: We tested differences between group means by using two-tailed t-tests and the Benjamini-Hochberg adjustment for multiple comparisons (Benjamini and Hochberg 1995). Treatment group means are regression-adjusted, including commune fixed effects and village-level weights. The NECS-only group mean includes a control for village-level enrollment at baseline. Control group means include village-level weights. Regressions account for clustering within villages. Sample sizes are for the full sample; some regressions may include a smaller size because of missing data.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

The low scores are not unique to Niger. Primary school children in many African countries exhibit very low levels of reading skill. For example, a benchmarking study that used a local-language EGRA in Malawi found that students who had completed grade 1 could name 5.7 letters per minute and could read 1.9 familiar words per minute (USAID and RTI International 2014). A study in Mali found that, among grade 2 students, mean scores were 15.3 letter sounds identified per minute, 4.2 familiar words read per minute, and 4.1 words read per minute in the oral reading fluency subtask (RTI International 2015). The average score for reading comprehension was 3.7 percent. In comparison, children in the United States are expected to be able to read at least 40 correct letters per minute by the end of kindergarten (EdData 2011).

D. Other impact-related questions

Our primary analysis focused on a variety of measures of children's enrollment, attendance, and learning. However, the NECS and IMAGINE projects likely affected several other child outcomes through the projects' focus on girl-friendly schools, community mobilization, gender-

equitable teaching practices, mentoring and school government programs, and improved school materials. In this section, we examine outcomes related to children's experiences in school, parents' attitudes toward schooling, school infrastructure and curriculum, and teacher characteristics and practices. We also conduct further analyses by age and gender.

Table V.17. Impacts of NECS & IMAGINE and NECS-only on additional child outcomes

	Means			Impacts	
	NECS & IMAGINE group	NECS-only group	Control group	NECS & IMAGINE group	NECS-only group
Outcomes defined for all children					
Child wants to go to school (percentage)	90.0	89.6	88.3	1.8	1.3
Child labor (any) (percentage)	7.8	7.0	6.0	1.8	1.0
Child labor (paid) (percentage)	1.4	1.1	1.5	-0.2	-0.4
Highest grade child achieved	3.3	3.2	2.9	0.4***	0.3***
Outcomes defined for children enrolled in SY 2015–2016					
Age child entered primary school	6.6	6.6	6.7	-0.1*	0.0
Child is on age for grade (percentage)	91.6	89.9	89.7	1.9*	0.0
Child is old for grade (percentage)	5.1	5.5	6.4	-1.3*	-0.9
Child is young for grade (percentage)	3.2	4.3	3.6	-0.4	0.7
Number of years child is off grade	0.1	0.1	0.1	-0.0	0.0
Less than 10 minutes travel time to school (percentage)	78.9	78.6	80.9	-2.0	-2.3
Experiences violence in school (percentage)	50.0	56.3	57.0	-7.0**	-0.7
Teacher called more on boys (percentage)	22.5	24.3	25.2	-2.7*	-0.9
Child received deworming in last 12 months (percentage)	84.2	80.0	81.0	3.1	-1.0
Child has a mentor (percentage)	19.7	24.3	20.7	-0.9	3.7**
Sample size (all children)	**4,104**	**5,757**	**3,325**		
Sample size (children ever enrolled)	**3,262**	**4,176**	**2,283**		
Sample size (villages)	**60**	**82**	**50**		

Source: NECS Wave 2 data collection, May and June 2016, household survey.

Note: We tested differences between group means by using two-tailed t-tests. Treatment group means are regression-adjusted, including commune fixed effects and village-level weights. The NECS-only group mean includes a control for village-level enrollment at baseline. Control group means include village-level weights. Regressions account for clustering within villages. Sample sizes are for the full sample; some regressions may include a smaller size because of missing data.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

We find that primary school–age children in NECS & IMAGINE and NECS-only villages achieve, on average, 0.4 and 0.3 more years of schooling, respectively, than children in control group villages (Table V.17). We also find that children enrolled in the 2015–2016 school year in NECS & IMAGINE villages are 7.0 percentage points less likely to have experienced violence in school than children in the control group; however, we find no impact of NECS-only project on the same outcome. Enrolled children in NECS-only villages are 3.7 percentage points more likely to have a mentor (as reported by the household survey respondent) than those in the control group. We find no impacts on the percentage of children who want to go to school or who work (paid or unpaid). We also do not observe impacts on the age at which children enter primary school, whether they are on age for their grade, whether they feel that teachers call on

boys more than on girls and whether they have received deworming treatment in the last 12 months. The results, taken together, suggest that NECS may not have a substantial impact on children's perceptions of school, the age at which they enter school, and whether they have to work.

Table V.18. Impacts of NECS & IMAGINE and NECS-only on parent attitudes toward schooling

	Means			Impacts	
	NECS & IMAGINE group	NECS-only group	Control group	NECS & IMAGINE group	NECS-only group
Attitudes toward schooling					
Would like child to attend secondary or advanced schooling (percentage)	83.1	82.8	76.3	6.9***	6.5***
Thinks child will attend secondary or advanced schooling (percentage)	76.4	74.0	65.8	10.6***	8.3***
Attitudes toward schooling—females					
Would like child to attend secondary or advanced schooling (percentage)	81.1	80.5	73.3	7.8***	7.2***
Thinks child will attend secondary or advanced schooling (percentage)	74.3	73.0	63.3	11.0***	9.6***
Attitudes toward schooling—males					
Would like child to attend secondary or advanced schooling (percentage)	85.2	84.8	78.9	6.3***	5.8***
Thinks child will attend secondary or advanced schooling (percentage)	78.4	75.0	68.0	10.3***	6.9***
Attitude gap					
Would like child to attend a higher grade level than thinks child will attend (percentage)	27.1	29.3	25.6	1.5	3.7*
Household head is literate (percentage)	28.7	30.2	29.1	-0.4	1.1
Sample size (children)	**3,924**	**5,538**	**3,192**		
Sample size (households)	**2,376**	**3,179**	**1,894**		
Sample size (villages)	**60**	**82**	**50**		

Source: NECS Wave 2 data collection, May and June 2016, household survey.

Note: We tested differences between group means by using two-tailed t-tests. Treatment group means are regression-adjusted, including commune fixed effects and village-level weights. The NECS-only group mean includes a control for village-level enrollment at baseline. Control group means include village-level weights. Regressions account for clustering within villages. Sample sizes are for the full sample; some regressions may include a smaller size because of missing data. Household survey respondent provided an individual response for each child age 6 through 12 in the household.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

The NECS project aimed to influence parent attitudes and behavior related to schooling, through literacy campaigns and training and community events that stressed the importance of schooling. Indeed, we find that, in both treatment groups, parents were more likely to wish and believe that their child, whether male or female, would attend secondary or advanced schooling (Table V.18). However, we do not find an impact on the gap between the level of schooling that a parent wants his or her child to achieve and the level that a parent expects the child to achieve. We also do not find statistically significant impacts on the percentage of literate household

heads, suggesting that a more intense, adult-focused intervention would be needed to improve adult literacy skills.

To determine if parents were aware of the components of the IMAGINE and NECS projects and considered those components when making their schooling decisions, we looked at parents' chief reasons for sending their children to a given school. Across all treatment groups, distance was the primary factor in parents' selection of a school, with the difference between the treatment groups not statistically significant (Table V.19). We found that parents in the NECS & IMAGINE group were 0.2 percentage points more likely to list separate bathrooms as among the most important considerations in school selection; parents in the NECS-only group were 6.3 percentage points more likely to list local-language reading materials as among the two most important reasons. The reasons for school selection are in line with each project's activities. The schools constructed under IMAGINE provide separate bathrooms for boys and girls, while NECS provides local-language reading materials. The results indicate that parents are aware of at least some of the project activities and value them. We observed no difference in the literacy of the head of the household, suggesting that the school selection mechanism is not related to the adult literacy component of NECS.

Table V.19. Impacts of NECS & IMAGINE and NECS-only on parent attitudes regarding schooling decisions

	Means			Impacts	
	NECS & IMAGINE group	NECS-only group	Control group	NECS & IMAGINE group	NECS-only group
Enrolled children					
Most important factor for sending child to school (percentage):					
Distance	85.6	84.0	87.4	-1.9	-3.4*
Textbooks	4.7	6.9	4.7	0.0	2.2**
School canteen	2.5	0.8	0.8	1.7	0.0
Dry rations	0.3	0.0	0.2	0.1	-0.2
Separate bathrooms	0.2	0.0	0.0	0.2**	0.0
Reading materials in local languages	6.7	8.3	6.8	0.0	1.5
Among two most important factors for sending child to school (percentage):					
Distance	89.9	88.2	91.5	-1.6	-3.3**
Textbooks	26.1	29.7	27.2	-1.1	2.5
School canteen	3.0	2.6	3.0	0.0	-0.4
Dry rations	0.4	0.3	0.2	0.2	0.1
Separate bathrooms	3.0	0.2	0.1	2.9***	0.1
Reading materials in local languages	17.9	24.3	18.0	-0.1	6.3
Children not enrolled in SY 2015–2016					
Most important factor for not sending child to school (SY 2015–2016) (percentage):					
Child too young	28.1	29.4	26.1	2.0	3.3***
Family refused	26.6	31.3	38.6	-12.0***	-7.3***
Household work	5.9	7.0	2.9	3.0**	4.1
Child refused	15.2	11.8	11.8	3.5*	0.0
Child too old	2.2	3.7	3.0	-0.8	0.7*

	Means			Impacts	
	NECS & IMAGINE group	NECS-only group	Control group	NECS & IMAGINE group	NECS-only group
Expelled/failed	3.3	3.4	2.0	1.3	1.5
Child has health problems	5.4	3.5	1.7	3.7***	1.8
School fees	0.8	0.6	0.6	0.2	0.0
Taking care of siblings	1.1	0.6	1.1	-0.1	-0.5**
No certificate of birth	1.1	0.3	0.6	0.6	-0.3
Work for income	0.1	0.4	0.2	-0.1	0.3
Children not enrolled in SY 2014–2015					
Most important factor for not sending child to school (SY 2014–2015) (percentage):					
Child too young	51.0	53.4	46.8	4.3	6.6
Family refused	19.8	21.2	28.6	-8.9***	-7.4***
Household work	3.5	4.9	2.0	1.5*	2.9***
Child refused	10.0	6.8	7.4	2.6*	-0.6
Child too old	1.7	2.5	1.6	0.1	0.9
Expelled/failed	1.5	1.7	1.2	0.3	0.5
Child has health problems	3.5	2.1	1.6	1.9**	0.5***
School fees	1.2	0.5	0.7	0.5	-0.2
Taking care of siblings	0.6	0.4	0.9	-0.3	0.3
No certificate of birth	0.8	0.2	0.4	0.4	-0.1
Work for income	0.1	0.5	0.3	-0.2	0.1
Sample size (enrolled children)	**3,262**	**4,176**	**2,283**		
Sample size (not enrolled children, SY 2015–2016)	**827**	**1,553**	**1,029**		
Sample size (not enrolled children, SY 2014–2015)	**1,147**	**2,111**	**1,325**		
Sample size (villages)	**60**	**82**	**50**		

Source: NECS Wave 2 data collection, May and June 2016, household survey.

Note: We tested differences between group means by using two-tailed t-tests. Treatment group means are regression-adjusted, including commune fixed effects and village-level weights. The NECS-only group mean includes a control for village-level enrollment at baseline. Control group means include village-level weights. Regressions account for clustering within villages. Sample sizes are for the full sample; some regressions may include a smaller size because of missing data.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

Table V.20. Impact of NECS & IMAGINE and NECS-only on primary child outcomes, by age (6–12 years)

	Means			Impacts		Sample size		
Age	NECS & IMAGINE group	NECS-only group	Control group	NECS & IMAGINE group	NECS-only group	NECS & IMAGINE group	NECS-only group	Control group
Enrolled during SY 2015–2016 (percentage)								
6	54.1	53.7	39.3	14.8***	14.4***	640	857	555
7	79.6	80.0	69.6	10.0***	10.4***	617	940	529
8	78.7	83.7	68.3	10.4***	15.3***	682	915	513
9	89.4	89.0	80.6	8.8**	8.4***	507	805	417
10	84.6	80.5	75.1	9.5***	5.4**	645	962	534
11	89.4	85.1	83.2	6.2**	1.9	394	535	284
12	81.9	78.2	77.2	4.7	1.0	612	727	483
Attended school on last day school was open (percentage)								
6	46.3	45.3	30.7	15.5***	14.5***	639	855	555
7	68.6	69.6	59.0	9.5**	10.5***	614	939	528
8	71.8	74.4	57.1	14.6***	17.3***	679	915	513
9	81.1	76.7	61.2	19.9***	15.5***	506	805	416
10	76.2	69.4	62.6	13.6***	6.8**	645	962	532
11	79.8	76.3	70.7	9.1**	5.5	390	535	284
12	77.0	70.3	69.2	7.8*	1.1	611	727	482
Local-language score—normalized (standard deviations)								
6	0.02	-0.05	-0.01	0.03	-0.04	621	827	540
7	0.06	0.03	-0.14	0.20***	0.16***	604	923	521
8	0.05	0.09	-0.21	0.26***	0.30***	669	898	507
9	0.14	0.01	-0.22	0.36***	0.23***	503	793	411
10	0.13	0.01	-0.15	0.29***	0.16***	637	945	524
11	0.05	0.12	-0.15	0.20**	0.27***	385	524	279
12	0.07	-0.03	-0.06	0.13**	0.03	603	714	471
French-language score—normalized (standard deviations)								
6	-0.01	0.01	-0.08	0.07	0.08	621	826	540
7	0.06	0.04	-0.02	0.08	0.06	604	923	521
8	0.04	0.07	-0.08	0.12	0.15**	669	898	507
9	0.11	0.01	0.03	0.08	-0.02	503	793	411
10	0.10	0.00	0.02	0.08	-0.01	637	945	524
11	0.01	0.06	0.01	0.00	0.05	385	524	279
12	0.02	0.01	0.06	-0.04	-0.05	603	714	471
Sample size (villages)	**60**	**82**	**50**					

Source: NECS Wave 2 data collection, May and June 2016, household survey.

Note: We tested differences between group means by using two-tailed t-tests. Treatment group means are regression-adjusted, including commune fixed effects and village-level weights. The NECS-only group mean includes a control for village-level enrollment at baseline. Control group means include village-level weights. Regressions account for clustering within villages. Normalized scores take into account child age. For non-enrolled children, attendance is unconditional on enrollment, meaning that those who are not enrolled are all scored as absent.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

In a similar attempt to understand parents' schooling decisions, we look at reasons for not enrolling children in school. For each child in the household who was not enrolled in school, parents reported the most important factor for not sending the child to school. In both school year 2014–2015 and 2015–2016, parents in both treatment groups were much less likely to say that the child did not attend school because the family refused and were more likely to say that child health prevented their child's enrollment in school. The NECS-only group was also more likely to say that household work prevented the child's enrollment in school. Other than these findings, we observe no clear, consistent additional reasons on why parents may or may not choose to send their children to school.

We also investigate whether program impacts differed by age of the child. Our results show that impacts on enrollment, attendance, and local-language test scores are fairly consistent across all ages in the sample (Table V.20). For enrollment, we find the greatest impacts among the youngest children, with a decline in the magnitude of the impact starting at age 9. Impacts on attendance are fairly consistent for children age 6 through 9 years, and then they drop off a bit for older children. For local-language test scores, we find no impact for 6-year-olds, consistent impacts for children age 7 to 11, and small or no impacts for 12-year-olds. Most of the primary school–age children in the sample were exposed to the NECS intervention in both treatment groups, and all were exposed to IMAGINE in the NECS & IMAGINE group. However, the younger cohorts received a larger dosage of the NECS intervention in grades 1 and 2, perhaps explaining the age trends.

We also examine whether the impact on scores on the local language assessment subtasks differ by gender.[35] Although the magnitude of the impact of both NECS & IMAGINE and NECS-only projects on all subtasks is consistently larger for boys than for girls, we find that only one of the differences is statistically significant (Table V.21). Boys in the NECS & IMAGINE group experienced a 0.33 increase in correct answers (out of a maximum score of 5) on the raw subtask 3 score (listening comprehension), but girls experienced an increase of only 0.08 correct answers. We also find that boys' scores on subtask 2 (expressive oral language) increased by 0.06 correct answers (out of a maximum score of 10) and that girls' scores decreased by 0.14 correct answers in the NECS-only group and compared to the control group. Although neither of the impacts is statistically significant, the difference between the two impacts is significant at the 5 percent level. The larger impact on boys' subtask 3 scores in the NECS & IMAGINE group combined with descriptively larger impacts on all other subtasks aligns with our finding that the NECS & IMAGINE projects had a larger impact on boys' normalized local-language scores than girls' normalized local-language scores.

[35] As in Tables V.15 and V.16, we evaluate the significance of the estimated impacts using the Benjamini-Hochberg adjustment to account for the fact that we evaluate tests for multiple sub-tasks within each language domain (Benjamini and Hochberg 1995).

Table V.21. Impact of NECS & IMAGINE and NECS-only on local-language task scores, by gender

	Means			Impacts	
	NECS & IMAGINE group	NECS-only group	Control group	NECS & IMAGINE group	NECS-only group
Subtask 1: Receptive oral language (maximum = 10)					
Females	9.30	9.23	9.27	0.03	-0.05
Males	9.39	9.23	9.27	0.12*	-0.04
Difference in subgroup impacts is significant				No	No
Subtask 2: Expressive oral language (maximum = 10)					
Females	9.01	8.85	8.99	0.02	-0.14
Males	9.09	9.02	8.97	0.13	0.06
Difference in subgroup impacts is significant				No	Yes
Subtask 3: Listening comprehension (maximum = 5)					
Females	2.68	2.64	2.60	0.08	0.04
Males	2.94	2.81	2.62	0.33***	0.19**
Difference in subgroup impacts is significant				Yes	No
Subtask 4: Letter identification (maximum = 100)					
Females	7.52	7.50	3.08	4.43***	4.41***
Males	8.80	9.04	3.96	4.85***	5.08***
Difference in subgroup impacts is significant				No	No
Subtask 5: Familiar word reading (maximum = 50)					
Females	1.60	1.26	0.89	0.71**	0.37
Males	2.26	1.82	1.27	0.99***	0.55*
Difference in subgroup impacts is significant				No	No
Subtask 6: Oral reading fluency (maximum differs by language)					
Females	1.29	1.17	0.68	0.61**	0.49**
Males	2.12	1.65	1.06	1.05***	0.59**
Difference in subgroup impacts is significant				No	No
Subtask 7: Reading comprehension (maximum = 5)					
Females	0.22	0.20	0.13	0.09	0.07
Males	0.35	0.27	0.18	0.17**	0.09*
Difference in subgroup impacts is significant				No	No
Sample size (children)					
Female	**1,975**	**2,634**	**1,555**		
Male	**2,053**	**3,000**	**1,708**		
Sample size (villages)	**60**	**82**	**50**		

Source: NECS Wave 2 data collection, May and June 2016, household survey.

Note: We tested differences between group means by using two-tailed t-tests and the Benjamini-Hochberg adjustment for multiple comparisons (Benjamini and Hochberg 1995). Treatment group means are regression-adjusted, including commune fixed effects and village-level weights. The NECS-only group mean includes a control for village-level enrollment at baseline. Control group means include village-level weights. Regressions account for clustering within villages. Sample sizes are for the full sample; some regressions may include a smaller size because of missing data.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

E. Robustness of results

1. Sensitivity of results to different regression specifications

The regression estimates are robust to an extensive set of alternative specifications. In Tables V.22 through V.25, we present impact estimates on the primary outcomes (enrollment, attendance, local-language scores, and French-language scores) based on alternative regression specifications that assess the robustness of the results. The main results presented throughout the report use the preferred regression specifications with standard errors clustered at the village level, a control for village-level baseline enrollment (in the NECS-only models only), and village-level weights. In the first row in the tables, we report results based on the preferred regression model for each outcome (specification 0). In the subsequent rows in the tables, we present the means, impacts, standard error, and R-squared for additional regression specifications.

In specification 1 of each table, we present estimates of our preferred specification with additional sociodemographic controls such as number of household members, the construction materials in the household's dwelling, whether the household owns a variety of assets, and the head of household's language, as well as village-level controls taken from the census data such as the number of people in the village, the percentage of households with school-age boys and girls, and the percentage of households with children. The inclusion of these controls slightly improves the precision of the impact estimate beyond specification 0.

In specification 2 of each table, we present estimates of the specification in model 1 with the addition of interviewer fixed effects. As shown, we find a statistically significant impact of NECS-only projects on French-language scores as well as an increase in the precision of the impact estimates for each outcome. In specifications 3 and 4, we present estimates of our preferred specification without weights (specification 3) and with weights interacted at the child and village levels (specification 4). We find that the statistical significance of the impact of NECS-only projects on enrollment and attendance changes slightly in specification 4 but otherwise shifts in specifications 3 and 4 from significance at the 1 percent level to significance at the 5 percent level.

In specifications 5, 6, and 7, we present estimates of our preferred specification based on different samples. In specification 5, we exclude any village with a striking school.[36] Given that striking schools were not open the entire school year, children did not complete the full local-language reading curriculum; therefore, we determine whether the impacts on child outcomes differ when the sample excludes striking schools. In specification 6, we exclude villages that did not comply with the original IMAGINE random assignment. Four communes in the IMAGINE evaluation sample did not implement random assignment properly. We excluded two of them from the evaluation sample because of their severe deviation from random assignment and retained the other two in the evaluation.[37] We then excluded the latter two communes from the

[36] Schools were designated as on strike if they had an incomplete school questionnaire or school register data because of teacher strikes, as reported by data collectors.

[37] We continue to exclude from the sample the commune excluded during the first evaluation because we were unable to collect data in several villages due to civil unrest at the time of the survey.

analyses to investigate whether they influenced our findings. Exclusion of the communes reduces the number of villages in the sample from 192 to 164. Finally, in specification 7, we exclude seven schools designated as bilingual before the start of the IMAGINE project, in order to examine the influence of these schools on our findings; the schools likely offered some local-language instruction before the start of NECS. We find no noticeable difference in the estimated impacts within any of the above different samples.

Overall, given that the impact estimates remain fairly similar across most of the alternative specifications, the estimated impacts of the NECS & IMAGINE and NECS-only projects appear to be very robust. They are not a function of our choice of controls, weights, or samples in our preferred specifications.

Table V.22. Impact of NECS & IMAGINE and NECS-only on enrollment: Sensitivity to different regression specifications

		Means			Impacts		Adjusted R-squared	
Regression	Spec Number	NECS & IMAGINE group	NECS-only group	Control group	NECS & IMAGINE group	NECS-only group	NECS & IMAGINE group	NECS-only group
Child enrolled during SY 2015–2016 (percentage)								
Village weights, baseline enrollment control[a]	0	79.2	78.3	68.9	10.3***	9.5***	0.09	0.13
Village weights, all controls	1	77.5	77.6	68.9	8.7***	8.8***	0.17	0.20
Village weights, all controls, interviewer fixed effects	2	77.9	77.5	68.9	9.0***	8.6***	0.18	0.22
No weights, baseline enrollment control	3	78.2	78.8	68.7	9.5***	10.1***	0.11	0.12
Child and village weights, baseline enrollment control	4	79.0	77.3	70.4	8.6***	6.9**	0.09	0.13
Exclusion of striking villages	5	79.2	76.7	67.5	11.7***	9.2***	0.11	0.13
Exclusion of IMAGINE noncompliers	6	78.9	77.2	67.6	11.3***	9.7***	0.09	0.13
Exclusion of bilingual schools	7	78.8	77.9	68.8	9.9***	9.1***	0.10	0.14
Sample size (children)								
Full sample		**4,103**	**5,752**	**3,325**				
No striking villages		**3,319**	**4,345**	**2,735**				
No IMAGINE noncompliers		**3,502**	**5,173**	**2,850**				
No bilingual schools		**4,017**	**5,690**	**3,162**				
Sample Size (villages)								
Full sample		**60**	**82**	**50**				
No striking villages		**48**	**61**	**41**				
No IMAGINE noncompliers		**51**	**72**	**41**				
No bilingual schools		**59**	**81**	**47**				

Source: NECS Wave 2 data collection, May and June 2016, household survey.

Note: We tested differences between group means by using two-tailed t-tests. Regressions account for clustering within villages. Treatment group means are regression-adjusted, including commune fixed effects.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

[a]Baseline enrollment control only included in NECS-only regressions.

Table V.23. Impact of NECS & IMAGINE and NECS-only on attendance: Sensitivity to different regression specifications

Regression	Spec Num	Means			Impacts		Adjusted R-squared	
		NECS & IMAGINE group	NECS-only group	Control group	NECS & IMAGINE group	NECS-only group	NECS & IMAGINE group	NECS-only group
Child attended school on most recent day school was open (percentage)								
Village weights, baseline enrollment control[a]	0	70.8	68.3	57.2	13.6***	11.1***	0.14	0.16
Village weights, all controls	1	68.4	67.5	57.2	11.2***	10.3***	0.21	0.22
Village weights, all controls, interviewer fixed effects	2	67.9	66.6	57.2	10.7***	9.4***	0.25	0.25
No weights, baseline enrollment control	3	71.4	69.3	58.2	13.2***	11.1***	0.16	0.14
Child and village weights, baseline enrollment control	4	69.5	66.0	57.9	11.6***	8.1**	0.15	0.16
Exclusion of striking villages	5	71.8	70.0	58.7	13.1***	11.3***	0.13	0.11
Exclusion of IMAGINE noncompliers	6	70.1	67.5	55.5	14.7***	12.0***	0.13	0.15
Exclusion of bilingual schools	7	71.1	69.2	58.1	13.0***	11.2***	0.13	0.14
Sample size (children)								
Full sample		**4,090**	**5,749**	**3,320**				
No striking villages		**3,308**	**4,342**	**2,731**				
No IMAGINE noncompliers		**3,491**	**5,171**	**2,846**				
No bilingual schools		**4,004**	**5,687**	**3,157**				
Sample size (villages)								
Full sample		**60**	**82**	**50**				
No striking villages		**48**	**61**	**41**				
No IMAGINE noncompliers		**51**	**72**	**41**				
No bilingual schools		**59**	**81**	**47**				

Source: NECS Wave 2 data collection, May and June 2016, household survey.

Note: We tested differences between group means by using two-tailed t-tests. Regressions account for clustering within villages. Treatment group means are regression-adjusted, including commune fixed effects. For non-enrolled children, attendance is unconditional on enrollment, meaning that those who are not enrolled are all scored as absent. Sample sizes differ across models depending on the sample.

[a]Baseline enrollment control only included in NECS-only regressions.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

Table V.24. Impact of NECS & IMAGINE and NECS-only on local-language scores: Sensitivity to different regression specifications

Regression	Spec Num	Means			Impacts		Adjusted R-squared	
		NECS & IMAGINE group	NECS-only group	Control group	NECS & IMAGINE group	NECS-only group	NECS & IMAGINE group	NECS-only group
Local-language score—normalized (standard deviations)								
Village weights, baseline enrollment control[a]	0	0.09	0.02	-0.13	0.21***	0.15***	0.05	0.06
Village weights, all controls	1	0.08	0.01	-0.13	0.21***	0.14***	0.09	0.09
Village weights, all controls, interviewer fixed effects	2	0.05	0.02	-0.13	0.18***	0.15***	0.21	0.22
No weights, baseline enrollment control	3	0.11	0.06	-0.09	0.21***	0.15***	0.05	0.04
Child and village weights, baseline enrollment control	4	0.09	0.04	-0.12	0.21***	0.16***	0.05	0.07
Exclusion of striking villages	5	0.11	0.06	-0.10	0.20***	0.16***	0.05	0.04
Exclusion of IMAGINE noncompliers	6	0.06	-0.01	-0.18	0.24***	0.17***	0.04	0.04
Exclusion of bilingual schools	7	0.08	0.02	-0.12	0.19***	0.14***	0.05	0.06
Sample size (children)								
Full sample		**4,022**	**5,624**	**3,253**				
No striking villages		**3,267**	**4,254**	**2,685**				
No IMAGINE noncompliers		**3,436**	**5,072**	**2,793**				
No bilingual schools		**3,936**	**5,563**	**3,092**				
Sample size (villages)								
Full sample		**60**	**82**	**50**				
No striking villages		**48**	**61**	**41**				
No IMAGINE noncompliers		**51**	**72**	**41**				
No bilingual schools		**59**	**81**	**47**				

Source: NECS Wave 2 data collection, May and June 2016, household survey.

Note: We tested differences between group means by using two-tailed t-tests. Regressions account for clustering within villages. Treatment group means are regression-adjusted, including commune fixed effects. Normalized scores take into account child age.

[a]Baseline enrollment control only included in NECS-only regressions.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

Table V.25. Impact of NECS & IMAGINE and NECS-only on French-language scores: Sensitivity to different regression specifications

Regression	Spec Num	Means			Impacts		Adjusted R-squared	
		NECS & IMAGINE group	NECS-only group	Control group	NECS & IMAGINE group	NECS-only group	NECS & IMAGINE group	NECS-only group
French-language score— normalized (standard deviations)								
Village weights, baseline enrollment control[a]	0	0.07	0.04	0.00	0.07	0.04	0.25	0.25
Village weights, all controls	1	0.02	0.03	0.00	0.02	0.03	0.31	0.29
Village weights, all controls, interviewer fixed effects	2	0.03	0.07	0.00	0.03	0.07	0.39	0.36
No weights, baseline enrollment control	3	0.13	0.13	0.07	0.06	0.06	0.29	0.23
Child and village weights, baseline enrollment control	4	0.13	0.07	0.08	0.05	-0.01	0.28	0.28
Exclusion of striking villages	5	0.06	0.04	0.01	0.04	0.03	0.22	0.18
Exclusion of IMAGINE noncompliers	6	-0.02	-0.08	-0.12	0.10	0.04	0.07	0.05
Exclusion of bilingual schools	7	0.07	0.03	0.00	0.07	0.03	0.26	0.25
Sample size (children)								
Full sample		**4,022**	**5,623**	**3,253**				
No striking villages		**3,267**	**4,253**	**2,685**				
No IMAGINE noncompliers		**3,436**	**5,072**	**2,793**				
No bilingual schools		**3,936**	**5,562**	**3,092**				
Sample size (villages)								
Full sample		**60**	**82**	**50**				
No striking villages		**48**	**61**	**41**				
No IMAGINE noncompliers		**51**	**72**	**41**				
No bilingual schools		**59**	**81**	**47**				

Source: NECS Wave 2 data collection, May and June 2016, household survey.

Note: We tested differences between group means by using two-tailed t-tests. Regressions account for clustering within villages. Treatment group means are regression-adjusted, including commune fixed effects. Normalized scores take into account child age.

[a]Baseline enrollment control only included in NECS-only regressions.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

2. Estimates of treatment effect on in-school children

The impact estimates presented thus far are intent-to-treat estimates; that is, they are estimates based on random assignment and measure the impact of the offer to participate in the program on a group of children. However, it is reasonable to expect that most of the impacts of NECS and IMAGINE on learning are concentrated among children who attend school. To this end, we examine ToT estimates of the program impacts on primary child education outcomes or, stated another way, the impact of the NECS and IMAGINE projects on children who were actually enrolled in school. One analytic strategy would restrict the sample to only those children who have reported ever having been enrolled in school. However, such an approach is problematic in that it gives rise to selection bias. Specifically, a ToT analysis may underestimate the true effect of the program on attendance and learning because other aspects of the intervention may induce systematic differences across research groups in the characteristics of children who enroll in or stay in school. Indeed, we showed in Table V.6 that the program did affect enrollment in school. Children in treatment villages are more likely than children in control villages to enroll in school.

Therefore, we use an alternative approach that may provide unbiased estimates of the effect of the program on attendance and learning among children who have ever been enrolled in school. We inflate the intent-to-treat estimates from the full evaluation sample (columns 1 and 2 in Table V.26) based on the enrollment rate in treatment villages (row 1 in Table V.6). We present the results in columns 3 and 4 of Table V.26. Given that the enrollment rates in NECS & IMAGINE and NECS-only treatment villages are 79 percent and 78 percent, respectively, we use the Bloom adjustment described earlier and divide the impact estimates by the two enrollment rates, effectively inflating the impact estimates by about 25 percent. If the underlying assumption—the impact on learning for out-of-school children in treatment communities is zero—holds, which seems reasonable in this context, we may then interpret the ToT estimates as the impact of enrollment in an NECS & IMAGINE or NECS-only school on attendance and learning for all children who experienced the programs in schools.

Table V.26. Impacts on child education outcomes for in-school children: Bloom adjustment

	Impacts on all children		Impacts on in-school children	
	NECS & IMAGINE group	NECS-only group	NECS & IMAGINE group	NECS-only group
Child attended school on most recent day school was open (percentage)	13.6***	11.1***	17.2	14.2
Local-language score—normalized (standard deviations)	0.21***	0.15***	0.27	0.19
French-language score—normalized (standard deviations)	0.07	0.04	0.09	0.05
Mathematics score—normalized (standard deviations)	0.13***	0.10***	0.17	0.13
Sample size (children)	**4,090**	**5,749**		
Sample size (villages)	**60**	**82**		

Source: NECS Wave 2 data collection, May and June 2016, household survey.

Note: We tested differences between group means by using two-tailed t-tests. Regressions account for clustering within villages. Treatment group means are regression-adjusted, including commune fixed effects and village weights. Normalized scores take into account child age.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

We find the magnitude of the impacts is larger in the ToT analysis. Impacts on attendance are 14 to 17 percentage points, while impacts on local-language reading and mathematics scores are 0.19 to 0.27 standard deviations and 0.13 to 0.17 standard deviations, respectively.

3. Comparison of estimated impacts of intervention groups on primary outcomes

In Table V.10 we showed that there were no statistically significant differences in the estimated impacts of NECS & IMAGINE and NECS-only on the primary child outcomes. To test the robustness of these results, we compare the estimated impacts of the NECS & IMAGINE and NECS-only interventions on our primary outcomes using a pooled analysis (described in

Chapter IV, Section C.4). [38] Even though the impact estimates of NECS & IMAGINE on enrollment, attendance, and local-language and French-language test scores are greater than the impacts of NECS alone, they are not statistically different (Table V.27).[39] These are consistent with the findings from Table V.10 and suggest that the IMAGINE and NECS projects produced similar impacts but that the combination of the two programs did not produce additional benefits for these measures of schooling.

Table V.27. Comparison of the impact of NECS & IMAGINE and NECS-only on primary child outcomes

	Means			Impacts		
	NECS & IMAGINE group	NECS-only group	Control group	NECS & IMAGINE group	NECS-only group	Difference in impacts for the two groups
Child enrolled during SY 2015–2016 (percentage)	80.5	78.2	68.9	11.7***	9.4***	2.3
Child attended school on most recent day school was open (percentage)	71.9	68.2	57.2	14.7***	11.0***	3.7
Local-language score— normalized (standard deviations)	0.08	0.02	-0.13	0.21***	0.15***	0.06
French-language score— normalized (standard deviations)	0.08	0.04	0.00	0.09	0.04	0.05
Sample size (children)	**4,103**	**5,752**	**3,325**			
Sample size (villages)	**60**	**82**	**50**			

Source: NECS Wave 2 data collection, May and June 2016, household survey.

Note: We tested differences between group means and impacts by using two-tailed t-tests. Treatment group means are regression-adjusted, including commune fixed effects, village-level enrollment at baseline, and village-level weights. Control group means include village-level weights. Regressions account for clustering within villages. For non-enrolled children, attendance is unconditional on enrollment, meaning that those who are not enrolled are all scored as absent. Normalized scores take child age into account. Sample sizes are for the full sample; some regressions may include a smaller size because of missing data.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

Despite the fact that the IMAGINE follow-up evaluations found larger impacts for girls than for boys we found no differences in the impacts of NECS & IMAGINE and NECS-only among girls and boys in Table V.10. We test the robustness of those results by running a pooled

[38] The results from the pooled analysis are likely to differ from the results presented in Tables V.6. V.7, and V.10 using separate models for a number of reasons. These include that the control variables are averaged across all three groups in the pooled model instead of two, that baseline village enrollment is not included in the separate NECS & IMAGINE model, and that the village-level weight for the pooled regression differs from the village-level weights used in the separate analyses.

[39] Because the analysis includes several treatments, we need to be concerned that statistically significant impacts for a particular outcome are not simply statistically significant by chance because of the availability of two comparisons for that outcome (known as the multiple comparisons problem; see Schochet [2009]). We address this concern by using the Scheffé method to adjust the statistical significance level for all possible comparisons (Scheffé 1999). We find no change in the significance level of the impact of either NECS & IMAGINE or NECS-only interventions on our primary outcomes with this alternative estimation approach. Across all other outcomes, we do find a few instances in which statistically significant impacts lose their significance with this approach. However, in general, our results are robust to this adjustment.

regression with the NECS & IMAGINE and NECS-only treatment indicators twice: once with the sample restricted to girls only, and once with the sample restricted to boys only. . Consistent with our earlier findings, we find no significant differences in the impacts of NECS & IMAGINE and the impacts of NECS-only among boys or girls (Table V.28).

Table V.28. Comparison of the impact of NECS & IMAGINE and NECS-only on primary child outcomes, by gender

	Means			Impacts		
	NECS & IMAGINE group	NECS-only group	Control group	NECS & IMAGINE group	NECS-only group	Difference in impacts for the two groups
Child enrolled during SY 2015–2016 (percentage)						
Females	79.1	75.4	64.6	14.4***	10.7***	3.7
Males	82.2	80.8	72.7	9.5***	8.1***	1.4
Child attended school on most recent day school was open (percentage)						
Females	71.5	65.5	53.1	18.5***	12.4***	6.1
Males	72.5	70.6	61.0	11.5***	9.6***	1.9
Local-language score— normalized (standard deviations)						
Females	-0.01	-0.05	-0.15	0.14**	0.10	0.04
Males	0.17	0.08	-0.11	0.28***	0.19***	0.09
French-language score— normalized (standard deviations)						
Females	0.00	-0.03	-0.09	0.09	0.06	0.04
Males	0.16	0.09	0.08	0.08	0.01	0.07
Sample size (children)						
Females	**2,010**	**2,678**	**1,587**			
Males	**2,093**	**3,074**	**1,738**			

Source: NECS Wave 2 data collection, May and June 2016, household survey.

Note: We tested differences between group means and impacts by using two-tailed t-tests. Treatment group means are regression-adjusted, including commune fixed effects, village-level enrollment at baseline, and village-level weights. Control group means include village-level weights. Regressions account for clustering within villages. For non-enrolled children, attendance is unconditional on enrollment, meaning that those who are not enrolled are all scored as absent. Normalized scores take child age into account. Sample sizes are for the full sample; some regressions may include a smaller size because of missing data.

***/**/* Impact estimate is statistically significant at the .01/.05/.10 level.

4. Estimates of treatment effect of the combined IMAGINE and NECS projects relative to the NECS project alone

We examine the impact of IMAGINE on our primary outcomes and school infrastructure six years after the project's conclusion by using the NECS-only group as a control group. We conduct the analyses to examine whether the combination of the IMAGINE and NECS programs had an impact beyond what was achieved with NECS alone. In Table V.29, we show that students in villages that received IMAGINE and NECS are not significantly more likely to be enrolled in the current school year or to have attended school on the most recent day the school was open than students in villages that received only NECS. We also find no significant differences in impacts on French-language and mathematics scores between children in NECS & IMAGINE and NECS-only villages.

Table V.29. Impacts of IMAGINE on primary outcomes

	Six-year follow-up			
	NECS & IMAGINE group mean	NECS-only group mean	Impact	*p*-value
Child enrolled during SY 2015–2016 (percentage)	75.3	72.6	2.7	0.23
Child attended school on most recent day school was open (percentage)	67.4	63.3	4.1	0.20
French-language score—normalized (standard deviations)	0.00	-0.06	0.05	0.38
Mathematics score—normalized (standard deviations)	0.03	-0.03	0.06	0.29
Sample size (children)	**4,103**	**5,752**		
Sample size (villages)	**60**	**82**		

Source: NECS Wave 2 data collection, May and June 2016, household survey.

Note: We tested differences between group means by using two-tailed t-tests. Treatment group means are regression-adjusted, including commune fixed effects. Regressions account for clustering within villages. For non-enrolled children, attendance is unconditional on enrollment, meaning that those who are not enrolled are all scored as absent. Normalized scores take child age into account. Sample sizes are for the full sample; some regressions may include a smaller size because of missing data. The sample includes the villages that received the NECS program. The control group includes villages that received the NECS program alone.

The primary activity conducted under the IMAGINE project was the construction of girl-friendly schools equipped with lodging for female teachers, separate bathrooms, playgrounds, a potable water source, and a preschool. In Table V.30, we show that despite the lack of differences in outcomes between the NECS & IMAGINE and NECS-only groups, schools in the NECS & IMAGINE villages had substantially better infrastructure than schools in NECS-only villages. We see statistically significant and positive impacts of NECS & IMAGINE on most infrastructure measures relative to NECS-only, but also evidence of improvements of school infrastructure in NECS-only villages. Schools in NECS & IMAGINE villages do not have significantly more classrooms or usable classrooms than schools in control group villages, but they have 1.3 more classrooms made of finished materials, 1.1 more blackboards, and 1.9 more classrooms that are usable in the rain. In addition, they are more likely to have enough desks for 50 students per classroom. The majority of schools in NECS & IMAGINE villages have the other infrastructure components as well: 83 percent of schools have a potable water source (74 percent functioning), 89 percent have toilet facilities (84 percent functioning and 74 percent separate for boys and girls), 95 percent have a preschool facility, 91 percent have a playground, and 72 percent have teacher lodging for female teachers. In comparison, only 2.9 to 38 percent of NECS-only schools have the same characteristics. We do not find any impacts of NECS & IMAGINE on toilet maintenance, school over-enrollment, the number of weeks the school is open, and the number of hours per day a student spends at school. We find statistically significant impacts on the percentage of female teachers, but not on the total number of teachers, the student-teacher ratio, or whether the school has a sufficient number of teachers.

Table V.30. Impacts of IMAGINE on school infrastructure and characteristics

	Six-year follow-up			
	NECS & IMAGINE group mean	NECS-only group mean	Impact	*p*-value
Infrastructure				
Number of (per school):				
Classrooms	6.7	6.4	0.3	0.39
Usable classrooms	6.3	6.3	0.0	0.99
Classrooms made of finished materials	4.2	2.9	1.3	0.00
Blackboards	6.3	5.3	1.1	0.02
Visible blackboards	5.7	4.5	1.1	0.02
Classrooms usable in the rain	4.7	2.8	1.9	0.00
Percentage of schools with:				
Seats and desk space for each student	19.0	13.0	5.9	0.42
Sufficient seats for up to 50 students in each class	17.9	7.2	10.7	0.09
Sufficient desks for up to 50 students in each class	22.3	5.8	16.5	0.01
Potable water source	82.6	17.4	65.2	0.00
Potable water source functioning	73.6	14.5	59.1	0.00
Toilet facilities	88.6	37.7	50.9	0.00
Toilet facilities functioning	83.7	31.9	51.8	0.00
Separate latrines	74.4	16.2	58.2	0.00
Preschool facility	94.9	21.7	73.1	0.00
Playground	90.7	30.4	60.3	0.00
Teacher housing	97.2	7.2	90.0	0.00
Teacher housing for female teachers	72.1	2.9	69.2	0.00
Last time toilets were serviced				
Less than one month ago (percentage)	62.0	25.0	-1.7	0.91
In the past one to five months (percentage)	23.3	10.0	4.6	0.27
More than five months ago (percentage)	14.6	65.0	-3.0	0.84
Other school characteristics				
School is public (percentage)	100.0	100.0	0.0	
School overenrolled (percentage)	27.1	34.8	-7.7	0.41
Average number of weeks school was open during the last academic year (SY 2014–2015)	28.9	29.3	-0.4	0.70
Average number of hours per day students typically spend at school	6.3	6.3	0.0	0.66
School has complete set of textbooks for each student (percentage)	72.9	68.1	4.8	0.62
Percentage of enrolled students who live outside the village	8.7	6.0	2.7	0.24
Teacher characteristics				
Total number of teachers, including trainees and volunteers	6.8	6.6	0.2	0.64
Student-to-teacher ratio	35.5	37.5	-2.1	0.22
Sufficient number of teachers (percentage)[a]	67.4	55.1	12.4	0.17
Female (percentage)	46.0	30.8	15.2	0.00
Sample size (schools)	**61**	**69**		

Source: NECS Wave 2 data collection, May and June 2016, school survey.

Note: We tested differences between group means by using two-tailed t-tests. Treatment group means are regression-adjusted, including commune fixed effects. Regressions use standard errors that are robust to heteroscedasticity. For non-enrolled children, attendance is unconditional on enrollment, meaning that those who are not enrolled are all scored as absent. Normalized scores take child age into account. Sample sizes are for the full sample of public schools that responded to the school questionnaire; some regressions may include a smaller size because of missing data. The sample includes the villages that were included in the original IMAGINE evaluation. The control group includes villages that received NECS only and villages that received neither NECS nor IMAGINE.

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VI. COST ANALYSES

A. Overview

To understand the policy implications of an intervention, it is important to determine not simply whether an intervention is effective but rather the degree of the intervention's effectiveness relative to other programs or policies with similar goals. In the case of NECS and IMAGINE, it is essential to compare both the impacts and relative costs of the NECS and IMAGINE interventions with those of other programs. For example, two programs might have the same impact on school enrollment, but the one that does so for a lower cost may offer the preferred policy option.

We use two approaches to compare the relative impacts and costs of the NECS project:

- Cost-effectiveness analysis
- Cost-benefit analysis

Each approach offers both advantages and disadvantages, and we conduct all analyses for both the NECS & IMAGINE and the NECS-only interventions. We estimate three measures for the cost-benefit analysis: the net present value (NPV), the ratio of the present values of benefits and costs (or "cost-benefit ratio"), and the economic rate of return (ERR).

1. Cost-effectiveness analysis

Cost-effectiveness analysis compares the treatment effects of the projects (presented in Chapter V) to the costs of the projects. We examine the ratio of the effects of each intervention to its costs—that is, the cost per unit of effect. For example, the cost-effectiveness of an intervention for enrollment is the cost of the program divided by the number of additional children that the program causes to enroll in school. We estimate the cost-effectiveness of the NECS & IMAGINE and NECS-only interventions for two of the primary outcomes of the evaluation: (1) enrollment and (2) local-language test scores.

The advantage of cost-effectiveness analyses is that the analyses require fewer assumptions than the cost-benefit analyses we conduct. We simply adopt the impact estimates from the impact evaluation and estimate the cost of implementing the interventions up to the point of follow-up data collection using itemized cost data collected from various sources, annualized over the assumed life spans for the IMAGINE schools and other components of the projects. The main disadvantage of cost-effectiveness analysis is that the set of programs for which we can compare our interventions is much smaller with cost-effectiveness than with the other analyses. This is because cost-effectiveness statistics are comparable only to similar outcomes. For example, we cannot use cost-effectiveness analysis to compare the NECS & IMAGINE or NECS-only interventions to programs that target other education outcomes or non-education outcomes, such as improved vocational skills or health status.

2. Cost-benefit analysis

Cost-benefit analysis is a more general approach that compares programs' relative benefits and costs. It uses the same methodology to estimate cost as cost-effectiveness analysis, but it takes a different approach to addressing the impacts of the interventions. Instead of directly using

the estimated impacts of the interventions to estimate benefits, cost-benefit analysis estimates the monetary value of the benefits and costs of the interventions. For example, if children attend school longer as a consequence of the intervention, then we may assume that the additional years of schooling will make children more productive and increase their earnings. We can compare the estimated value of the higher earnings to the costs of the programs to estimate the programs' net value.

Compared to cost-effectiveness analysis, cost-benefit analysis facilitates comparisons to a wider range of programs that affect a variety of outcomes. For example, cost-benefit analysis permits direct comparison of an education program that affects schooling outcomes to a major road building program that facilitates commerce through reduced travel time for commercial vehicles but may not have appreciable impacts on schooling. The disadvantage of cost benefit analysis is that the benefits of a program are often difficult to estimate and therefore require several simplifying assumptions. Below, we outline the steps we take and the assumptions we make to estimate the benefits of the NECS & IMAGINE and NECS-only projects for the cost-benefit analysis.

The first step in calculating benefits is to determine the period over which children in the program villages are exposed to the interventions. Children in villages with the NECS-only interventions are exposed to the intervention only while the interventions are implemented, whereas children in the NECS & IMAGINE villages are also exposed to the IMAGINE schools for as long as the schools continue to operate. We assume that, with annual maintenance (fixed at 2 percent of the annualized cost), IMAGINE schools have a 30-year life span.[40] We further assume that this maintenance cost is constant over time.[41] We base the school's life span estimate on the feedback from the BRIGHT evaluation in Burkina Faso, which was the prototype for the IMAGINE schools. Although the schools may be renovated to extend beyond the 30-year horizon, we assume that the value of the initial investment will have depreciated. The main implication is that we assess costs only during the 30-year period and assess the benefits of exposure for the same period.

We calculate the monetary value of the estimated benefits for all children exposed to the interventions. For simplicity, we assume that the only benefits derived from the NECS and IMAGINE projects are higher earnings realized by children when they enter the labor market. We also assume that the higher earnings result only from staying in school longer than would be the case in the absence of NECS and IMAGINE. As a result, we ignore any benefit that may

[40]The BRIGHT evaluation assumed a 40-year life span based on feedback received from local engineers. However, during that evaluation some MCC staff expressed reservations that this assumption was not conservative enough, so the BRIGHT evaluation included sensitivity analyses using a 30-year life span. We adopted the more conservative 30-year assumption, and we examined the sensitivity of our cost-benefit estimates to this assumption by assessing costs and benefits assuming 40- and 50-year life spans. We continue to assume that two percent annual maintenance is required for the school buildings across the additional years of the life span. In Tables G.9 and G.10 in Appendix G, we present the cost-benefit estimates assuming 40 and 50-year life spans, respectively.

[41]We adopted a two percent annual maintenance assumption based on MCC's recommend practice of assuming one-three percent annual maintenance. In our analysis, we examine the sensitivity of our cost-benefit estimates for the NECS & IMAGINE project to this assumption by assessing costs with one percent and three percent annual maintenance. The total costs vary by approximately $1,000, which over 30 years is a small amount, and there is therefore little change in the estimated measures.

result from other direct effects of the interventions, such as increases in test scores, or other potential indirect benefits, such as spillover benefits to siblings in the same household, reduced household work, improved citizenship, and other outcomes not directly valued in the labor market.[42] In addition, we assume that acquiring additional years of schooling among children exposed to the interventions results in higher earnings in the labor market. For our analysis, we use estimates calculated by MCC and the GoN for the "MCC Niger Threshold Program Design: Constraints Analysis Final Report" (2014). According to the finding of the constraints analysis, the increase in earnings per additional year of schooling ranges from 3.5 percent at the primary school level to 19.3 percent at the tertiary school level. Average returns to an additional year of schooling across all levels of schooling are 7 percent per year. For our analysis, we use the return to an additional year of schooling at the primary level rather than the average return to additional year of schooling because the average grade completion in the sample is three years (and thus few children obtain schooling higher than primary); further, younger children primarily experience the increases in grade attainment.[43]

We estimate the present value at the start of the intervention of the total additional yearly earnings for all exposed children over their lifetime, assuming that exposed children may enter the paid labor market as early as age 15 and remain active until age 50.[44] Although we assume that the additional lifetime earnings will be the same for each exposed child born in the same year (a birth cohort), earnings will differ across birth cohorts because of differences in exposure to the interventions. Once we have estimated the present value of the increase in lifetime earnings for each birth cohort, we sum the present value of the additional lifetime earnings gained across all birth cohorts to calculate the present value of the total benefits of the interventions.

We use these calculations to compute three different cost-benefit measures. Given that program costs and the various benefits accrue at different times, we calculate the NPV of the costs and benefits (the difference between the present value of the benefits and the present value of the costs) and the cost-benefit ratio (the ratio of the present value of the benefits and present value of the costs), both of which require the use of a discount rate (to adjust future costs and benefits to account for the fact that most people consider resources available in the future to be less valuable than resources available in the present or in the less distant future).[45] We assume a discount rate of 10 percent as recommended by MCC for developing countries (MCC 2014).

[42] We ignore these benefits not because they are difficult to measure but rather because the research literature has yet to provide an accepted method for valuing these benefits.

[43] Impacts on grade attainment by age appear in Appendix G, Table G.8. In addition, we present sensitivity tests of this assumption in Figures G.5 and G.6 in Appendix G.

[44] According to the Nigerien Institute of Statistics, the official age of active labor force participation in Niger is 15 to 64 years (Ministère du Plan, de l''Aménagement du Territoire et du Développement Communautaire 2012). However, due to the low life expectancy in Niger (about 60 years), we assume that individuals stay active in the labor force until age 50.

[45] A discount rate is closely related to the concept of interest, and various interest rates are typically used for this purpose. However, experts often disagree on the rate to be used.

We also calculate the ERR, which is the discount rate at which the present value of the costs exactly equals the benefits. Calculation of an ERR is a strategy for conducting cost-benefit analysis that does not require an assumed discount rate. To estimate the ERR for the combined NECS and IMAGINE projects and the NECS-only project, we use the same annual costs and benefits estimated for the cost-benefit analysis (using the same assumptions) and calculate the discount rate at which the NPV of the project equals zero. The ERR lends itself to several interpretations. First, if a program is considered a financial investment, the value of the ERR is the return on that investment, much like the return from investing in an appreciating stock or bond. Second, from the perspective of discount rates, the value of the ERR is the highest discount rate at which costs of the program do not exceed its benefits. In other words, if the true discount rate is higher than the ERR, then investing in the project is worse than doing nothing because the value of the future benefits is too low. For developing countries, the MCC considers 10 percent to be an appropriate threshold for determining whether MCC's investments in a compact country will yield sufficient returns for the country's citizens (MCC 2014).

In Table VI.1, we illustrate the assumptions and components governing cost-effectiveness and cost-benefit estimates.

Table VI.1. Differences between cost-effectiveness and cost-benefit analyses

	Cost-effectiveness analysis		Cost-benefit analysis		
Characteristic	NECS & IMAGINE group	NECS-only group	Net present value (NPV)	Cost-benefit ratio	Economic rate of return (ERR)
Time horizon (years)	7	3	30	30	30
Allows comparison across different outcomes	No	No	Yes	Yes	Yes
Requires assumptions about the value of educational improvements	No	No	Yes	Yes	Yes
Requires an assumption about the discount rate	Yes	Yes	Yes	Yes	No

Note: The NECS & IMAGINE projects are assumed to begin in 2009, when the IMAGINE schools were constructed. NECS activities are assumed to begin four years later at the start of the NECS interventions in 2013. Thus, for the NECS & IMAGINE cost-benefit time horizon, the exposure to the NECS program is only 26 years. The NECS-only cost-benefit time horizon is assumed to be 30 years beginning in 2013.

3. Data for cost analyses

Our framework for the cost analysis uses an activity-based costing, or "ingredients" approach, to estimate costs (Levin and McEwan 2001; Tan-Torres Edejer et al. 2003; Dhaliwal et al. 2012). Under this approach, we inventory all the major investments associated with program implementation and their costs. Monetary costs include fixed costs (infrastructure, training activities); periodic costs (school furniture and supplies, project supervision); and annual costs (infrastructure maintenance, teacher salaries, project administration). The estimates include only the efforts that would be necessary to replicate the programs in another setting. For example, the estimates would not include the time and research needed to develop an adult literacy curriculum

but would include efforts associated with printing and distributing the curriculum. A list of activities conducted for the IMAGINE and NECS projects appears in Appendix E.

To capture all costs associated with the interventions, we relied on the following data sources:

- **Administrative data on expenditures.** We received administrative data on expenditures from the NECS team and Plan USA to calculate the costs associated with implementation of the NECS and IMAGINE projects. For data collection purposes, we separated expenditures associated with the NECS project from expenditures associated with the IMAGINE project and later combined the expenditures to estimate the costs of the NECS & IMAGINE intervention.
- **Interviews with NECS staff.** Interviews with implementation staff allowed us to develop a sound understanding of the interventions' full range of investments and provided us with insight into equipment depreciation (for example, vehicles and computers), thereby allowing us to distinguish between start-up and ongoing costs.
- **Interviews with Ministry of Primary Education Niger.** We spoke with relevant MEP staff to develop a sound understanding of the ministry's range of involvement in the treatment and control villages and to gather teacher salary data. We learned that the GoN did not build schools at different rates or implement any interventions at different rates across the treatment and control villages in response to the IMAGINE and NECS projects. As such, we concluded that MEP incurred no additional costs in control villages.

Table VI.2. Total costs per village of IMAGINE and NECS activities and their expected life spans

	NECS & IMAGINE projects	NECS-only project	Life span (years)
	Seven years	Three years	
A. School infrastructure and supplies			
School complex (three classrooms and preschool)	$131,807	n/a	30
Toilets	$7,144	n/a	30
Teacher housing	$19,785	n/a	30
Borehole (water point) construction and rehabilitation	$29,816	n/a	30
Connection to water source	$319	n/a	30
Classroom and office supplies[a]	$7,148	n/a	8
School vehicles	$5,812	n/a	4
B. Other project activities			
Establishment and training of community structures[b]	$4,322	n/a	30
Teacher training[c]	$4,998	$213	30
Adult literacy	$2,167	$182	30
Supervision by technical follow-up committee	$19	$1,246	30
Periodic supervisory missions for NECS activities	$183	$183	5
C. Annual costs			
Maintenance of school complex, toilets, and teacher housing[d]	$106	n/a	1
Maintenance of borehole[e]	$72	n/a	1
Teacher salaries[f]	$357	$402	1
Chalk	$69	$69	1
Project administration[g]	$12,049	$3,040	1

Note: We obtained cost estimates for the IMAGINE and NECS interventions directly from Plan USA. All costs are in 2009 U.S. dollars. An itemized breakdown appears in Appendix D. All costs are per village. The costs of the NECS program is assumed to be the same in both the NECS & IMAGINE and NECS-only interventions. The NECS & IMAGINE intervention also includes costs incurred under the IMAGINE project before the NECS project was implemented (see Appendix Table G1 for details). For example, teacher salaries were paid for four additional years under IMAGINE before the NECS project began.

[a]Classroom equipment and supplies includes student desks, chairs, benches, and textbooks; blackboards; rulers; teacher manuals; ARL documents; and office supplies.

[b]Establishment and training of community structures includes kits for "enlightenment" center, establishment of school structures (PAL, CDGES, etc.), sensibilization in gender in the communities, and trainings for community structures.

[c]Teacher training includes teacher training under the IMAGINE project, training in gender, and training in ARL and ASL.

[d]School complex, toilets, and teacher housing maintenance is assumed to be 2 percent of the annualized cost of the infrastructure built under the IMAGINE and NECS programs. It is assumed to begin the year after the IMAGINE program began and to have been paid 6 years for NECS & IMAGINE.

[e]Borehole maintenance is assumed to be 2 percent of the annualized cost of the constructed boreholes and to begin the year after the NECS program began, following the rehabilitation of existing boreholes and construction of the remaining villages without boreholes. In total borehole maintenance is assumed to have been paid 2 years for NECS & IMAGINE.

[f]The GoN pays teacher salaries. However, we include teacher salaries to account for the additional teachers in IMAGINE and NECS villages as a result of the interventions.

[g]Project administration includes IMAGINE and NECS staff salaries; office rentals; vehicle rentals, maintenance, insurance, and fuel; staff training for ASL; staff benefits; and follow-up and oversight by NECS.

Given that the GoN did not alter its policies related to education in the treatment and control villages in response to the IMAGINE or NECS projects, we consider the costs of the NECS & IMAGINE and the NECS-only interventions to be incremental or marginal costs (that is, the cost in the control villages is zero). In Table VI.2, we provide the total costs of implementation per village for the two interventions.[46] All values are measured in 2009 U.S. dollars.

We also present the expected life span of each activity in years. This is the period of time that we assume each activity will continue to contribute to the estimated impacts of the program following the initial investment. For most activities, we assume that each activity will require an investment at the end of its expected life span equal to its initial investment, thus the life span indicates how frequently each cost would need to occur to maintain the estimated impacts of the programs. However, for the IMAGINE school infrastructure activities, we assume that each activity will remain effective throughout the 30 year life span of the IMAGINE schools with two percent annual maintenance ("Maintenance of school complex, toilets, and teacher housing" in Table VI.2). For comparability, we also assume that the life span of the primary NECS training activities are the same as the life span of the IMAGINE schools (with supervisory costs to maintain program effectiveness every five years ("Periodic supervisory missions for NECS" in Table VI.2). We discuss our life span and maintenance assumptions in more detail in the next section.

B. Cost-effectiveness of NECS & IMAGINE and NECS-only

To estimate the cost-effectiveness of the NECS & IMAGINE and NECS-only projects, we use the incremental costs of the projects described earlier, along with the following assumptions:

- We assume that IMAGINE schools have a 30-year life span with annual maintenance of 2 percent of the annualized cost of the schools.[47]
- In order to make the NECS activities comparable to the IMAGINE activities, we assume that the primary NECS training activities also have an effective life span of 30 years, with periodic supervisory costs incurred every five years (similar to the annual maintenance costs of the IMAGINE schools).
- To account for the fact that elements of the program, like school infrastructure, will last longer than our period of observation, we annualize the fixed costs of each element over its assumed life span (for example, 30 years for school infrastructure).
- We assume that project impacts are the estimated effects on enrollment and test scores that are presented in Chapter V based on the RCT evaluation design. According to those estimates, the impact on enrollment for NECS & IMAGINE villages is 10.3 percentage

[46] For a complete breakdown of costs please see Table G.1 in Appendix G.

[47] We also assume that school furniture, manuals, textbooks, blackboards, and office equipment have an effective life span of 8 years, that vehicles and motorcycles have an effective life span of 4 years (purchased in 13 percent and 25 percent of NECS-only and NECS & IMAGINE villages, respectively), and that computers have an effective life span of 3 years (purchased in 46 percent of NECS & IMAGINE villages). We further assume that each of these items will be repurchased at the end of their effective life span at the same cost as at the beginning of the program.

points and 0.21 standard deviations on test scores. For NECS-only villages, the impact on enrollment is 9.5 percentage points and 0.15 standard deviations on test scores.[48]

- Given that parents make school enrollment decisions each year, we assume that only one year of the program is necessary to observe impacts on enrollment in a given year. Thus, we calculate the cost-effectiveness of enrollment on an annual basis, assuming that the cost needed to generate the observed enrollment effect is a yearly average of the additional costs expended from the beginning of the project through the 2016 survey.[49] At the same time, we assume that the learning effect reflected by the observed impact on test scores results from the total exposure that each child received to the respective interventions, so we calculate cost-effectiveness for test scores over the average length of exposure to each intervention by the time that tests scores were measured. The average lengths of exposure for test scores in Wave 2 data collection are 3.73 years (NECS & IMAGINE) and 2.55 years (NECS-only).
- Given that the evaluation design compares the effect of the intervention in villages selected for the IMAGINE or NECS projects to those not selected for either project, we assume that all school-age children in the selected villages are potential beneficiaries. We use the census carried out in the study villages as part of the 2016 follow-up data collection to calculate the average number of children between age 6 and 12 who are eligible in each village. The average number of eligible children per village is 238.
- We assume a discount rate of 10 percent to estimate the present value of costs at the start of the intervention in 2009 (MCC 2014).

[48] The estimated effects of the interventions on enrollment and test scores by treatment and control can be found in Appendix G, Table G.3.

[49] Implementation costs of NECS & IMAGINE and NECS-only projects incurred by year is presented in Appendix G, Table G.2. This approach averages the fixed infrastructure costs of the NECS & IMAGINE intervention over the seven years that the program existed at the time of observation. This strategy results in larger cost-effectiveness estimates than spreading out the fixed costs over an assumed life span of the infrastructure (for example, 30 years), but it requires fewer assumptions.

Table VI.3. List of assumptions for cost-effectiveness analysis

Variable	Basis	Assumed value	Units
Life span of IMAGINE schools	Program design from MCC	30	Years
Treatment effects	Estimates from Table IV.1 (enrollment) and Table IV.2 (test scores)[a]		
Enrollment NECS & IMAGINE		10.3	Percentage points
Enrollment NECS-only		9.5	Percentage points
Test scores NECS & IMAGINE		0.21	Standard deviations
Test scores NECS-only		0.15	Standard deviations
Number of eligible children in village (age 6–12)	Estimate from 2016 follow-up survey[b]	238	Children per village
Annual maintenance cost rate for school infrastructure[c]	MCC recommendation for costing school infrastructure	2	Percent
Discount rate	MCC practice for NPV calculation[d]	10	Percent

[a]Impact estimates using 2016 follow-up household and school surveys with our preferred model specification, discussed in Chapters II and IV.

[b]Average number of children between age 6 and 12 in the study villages, calculated from village census carried out before the household survey.

[c]This rate is multiplied by the fixed cost of the infrastructure constructed under the IMAGINE and NECS programs annualized over the assumed life of the infrastructure (30 years) to estimate its annual maintenance costs.

[d]See "Guidelines for Economic and Beneficiary Analysis," in Compact Development Guidance. Available at http://www.mcc.gov/pages/docs/doc/guidelines-for-economic-and-beneficiary-analysis#heading3. Accessed August 28, 2014.

Using the above assumptions, we calculate the costs required to generate the observed treatment effects. The cost-effectiveness of each program, presented in Table VI.4, is the cost of the program divided by its effect—the incremental costs presented in panel A divided by the impact presented in panel B. For enrollment, panel A shows the average cost per year expended from the beginning of the project through the 2016 survey. In panel B, we show that, for NECS & IMAGINE villages, an average of 188 children are enrolled per village, whereas only 164 children are enrolled on average in comparison villages. The difference of 25 children is the impact on enrollment for children in NECS & IMAGINE villages. For NECS-only villages, an average of 186 children are enrolled per village, for an impact of 23 children in NECS-only villages. Dividing the costs per village in panel A by the impact in panel B yields a cost-effectiveness estimate of $675 for NECS & IMAGINE villages and $154 for NECS-only villages for each additional child enrolled per year.

We follow the same procedures for test scores, except that we assume that all the years of exposure to the respective interventions are essential for observing the learning effect reflected by the impact on test scores. In addition, we divide the result in panel C by 10 to express the estimate in terms of the cost per tenth of a standard deviation.[50] The estimated costs to increase

[50] We express the estimates for test scores in terms of cost per tenth of a standard deviation to be comparable to other studies, which are presented in Appendix G, Table G.5.

the average test score of children in the village by one-tenth of a standard deviation are $121 for NECS & IMAGINE villages and $24 for NECS-only villages.

Table VI.4. Cost-effectiveness estimates of NECS & IMAGINE and NECS-only

	NECS & IMAGINE projects		NECS-only project	
	Enrollment	Test scores	Enrollment	Test scores
Panel A: Total costs per village[a]				
Treatment villages	$16,565	$61,786	$3,463	$8,831
Comparison villages	$0	$0	$0	$0
Difference in costs (i.e., incremental costs)	$16,565	$61,786	$3,463	$8,831
Panel B: Outcomes[b]	*Children enrolled*	*Standard deviations*	*Children enrolled*	*Standard deviations*
Treatment villages	188	0.08	186	0.02
Comparison villages	164	-0.13	164	-0.13
Difference in outcomes (i.e., impacts)	25	0.21	23	0.15
Panel C: Cost-effectiveness				
Enrollment (one additional student-year)[c]	$675		$154	
Test scores (one-tenth of a standard deviation)[d]		$121		$24

[a]Panel A summarizes the total discounted costs in 2009 U.S. dollars.

[b]Panel B summarizes the effects of the interventions on the main outcomes. In Table G.6 in Appendix G, we present details on how we calculated these numbers. Enrollment outcomes are the average total enrollment in primary school for children age 6 through 12 per village. Test score outcomes are the average normalized test score per village for children age 6 through 12.

[c]Cost-effectiveness for enrollment is calculated by dividing the differences in costs between treatment and comparison villages, presented in Panel A, by the estimated impacts for that outcome, presented in Panel B. The enrollment effect is the average cost per year expended from the beginning of the project through the 2016 survey.

[d]For the cost-effectiveness of changes in test scores, we follow the same procedure described in note c above, but we also divide the result by 10 to express the estimate in terms of the cost per tenth of a standard deviation. We assume that all the years of exposure to the respective interventions are essential for observing the learning effect reflected by the impact on test scores. Average lengths of exposure for test scores are 3.73 years (NECS & IMAGINE projects) and 2.55 years (NECS-only projects). Thus, the test effect is the total cost of the length of exposure.

Despite the limitations described in Section A, we can compare the cost-effectiveness estimates of the NECS & IMAGINE and NECS-only projects to other interventions focused on enrollment and test scores. Compared to other programs that seek to enroll children through school building, NECS & IMAGINE is less cost-effective. Burde and Linden (2013) evaluate a community-based school program in Afghanistan that enrolls children for $46 a year and improves test scores by one-tenth of a standard deviation, for $5. Duflo (2001) evaluates a large-scale school construction program in Indonesia that enrolls children for $97 a year, but the author does not assess the effects on test scores. The third study evaluates the impact of the BRIGHT school construction interventions in Burkina Faso at 7 and 10 years after the inception of the project. The BRIGHT project in Burkina Faso served as a prototype for the school infrastructure built during IMAGINE, making the two projects highly comparable. At the 7 year follow-up, Kazianga et al. (2016) estimate the cost to enroll children to be $396 – $490 a year and the cost to improve test scores by one-tenth of a standard deviation to be $21 – $26. At the 10-year follow-up, after additional classrooms construction, Davis et al. (2016) estimate the cost to enroll children to be $292 – $425 a year and the cost to improve test scores to be $55 - $81. The lower

cost-effectiveness of NECS & IMAGINE is likely due in large part to the differences in the context of the building programs across the different studies; the counterfactual. The IMAGINE program built schools in villages that already had schools, so the program improved the quality of schools rather than the access to school buildings, while the other studies compared villages with a new school to villages with no schools.

We also compare the NECS & IMAGINE and NECS-only projects to other interventions aimed at improving enrollment and learning through means other than school construction. Most of these other programs are "add-on" programs in that they are predicated on the existence of a school in which to enroll children, similar to the NECS-only intervention. Of 21 studies we identified that examined the impact of a non-construction intervention on enrollment, two-thirds (14) found impacts on enrollment. Both NECS & IMAGINE and NECS-only interventions were more cost-effective than the four conditional or unconditional cash transfer interventions but less cost-effective than nine other interventions involving activities more directly focused on student health or schooling, including programs to increase the number of teachers, improve parental information, and provide iron supplementation and deworming. Of the 32 studies we identified that examined the impact of a non-construction intervention on test scores, 27 found significant impacts on test scores and 24 of those were at least twice as cost-effective as NECS-only and at least nine times as cost-effective as NECS & IMAGINE. A full list of programs appears in Tables G.4 and G.5 in Appendix G.

C. Cost-benefit analysis of NECS & IMAGINE and NECS-only

Next, we conduct the cost-benefit analysis, for which we make the following assumptions:

- We assume that with 2 percent annual maintenance costs, IMAGINE schools have an effective life span of 30 years. Although the schools may be renovated to extend their lifetimes beyond the 30-year horizon, we assume that the value of the initial investment will have depreciated. The main implication of the assumption is that we assess costs only during the 30-year period. To estimate benefits, we assume that exposure to the interventions occurs only during the same period.[51,52]

[51] As discussed in the cost-effectiveness section, we assume a 30 year life span based on the feedback of local engineers and of MCC staff during the BRIGHT evaluation. We also conducted sensitivity analyses assuming that the IMAGINE schools lasted for 40 (the assumption under the BRIGHT evaluation) or 50 years. The resulting net present value, cost-benefit ratio, and ERR estimates are still similar to those presented in Table VI.7, indicating that the results are not sensitive to the life span of either the NECS & IMAGINE or NECS-only projects. The estimates using 40- and 50-year life spans appear in Tables G.9 and G.10 in Appendix G. We tested the sensitivity of the two percent maintenance assumption by conducting the cost-benefit analyses for the NECS & IMAGINE project using one percent and three percent annual maintenance rates. The total costs vary by approximately $1,000, which over 30 years is a small amount, and there is therefore little change in the estimated measures.

[52] As in the cost-effectiveness analysis, we assume that school furniture, manuals, textbooks, blackboards, and office equipment have an effective life span of 8 years, that vehicles and motorcycles have an effective life span of 4 years (purchased in 13 percent and 25 percent of NECS & IMAGINE villages, respectively), and that computers have an effective life span of 3 years (purchased in 46 percent of NECS & IMAGINE villages). We further assume that each of these items will be repurchased at the end of their effective life span at the same cost as at the beginning of the program.

- In order to make the NECS activities comparable to the IMAGINE activities, we assume that the primary NECS training activities have the same effective life span as the IMAGINE schools (30 years), with periodic supervisory costs incurred every five years to maintain the effectiveness of the trainings activities.
- We assume that all fixed costs for the construction of IMAGINE school infrastructure are incurred at the start of each school's life span in 2009.
- We assume that children may be exposed to the interventions between ages 6 and 12.
- We assume that the only benefits derived from the interventions are higher earnings when children enter the labor market. As a result, we ignore other potential benefits, such as spillover benefits to siblings in the same household, reduced household work, better citizenship, and other outcomes not directly valued in the labor market.
- We assume that individuals start working at age 15 and work until age 50. Even though Niger's official working years range from the age of 15 through 64, we use 15 through 50 years of age to account for the country's low average life expectancy of roughly 60 years (Ministère du Plan, de l'Aménagement du Territoire et du Développement Communautaire 2012).[53] Although children may start working earlier than age 15, the 2012 Demographic and Health Surveys suggest that only 7 percent of children between the ages of 12 and 14 in Niger work for pay outside of the home and most children between 12 and 14 do not work outside of their home at all (INS/Niger and ICF International 2013).
- Using estimates from the 2016 follow-up survey data, we assume that the average impact of exposure to the NECS & IMAGINE project is 0.08 years of schooling per year of exposure, and the average impact of the NECS-only project is 0.09 years of schooling per year of exposure.
- We assume that the average birth cohort is 34 children per village.[54]
- We assume that average annual earnings for all respondents who are not exposed to the interventions are $308.[55]
- To estimate the labor market benefits of higher test scores and additional schooling, the treatment effects presented in Chapter V are translated into the changes in lifetime income to be earned by the children exposed to the programs. For Niger, we assume that the return to

[53] We examine the measures' sensitivity to the working age assumption by assessing costs and benefits with a 35 year working life span (age 15-55). We present the cost-benefit estimates with the 35 year working life span in Table G.11 in Appendix G.

[54] To estimate birth cohort size, we take the average of all the birth cohorts from age 6 through 12 years in the census carried out as part of the 2016 follow-up data collection.

[55] This assumption is based on estimates of annual per capita household income conducted by the Food and Agriculture Organization under the Rural Income Generating Activities (RIGA) Project using the 2011 National Survey on Household Living Conditions and Agriculture in Niger (Food and Agriculture Organization 2013). The estimated values range from $215.83 (using measures of income) to $307.86 (using measures of expenditure) in 2009 U.S. dollars. We chose the estimates based on household expenditure data because expenditure/consumption data are generally assumed to be a relatively accurate measure of household income in developing countries, especially in rural areas where households commonly produce their own goods. We present sensitivity tests of this assumption in Figures G.7 and G.8 in Appendix G.

an additional year of primary education is 3.50 percent, as calculated for the "MCC Niger Threshold Program Design: Constraints Analysis Final Report" (MCC 2014).[56]

- We assume a discount rate of 10 percent to estimate the present value of all costs and benefits at the start of the interventions, as provided by MCC's Guidelines for Economic and Beneficiary Analysis (2014). The ERR estimation does not require the use of a discount rate, but we assume a 10 percent threshold to evaluate the ERR estimates based on MCC guidelines for evaluating investments.

We use the above assumptions to proceed in three steps. First, unlike in the cost-effectiveness analysis, we estimate costs over the full 30-year lifespan of the IMAGINE schools. To ensure an identical match to the life span of the IMAGINE schools, we also estimate the costs of NECS activities in the NECS-only group over 30 years. Second, we estimate how long children will be exposed to the interventions during the 30-year period. Finally, we use this information to calculate the change in earnings attributable to exposure to the interventions. The total value of the earnings then provides our estimate of the benefits of the respective interventions.

Even though we base our calculation of benefits only on increases in earnings, the benefits of the NECS & IMAGINE and NECS-only interventions are likely to extend beyond income. Better-educated individuals are more productive, but they may also be able to take better care of their own health, educate their children, and become engaged in their communities. However, such benefits could be small. Without further evidence, we cannot be certain that such potential benefits would accrue from the interventions. Finally, current research does not allow us to assign a monetary value to possible gains. As a result, our estimates related to earnings should be considered a lower bound on the true benefits of the NECS & IMAGINE and NECS-only projects.

[56] In Figures G.5 and G.6 in Appendix G, we illustrate the various benefits by each grade gained at different returns.

Table VI.5. List of assumptions for cost-benefit analysis

Variable	Basis	Assumed value
Life span of IMAGINE schools (years)	Program design from MCC	30
Age at potential exposure to treatment	Mathematica 2016 follow-up household survey	6–12 years
Age of participation in labor force	Niger National Institute of Statistics Census 2012[a]	15–50 years
Average years of schooling achieved in control villages	Estimates from 2016 follow-up household and school surveys	2.87
School years gained per year of exposure to NECS & IMAGINE intervention	Estimates from 2016 follow-up household and school surveys	0.08
School years gained per year of exposure to NECS-only intervention	Estimates from 2016 follow-up household and school surveys	0.09
Average birth cohort size per village	Estimates from 2016 follow-up household and school surveys[b]	34
Annual earnings of working population	2011 National Survey on Household Living Conditions and Agriculture[c]	$308
Return to additional year of primary education	MCC Niger Threshold Program Design: Constraints Analysis Final Report[d]	3.50%
Annual maintenance cost rate for school infrastructure[e]	MCC recommendation for costing school infrastructure	2%
Discount rate	MCC practice for NPV calculation[f] and evaluating ERR estimates	10%

[a]We use 15 to 50 as the age range instead of the official age range of 15 through 64 because of a low average life expectancy of roughly 60 years in Niger (57.9 years according to UNICEF; 61 years for males and 63 years for females according to the World Health Organization).

[b]To estimate birth cohort size, we take the average of all the birth cohorts from age 6 through 12 in the census carried out as part of the 2016 Wave 2 data collection.

[c]Data estimates from the Food and Agriculture Organization "Component of Income Aggregate: National Survey of Household Living Conditions and Agriculture, Niger 2011," RIGA Project, May 2013.

[d]Data estimates from the "Niger Constraints Analysis," January 2014.

[e]This rate is multiplied by the fixed cost of the infrastructure constructed under the IMAGINE and NECS projects annualized over the assumed life of the infrastructure (30 years) to estimate its annual maintenance costs.

[f]See "Guidelines for Economic and Beneficiary Analysis," in *Compact Development Guidance*. Available at http://www.mcc.gov/pages/docs/doc/guidelines-for-economic-and-beneficiary-analysis#heading3. Accessed August 28, 2014.

Starting with the costs, we estimate the cost for each year in the 30-year life span of each project, from 2009 to 2038 for NECS & IMAGINE projects and from 2013 to 2042 for NECS-only projects. We assume that both projects incur fixed costs in their first year of implementation (2009 and 2013, respectively). In addition, projects incur annual maintenance costs after the start of the interventions to maintain the school complex and boreholes (for NECS & IMAGINE) and periodic costs to conduct supervisory missions for NECS activities every five years. There are also periodic costs that are incurred every number of years to replace school supplies and equipment after the end of each item's assume effective life span (for example, students' desks and chairs are assumed to have an eight year life span, so costs are incurred every eight years to replace them). Once we establish the costs for each year, we use them to construct the costs by year for each intervention. We then take the annual costs and construct the NPV of the costs in 2009 U.S. dollars for both NECS & IMAGINE and NECS-only projects. We provide the total

cost estimates in Table VI.7.[57] A full breakdown of the costs is provided in Table G.1 in Appendix G.

For the benefits, we calculate the value of the future additional earnings of all children exposed to the interventions. First, we determine which children are exposed to each program during its 30-year life span. The first children to be exposed to the NECS & IMAGINE project and then enter the labor market were members of the 1997 birth cohort, who were age 12 when the IMAGINE schools were built in 2009. We assume that they entered the labor market three years later in 2012, at age 15. The last children to be exposed to NECS & IMAGINE projects will be members of the 2032 birth cohort, who will be age 6 in 2038 and thus exposed to the NECS & IMAGINE intervention in grade 1, in the last remaining year in the project's life span. As a result, we calculate the number of years that each birth cohort born between 1997 and 2032 is exposed to the NECS & IMAGINE intervention. We repeat the exercise for the NECS-only project, taking into account the later start date of the intervention. The first birth cohort exposed to the NECS-only intervention is the 2001 cohort, and the last birth cohort is the 2036 cohort.[58]

Table VI.6. Benefits of an additional year of exposure to NECS & IMAGINE and NECS-only for illustrative birth cohorts

	NECS & IMAGINE		NECS-only	
Steps in calculation	1997 birth cohort (one-year exposure)	2002 birth cohort (six-year exposure)	2001 birth cohort (one-year exposure)	2006 birth cohort (six-year exposure)
Average annual earnings of working population age 15 through 50 (2009 U.S. dollars)	$308	$308	$308	$308
Number of years exposed to interventions	1	6	1	6
Grades gained per year of exposure	0.08	0.08	0.09	0.09
Total grades attained because of interventions[a]	0.08	0.47	0.09	0.54
Return to educational attainment (primary)				
Return to additional year of primary education	3.5%	3.5%	3.5%	3.5%
Change in earnings[b]	0.3%	1.7%	0.3%	1.9%
Increase in average annual earnings (benefit)[c]	$0.85	$5.11	$0.97	$5.82

[a]Calculated by multiplying number of years exposed to the interventions by the grades gained per year of exposure.

[b]This is the product of the total grades attained because of the interventions and the return to each additional year of primary education.

[c]Calculated by multiplying the change in earnings attributable to the interventions by the average annual earnings.

[57] In Table G.6 in Appendix G, we show the marginal costs per year of the interventions over the 30-year period.

[58] In Figures G.3 and G.4 in Appendix G, we illustrate the years of exposure and grades gained for each birth cohort during the 30-year life span of the interventions.

Once we know the exposure level for each birth cohort, we can calculate the benefits generated in terms of increased earnings for each year between the year in which the first birth cohort enters the labor market and the year in which the last birth cohort exits the labor market. To begin, we use the assumptions in Table VI.5 to estimate the increased wages for each birth cohort, as illustrated in Table VI.6. Next, using the data from the Wave 2 data collection, we estimate that children gain 0.08 grades per year for each year of exposure to NECS & IMAGINE projects and 0.09 grades per year for each year of exposure to NECS-only projects.[59] Children with more years of exposure benefit more from the intervention. For example, the 1997 birth cohort is exposed to the NECS & IMAGINE intervention for one year, which increases their educational attainment by 0.08 grades. Using a return to an additional year of primary education of 3.5 percent and average annual earnings of $308, we estimate that the child will earn an additional $0.85 each year. A child in the 2002 birth cohort, on the other hand, is exposed for six years, experiences an educational attainment increase of 0.48 years, and earns $5.11 more per year. We then multiply these child-level estimates by 34, the average number of children in each birth cohort, to estimate the increase in annual earnings for the entire birth cohort. Once we have calculated the increased earnings for each birth cohort, we sum the additional earnings gained by all birth cohorts in the given year. For example, in 2012, only the 1997 birth cohort experiences an increase in earnings for the NECS & IMAGINE intervention, whereas both the 1997 and 1998 birth cohorts earn more in 2013. We then use the 10 percent discount rate to calculate the present value of these earnings (as we did for the costs in each year). We present the present value of the total benefits for the NECS & IMAGINE and NECS-only interventions in Table VI.7.

Finally, we compare the present value of the costs and benefits. First, we calculate the NPV by subtracting the present value of the costs from the present value of the benefits. Second, we compare the relative present value of the costs and benefits by dividing the present value of the benefits by the present value of the costs to produce the cost-benefit ratio. If the benefits exceed the costs, the NPV is positive and the cost-benefit ratio is greater than one. According to the estimates presented in Table VI.7, the present value of the benefits does not exceed the present value of the costs for either the NECS & IMAGINE or NECS-only interventions.[60]

[59] In Table G.8 in Appendix G, we present the estimated gains in year of schooling by years of exposure to the treatments.

[60] In Figures G.1 and G.2 in Appendix G, we show the costs and benefits for each year of the interventions.

Table VI.7. Cost-benefit estimates of NECS & IMAGINE and NECS-only

	NECS & IMAGINE projects	NECS-only project
Total benefits	$11,523	$13,128
Total costs	$349,916	$31,177
NPV[a]	-$338,393	-$18,049
Cost-benefit ratio[b]	0.03	0.42
ERR[c]	-4%	2%

Note: Total benefits include the present value of the total return to education over the working years (age 15 to 50) for each birth cohort exposed during the life span of the intervention (30 years). Total costs are the present value of the total costs of the intervention over the same 30-year life span.

[a]Calculated by subtracting the present value of total costs from the present value of total benefits, after applying the 10 percent discount rate.

[b]Calculated by dividing the present value of total benefits by the present value of total costs, after applying the 10 percent discount rate.

[c]This is the discount rate at which the net present value equals zero.

As explained earlier in this chapter, the estimates of NPV and cost-benefit ratio assume a fixed discount rate. A different way to calculate the relative gain from the projects is to determine a discount rate that is sufficiently large that the NPV equal zero. This is the discount rate at which the present value of the costs equals the present value of the benefits. To use such a discount rate, we take the costs and benefits for each year calculated for the cost-benefit ratio as described above but instead of using a discount rate of 10 we determine the discount rate that balances the NPV of each. We provide these values in the last row of Table VI.7. The estimated ERRs are -4 percent for the NECS & IMAGINE intervention and 2 percent for the NECS-only intervention.

As described earlier, the ERR may be interpreted as the return to investments of a program; if the ERR is too low, the program may be deemed insufficiently productive to justify its continuation. For developing countries, MCC considers 10 percent the threshold during the planning phase to determine whether MCC's investments in a compact country will yield sufficient returns for the country's citizens and how MCC is investing United States funds (MCC 2014). The results suggest that neither the NECS & IMAGINE nor the NECS-only project yields returns above MCC's established threshold.

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VII. CONCLUSIONS

In this report, we document the main findings from an impact evaluation of the NECS and IMAGINE projects in Niger. Implementation of the NECS project began three years after implementation of the IMAGINE project and focused on improving access to education and early-grade reading by mobilizing school governance structures, engaging the community, and implementing an ambitious local-language reading curriculum for grade 1 and 2 students. NECS was implemented in communities that had previously received IMAGINE as well as in communities that had not received IMAGINE. The activities implemented under the IMAGINE project included improvements in school infrastructure, teacher training, and the provision of basic school supplies, with a focus on improving schooling outcomes for girls. We evaluated both the combined impact of the IMAGINE and NECS projects seven years after the outset of IMAGINE and three years after the start of NECS (NECS & IMAGINE projects) as well as the three-year impact of the NECS project alone (NECS-only projects).

We found that NECS was implemented with a high degree of fidelity, with most NECS activities implemented in the majority of target schools. As compared to schools in control villages, NECS schools evidenced a significant difference in student governance efforts and mentoring programs and in the use of local languages for reading instruction in grades 1 and 2.

One of the primary goals of the IMAGINE project was to upgrade the school environment by improving school infrastructure and enhancing resources. Consistent with earlier evaluations of the IMAGINE project, we found evidence of sustained improvements in school infrastructure and resources seven years after the program was implemented. We found that schools in IMAGINE villages had higher quality infrastructure (for example, playgrounds, preschool facilities, a source of potable water); more classrooms and classroom resources; and more teachers. However the number of public schools in IMAGINE villages remained the same as in non-IMAGINE villages, which indicates that the primary benefit of the IMAGINE program was to improve school quality and the educational environment rather than to improve access to a school building. Another goal of the IMAGINE project was to create a school environment that would appeal to girls. We found that IMAGINE schools remained more likely to have separate latrines for girls and boys, teacher housing for female teachers, and female teachers than non-IMAGINE schools, but we also found evidence that the prevalence of girl-friendly infrastructure improvements in IMAGINE schools had declined by 25 percent since the 2013 IMAGINE evaluation.

We found that both the NECS & IMAGINE and NECS-only projects had positive impacts on school enrollment and attendance. The combination of the NECS and IMAGINE projects resulted in a 10.3 percentage point increase in enrollment during the current school year and a 13.6 percentage point overall increase in attendance among children age 6 through 12 on the most recent day that the school was open. These impacts were similar to but larger than the 8.3 and 7.9 respective percentage point increases in the three-year evaluation of the IMAGINE project. The NECS-only project increased enrollment and attendance by 9.3 and 11.1 percentage points, respectively. We observed no significant differences between the impacts of the NECS & IMAGINE and NECS-only projects on enrollment and attendance.

In addition to impacts on enrollment and attendance, we found evidence that the NECS project succeeded in improving local-language reading skills. Local-language test scores (normalized by age and language) improved by 0.21 and 0.15 standard deviations in NECS & IMAGINE and NECS-only villages, respectively. As we found in the one- and three-year IMAGINE evaluations, the projects did not appear to have a significant impact on French-language test scores, suggesting that the improvements in local-language skills likely resulted from the project's local-language focus and did not undercut French-language skills. The success of the NECS project's local-language reading focus was further supported by the fact that the improvements we observed in local-language skills were primarily in basic reading skills, letter identification, and familiar word reading—the skills targeted by the NECS curriculum—rather than in oral language or listening-focused language skills. We also found that the improvements in reading skills were concentrated in children in grades 2 and 3 (and to a lesser extent in grades 1 and 4). These children would likely have been exposed to the reading curriculum for two years (or one year for children in grades 1 and 4). However, the improvements were somewhat modest in magnitude and local-language reading skills among the children in the sample remained very low.

The finding that the projects had an impact on enrollment, attendance, and local-language test scores but did not have an impact on French-language test scores does not appear to depend upon measurement or analytic decisions. We observed the impacts on a variety of measures of the same or similar outcomes; the impacts were not sensitive to different regression specifications, samples of children, or weighting schemes. The projects also affected many types of children. We observed similar impacts for both girls and boys, for children across different ages, and for children from different socioeconomic backgrounds.

The NECS & IMAGINE and NECS-only projects also had positive impacts of 0.13 and 0.10 standard deviations, respectively, on standardized mathematics test scores, which were greater than IMAGINE one-year impacts (0.03) and similar to three-year impacts (0.13) (Dumitrescu et al. 2011; Bagby et al. 2014b). Although the IMAGINE and NECS-only projects did not directly target mathematics skills, the impacts may have resulted from improvements in school attendance, teaching quality, or other aspects of the learning environment. The projects also increased how far children advanced in school and improved parent attitudes toward their child's future education. The highest grades attained by primary school aged children in NECS & IMAGINE and NECS-only villages were 0.4 and 0.3 grades higher, respectively, than in control villages. In addition, parents in NECS & IMAGINE and NECS-only villages were 6.9 and 6.5 percentage points, respectively, more likely to want their child to attend secondary or higher schooling and 10.6 and 8.3 percentage points, respectively, more likely believe that their child would do so than parents in control group villages. However, despite finding modest impacts on adult participation in literacy training and events, we observed no significant impacts on adult literacy in project villages.

The estimated seven-year impact of NECS & IMAGINE on enrollment (10.3 percentage points) was descriptively larger than the one-year impact of IMAGINE (4.3 percentage points) on enrollment and similar to the impact estimated in the three-year evaluation (8.3 percentage points) (Dumitrescu et al. 2011; Bagby et al. 2014b). This implies that the improvements in enrollment observed in the three-year evaluation have persisted over the subsequent three years, although the relationship between the persistence of the improvements and the introduction of

the NECS project remains unclear. Because the differences in the impacts of the NECS & IMAGINE and NECS-only projects on enrollment were not statistically significant, we cannot conclude that the "hard" and "soft" project activities are additive. It is possible that (1) they are additive but that our sample was not large enough to detect a difference, (2) the IMAGINE and NECS projects had similar impacts on enrollment with little additional benefit from combining the two projects, or (3) the impact of IMAGINE declined over time such that the impacts we observed for both the NECS & IMAGINE and NECS-only projects were primarily driven by the NECS project. We discuss each scenario in turn:

- The first scenario while possible, is not of large concern since the magnitude of the difference in impacts between the two projects is quite small. Even if the difference in impacts were statistically significant, we would likely conclude that there is not a meaningful benefit of having both the hard and soft interventions over the soft intervention alone.
- The second scenario could arise through several mechanisms and is a likely explanation. There are multiple reasons why children did not attend school, and these reasons likely vary across contexts based on the unique constraints that households and children face in different communities. The NECS and IMAGINE projects were both designed to address constraints on the quality of schooling and community sensitization to the value of schooling, rather than other potential barriers such as the availability of schooling (which does not seem to be a constraint in this context) or household demand for labor. Because the two projects addressed the similar constraints, it is plausible that the two projects had similar impacts on educational outcomes of children aged 6 to 12 and were not additive. For instance, IMAGINE may have improved school enrollment and attendance through the construction of girl-friendly schools, whereas NECS included an extensive social mobilization component that may have improved enrollment and attendance in NECS-only villages but may not have had any additional effect in IMAGINE villages.
- The third scenario is also a likely explanation and is supported by the findings of evaluations of similar programs. The data for the NECS evaluation was collected while the NECS project was still active, so the impacts we estimated reflect the active presence of NECS in treatment villages. However, the NECS activities may not persist once NECS funding is eliminated (for example, the trained teachers might leave the schools), which could result in a longer term decline in impacts of the soft activities (indeed, this is often observed in the literature). On the other hand, the infrastructure constructed under IMAGINE would still be standing and could still generate impacts over a longer period of time, but the evaluations of the BRIGHT project in Burkina Faso suggest that that might not be the case. The BRIGHT evaluations found positive impacts on outcomes such as enrollment and test scores for primary school-aged children both three and seven years after the implementation of the project (Kazianga et al. 2013; Kazianga et al. 2016). However, the ten year evaluation, conducted after funding for the soft activities had ended, found that although the positive impacts of the project on enrollment and test scores persisted for children who had been exposed to the full suite of activities, the children exposed to the hard activities alone no longer demonstrated positive impacts (Davis et al. 2016). These findings suggest that the impacts of a hard infrastructure intervention like IMAGINE may dissipate over time and that maintaining soft activities like NECS may be necessary to continue generating positive impacts on educational outcomes over the long term. While this suggests that the estimated

impacts were primarily driven by NECS rather than IMAGINE, we do not have sufficient information to determine whether this explanation or the explanation that the two projects are simply providing similar impacts with no additive benefit is more likely.

Finally, we performed analyses of the projects' cost-effectiveness and cost-benefits to understand how the projects performed relative to similar programs or other investments. We estimated that the NECS & IMAGINE project was a costly way to improve enrollment or test scores relative to similar programs and that the program produced a negative economic rate of return (as estimated from increased lifetime earnings for children exposed to the project), in large part because of the relatively high costs of infrastructure improvements. We estimated that the NECS-only project was also a costly way to improve enrollment and test scores relative to similar programs in other contexts. Unlike in the case of NECS & IMAGINE projects, we estimated that the economic rate of return for NECS-only projects was positive but low (2 percent). However, this return fell below MCC's 10 percent threshold for sufficient rates of return on investments.

Because the cost-benefit analyses require a number of strong assumptions, the findings of the analyses come with some uncertainty. We conducted a number of checks to investigate the sensitivity of the findings to some of the assumptions, including the functional life span of the IMAGINE schools, the average working lifetime of a person in Niger, the average return to an additional year of schooling in Niger, and the average annual income in Niger. We find that neither increasing the life span of the IMAGINE schools from 30 to 40 or 50 years (Appendix Tables G.9 and G10), changing the annual maintenance rate for IMAGINE infrastructure rate from 2 percent to 1 percent or 3 percent, nor increasing the average working lifetime from 35 to 40 years (Appendix Table G.11) significantly alter the cost-benefit findings. However, our assumptions regarding the rates of return to education and average income in Niger do have a large effect on our cost-benefit estimates.

We found that the ERR of the NECS-only intervention would pass MCC's 10 percent threshold if the returns to an additional year of primary education in Niger were 15 percent or if average income in Niger were $1,250 per year (Appendix Figures G.7 and G.9). Although a 15 percent return to an additional year of schooling is much larger than the average return in primary school (3.5 percent) that we adopted for our analysis or across all levels of schooling estimated by MCC (7 percent), it is closer to the 12.5 percent estimated return to education that MCC estimated for junior high in Niger (MCC 2014; Food and Agriculture Organization 2013). This suggests that if the increases in year of schooling that we found in primary school were sustained through junior high then the NECS-only project might produce economic returns large enough to meet MCC investment standards. This cannot be determined without an evaluation of the longer-term impacts of the intervention on grade attainment. We can conclude, however, that the low returns to education and low income in Niger appear to be important constraints on the economic returns of the NECS-only project despite the significant impacts of the project on educational outcomes.

The estimated ERR of the NECS & IMAGINE intervention also increases substantially with higher returns to education or higher income, but the estimates remain very low. The ERR remains at or below 3 percent for returns to an additional year of schooling up through 25 percent, which is much larger than the returns to an additional year of schooling estimated by

MCC for any level of schooling in Niger (Appendix Figures G.7). Similarly, the estimated ERR remains below 2 percent for annual incomes up to $1,750, which is more than 5 times the annual income in Niger estimated by the Food and Agriculture Organization (Appendix Table G.9). Because we find consistently low ERR estimates for the NECS & IMAGINE project, including with robustness checks using a wide range of assumptions of the current returns to education and average incomes in Niger, we must conclude that, unlike the NECS-only project, the NECS & IMAGINE project does not produce economic returns large enough to meet MCC investment standards under the current economic environment in Niger and given the relatively high upfront costs involved in implementing the project.

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APPENDIX A

CENSUS

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Census Form NECS Endline Survey Date |___|___| / |___|___| / |_2_|_0_|_1_|_6_|

Commune _____ |___|___| Village_____ |___|___|___| Interviewer _____ |___|___|___|

Serial Number	District Number	Concession Number	Household Number in the concession	First and last name of head of household	Sex of Head of Household MALE.....1 FEMALE.....2	Number of School-age children (6-12 years) in household		Eligible for Sample ELIGIBLE.....1 NOT-ELIGIBLE....0	Serial Number of Eligible Households	Sample Household Number (IM4)	Notes
						Girls	Boys				
					|___|	|___|___|	|___|___|	|___|			
					|___|	|___|___|	|___|___|	|___|			
					|___|	|___|___|	|___|___|	|___|			
					|___|	|___|___|	|___|___|	|___|			
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APPENDIX B

VILLAGE/SCHOOL QUESTIONNAIRE

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SCHOOL INFORMATION PANEL		**SCH**
VISITS SHOULD BE MADE IN THE MORNING WHEN THE SCHOOL IS OPEN AND THE STUDENTS ARE IN CLASS. COLLECT INFORMATION FROM MODULES SCH, SC, SS, AND SP. THEN, TO FILL OUT THE STUDENT ATTENDANCE ROSTER (MODULE SAR), REQUEST THE OFFICIAL ROSTER OF STUDENTS ENROLLED IN THE SCHOOL.		
SCH1. REGION: _____ ID |__|__|	SCH2. COMMUNE: _____ ID |__|__|	
SCH3. VILLAGE_____ ID |__|__|__|	SCH4. SCHOOL _____ ID |__|__|__|	
SCH5. INTERVIEWER NAME AND NUMBER : NAME_____ ID |__|__|	SCH6. SUPERVISOR NAME AND NUMBER : NAME_____ ID |__|__|	
SCH7. DAY/MONTH/YEAR OF INTERVIEW :	|__|__| / |__|__| / |2|0|1|6|	
SCH8. NAME OF SCHOOL: _____		
SCH9. NAME OF RESPONDENT: _____		
SCH10. RESPONDENT POSITION DIRECTOR ..... 01 OTHER ADMINISTRATOR ..... 02 TEACHER ..... 03 OTHER (SPECIFY) ..... 99 _____	|__|__|	
SCH11. NAME OF SCHOOL DIRECTOR (IF NOT THE RESPONDENT) _____		
SCH12. SEX OF SCHOOL DIRECTOR	MALE.....1 FEMALE 2	|__|
SCH13. IS THE DIRECTOR FROM THIS VILLAGE?	YES .....1 NO 2	|__|

SCHOOL CHARACTERISTICS	SCHOOL ID: |___|___|___|	SC
SC1A. IS THIS A PUBLIC SCHOOL OR A PRIVATE SCHOOL? (READ THE OPTIONS)	PUBLIC/COMMUNITY ..... 1 PRIVATE ..... 2 KORANIC SCHOOL..... 3 MADRASA ..... 4 NON-FORMAL SCHOOL..... 5 OTHER (SPECIFY)..... 99 _____	|___|
SC1B. IS THIS A BILINGUAL SCHOOL?	YES..... 1 NO 2	|___|
SC2. WHAT YEAR WAS THIS SCHOOL OPENED?	YEAR ..... DON'T KNOW..... 0098	|___|___|___|___|
SC3. HAS THE SCHOOL CHANGED LOCATION?	YES..... 1 NO 2	|___|

SC4A. HOW MANY BOYS AND GIRLS WERE ENROLLED IN EACH GRADE AT THE END OF THE PREVIOUS SCHOOL YEAR (2014 - 2015)? *RECORD THE NUMBER OF STUDENTS ENROLLED IN EACH GRADE BY GENDER USING THE SCHOOL REGISTER.*

	CI	CP	CE1	CE2	CM1	CM2	TOTAL
BOYS							
GIRLS							
TOTAL							

SC4B. FROM THE STUDENTS ENROLLED IN CP DURING THE 2014-2015 SCHOOL YEAR, HOW MAY BOYS AND HOW MANY GIRLS WERE ADVANCED TO CE1 AND HOW MANY ARE ENROLLED IN CE1? *RECORD THE NUMBER OF STUDENTS ADVANCED AND THE NUMBER ENROLLED IN CE1 BY GENDER USING THE SCHOOL REGISTER.*

	STUDENTS IN CP DURING 2014-2015 WHO ADVANCED TO CE1	STUDENTS IN CP DURING 2014-2015 WHO ARE CURRENTLY ENROLLED IN CE1 IN 2015-2016
BOYS		
GIRLS		
TOTAL		

SC5A. HOW MANY MALE AND FEMALE STUDENTS ARE ENROLLED IN EACH GRADE THIS SCHOOL YEAR (2015 - 2016)? *RECORD THE NUMBER OF STUDENTS ENROLLED IN EACH GRADE BY GENDER USING THE SCHOOL REGISTER.*

	CI	CP	CE1	CE2	CM1	CM2	TOTAL
BOYS							
GIRLS							
TOTAL							

SC5B. FROM THE STUDENTS ENROLLED THIS YEAR (2015-2016) IN EACH GRADE, HOW MANY LIVE IN THIS VILLAGE AND HOW MANY COME FROM OUTSIDE THE VILLAGE? *ASK THE SCHOOL DIRECTOR AND/OR TEACHERS TO NOTE IN THE REGISTER WHICH STUDENTS LIVE IN THE VILLAGE AND WHICH STUDENTS LIVE OUTSIDE THE VILLAGE, THEN COUNT AND NOTE THE TOTAL BY GRADE.*

	CI	CP	CE1	CE2	CM1	CM2	TOTAL
LIVE IN THE VILLAGE							
LIVE OUTSIDE OF THE VILLAGE							
TOTAL							

SC5C. HOW MANY MALE AND FEMALE STUDENTS ARE PRESENT TODAY IN EACH GRADE? *RECORD THE NUMBER OF STUDENTS PRESENT IN EACH GRADE BY GENDER,* BY COUNTING THE STUDENTS IN THE CLASSROOM.

	CI	CP	CE1	CE2	CM1	CM2	TOTAL
BOYS PRESENT TODAY							
GIRLS PRESENT TODAY							
TOTAL							

SC6. HOW MANY WEEKS WAS THIS SCHOOL OPEN **LAST** ACADEMIC YEAR (2014-2015)?	WEEKS OPEN LAST ACADEMIC YEAR (2014-2015) *Record 00 if the school was not open during the previous year.*	|___|___|
SC7. NUMBER OF DAYS THE SCHOOL WAS OPEN DURING :	OCTOBER 2015 |___|___| NOVEMBER 2015 |___|___| DECEMBER 2015 |___|___| JANUARY 2016 |___|___| FEBRUARY 2016 |___|___| MARCH 2016 |___|___| Record 00 if the school was not open.	
SC7A. HOW MANY DAYS WAS THE SCHOOL OPEN IN THE PAST 7 DAYS?	DAYS OPEN DURING PREVIOUS 7 DAYS Record 00 if the school was not open.	|___|___|

SC8. USING THE CODES BELOW, RECORD UP TO TWO LANGUAGES THAT ARE USED FOR MATHEMATICS INSTRUCTION, READING INSTRUCTION OR GENERAL CONVERSATION FOR EACH GRADE:

FRENCH.....01
HAUSA.....02
ZARMA.....03
TAMASHEQ.....04
FULFULDE.....05
KANURI.....06
TOUBOU.....07
ARABIC.....08
BOUDOUMA.....09
GOURMATCHE.....10
OTHER LANGUAGE (SPECIFY).....99
_____
NOT APPLICABLE _____ 94

	CI		CP		CE1		CE2		CM1		CM2	
	1IERE	2IEME	1IERE	2IEME	1IERE	2IEME	1IERE	2IEME	1IERE	2IEME	1IERE	2IEME
MATHEMATICS INSTRUCTION												
READING INSTRUCTION												
GENERAL CONVERSATION												

SCHOOL CHARACTERISTICS	SCHOOL ID: |___|___|___|	SC
SC9. DURING **THIS** SCHOOL YEAR (2015-2016), WERE ALL STUDENTS WHO WANTED TO ENROLL IN THIS SCHOOL ADMITTED?	YES ..... 1 NO 2	|___|
SC10. IN YOUR OPINION, WHAT IS THE MOST IMPORTANT REASON PREVENTING PARENTS FROM SENDING THEIR DAUGHTERS TO SCHOOL? (SELECT ONLY ONE ANSWER)	NO SCHOOL IN VILLAGE ..... 01 SCHOOL FEES ..... 02 CHILD TOO YOUNG ..... 03 SCHOOL TOO FAR ..... 04 WORK FOR INCOME ..... 05 HOUSEHOLD WORK ..... 06 TAKING CARE OF SIBLINGS ..... 07 NO SEPARATE BATHROOMS FOR BOYS AND GIRLS .. 08 CHILD TOO OLD ..... 09 TO AVOID DEBAUCHERY ..... 10 PREVENTS EARLY MARRIAGE ..... 11 FIELDWORK/PASTURE ..... 12 CUSTOM/RELIGION ..... 13 LACK OF AWARENESS/IGNORANCE ..... 14 OTHER (SPECIFY) ..... 99 _____	|__|__|
SC11. IN YOUR OPINION, WHAT IS THE MOST IMPORTANT REASON PREVENTING PARENTS FROM SENDING THEIR SONS TO SCHOOL? (SELECT ONLY ONE ANSWER)	NO SCHOOL IN VILLAGE ..... 01 SCHOOL FEES ..... 02 CHILD TOO YOUNG ..... 03 SCHOOL TOO FAR ..... 04 WORK FOR INCOME ..... 05 HOUSEHOLD WORK ..... 06 TAKING CARE OF SIBLINGS ..... 07 NO SEPARATE BATHROOMS FOR BOYS AND GIRLS .. 08 CHILD TOO OLD ..... 09 TO AVOID DEBAUCHERY ..... 10 PREVENTS EARLY MARRIAGE ..... 11 FIELDWORK/PASTURE ..... 12 CUSTOM/RELIGION ..... 13 LACK OF AWARENESS/IGNORANCE ..... 14 OTHER (SPECIFY) ..... 99 _____	|__|__|
SC12. DOES THIS SCHOOL HAVE A FEEDING PROGRAM?	YES ..... 1 NO 2	|___| 2⇨SC14
SC13. WHAT TYPE OF FEEDING PROGRAM IS OFFERED BY THE SCHOOL?	CANTEEN ..... 1 DRY RATIONS ..... 2 CANTEEN AND DRY RATIONS ..... 3 OTHER (SPECIFY) ..... 99 _____	|__|__|
SC13A. IF SC13 = 2 OR SC13=3 ARE DRY RATIONS FOR GIRLS ONLY?	YES ..... 1 NO 2	|___|
SC14. ARE THERE OTHER OUTSIDE PROGRAMS ACTIVE AT THE SCHOOL THIS YEAR, SINCE OCTOBER 2015?	YES ..... 1 NO 2	|___| 2⇨SC15

SCHOOL CHARACTERISTICS SCHOOL ID: |___|___|___|		SC
SC14A. IF YES, WHAT ARE THOSE PROGRAMS? 1=YES, 2=NO **(DO NOT READ THE OPTIONS, BUT NOTE ALL THE PROGRAMS MENTIONED BY THE RESPONDENT)** 1. IMAGINE/NECS 2. PLAN 3. AIDE ET ACTION 4. UNICEF 5. WORLD VISION 6. PROJET LUX-DEVELOPPEMENT PAM 7. AGENCE FRANÇAISE DE DEVELOPPEMENT (AFD) 8. COOPERATION SUISSE 9. JICA 10. CONCERN INTERNATIONAL 11. OTHER (SPECIFY)		|___| |___| |___| |___| |___| |___| |___| |___| |___| |___| |___|
SC15. DOES EACH STUDENT HAVE A COMPLETE SET OF TEXTBOOKS FOR HIS OR HER USE?	YES, SOLE USE ..... 1 NO 2	|___|
SC16. DOES THIS SCHOOL HAVE A LOCAL LANGUAGE READING CURRICULUM (HAUSA, ZARMA, KANURI, FULFULDE OU TAMASHEQ)?	YES..... 1 NO 2	|___| 2⇨SC18
SC17. DOES THIS SCHOOL HAVE LOCAL LANGUAGE EDUCATIONAL MATERIALS THAT ARE USED BY THE STUDENTS?	YES..... 1 NO 2	|___| 2⇨SC18
SC17A. IN WHAT LANGUAGE ARE THE LOCAL LANGUAGE EDUCATIONAL MATERIALS IN THE SCHOOL? NOTE THE SECOND LANGUAGE IF APPLICABLE. HAUSA ..... 01 ZARMA ..... 02 TAMASHEQ ..... 03 FULFULDE..... 04 KANURI..... 05 TOUBOU ..... 06 ARABIC..... 07 BOUDOUMA ..... 08 GOURMATCHE ..... 09 OTHER LANGUAGE (SPECIFY)..... 99 _____		|___|___| |___|___|
SC17B. HOW SATISFIED ARE YOU WITH THE EDUCATIONAL MATERIALS AVAILABLE AT YOUR SCHOOL?	NOT AT ALL SATISFIED..... 1 A LITTLE DISSATISFIED..... 2 SOMEWHAT SATISFIED.....3 SATISFIED 4	|___|
SC18. DOES THIS SCHOOL HAVE LOCAL LANGUAGE STORY BOOKS (NOT SCHOOL BOOKS)?	YES..... 1 NO 2	|___| 2⇨SC19
SC18A. ARE THEY STORED IN A SCHOOL LIBRARY, IN EACH CLASSROOM, OR IN A MOBILE LIBRARY?	SCHOOL LIBRARY.....1 EACH CLASSROOM HAS A LIBRARY..... 2 MOBILE LIBRARY..... 3	|___|

SC18B. ARE THEY USED FOR CLASSROOM INSTRUCTION?	YES..... 1 NO 2	|___|

SC18C. IN WHAT LANGUAGE ARE THE LOCAL LANGUAGE BOOKS? NOTE THE SECOND LANGUAGE IF APPLICABLE.

HAUSA	01
ZARMA	02
TAMASHEQ	03
FULFULDE	04
KANURI	05
TOUBOU	06
ARABIC	07
BOUDOUMA	08
GOURMATCHE	09
OTHER LANGUAGE (SPECIFY)	99

_____ |___|___|

|___|___|

SC19. HOW MANY HOURS A DAY ARE THE STUDENTS TYPICALLY AT SCHOOL?

HOURS ..... |___|___|

SC20. HOW MANY MINUTES, ON AVERAGE, DOES EACH TEACHER SPENT ON READING ACTIVITIES WITH THE STUDENTS EACH DAY, INCLUDING STUDENT-ON-TASK AND TEACHER-LED ACTIVITIES?

IF CANNOT DISTINGUISH BETWEEN THE TWO, RECORD TOTAL ONLY.

	STUDENT-ON-TASK	TEACHER-LED	TOTAL
CI	|___|___|	|___|___|	|___|___|
CP	|___|___|	|___|___|	|___|___|
CE1	|___|___|	|___|___|	|___|___|
CE2	|___|___|	|___|___|	|___|___|
CM1	|___|___|	|___|___|	|___|___|
CM2	|___|___|	|___|___|	|___|___|

SC21A. IS THERE A NEW LOCAL LANGUAGE READING CURRICULUM BEING TAUGHT IN CI CLASSES?

YES 1
NO 2

|___|

SC21B. IS THERE A NEW LOCAL LANGUAGE READING CURRICULUM BEING TAUGHT IN CP CLASSES?

YES 1
NO 2

|___|

SC22. IN YOUR OPINION, WHEN SHOULD CHILDREN BE ABLE TO READ?

CI .....
CP .....
CE1 .....
CE2 ..... |___|
CM1 .....
CM2 .....

SC23. WHAT DOES « ABLE TO READ » MEAN?

MARK ALL THAT APPLY.

RECITE TEXT	|___|
MEMORIZE TEXT	|___|
UNDERSTAND TEXT	|___|

SCHOOL PHYSICAL STRUCTURE	SCHOOL ID: |___|___|___|	SS
SS1. HOW MANY CLASSROOMS DOES THIS SCHOOL HAVE?	CLASSROOMS	|___|___|
SS2. HOW MANY CLASSROOMS ARE USEABLE?	USEABLE CLASSROOMS	|___|___|
SS3. HOW MANY OF THESE CLASSROOMS ARE MADE OF FINISHED MATERIAL?	NUMBER.....	|___|___| IF 0 → SS4
SS3A. WHAT GRADES TYPICALLY USE THE CLASSROOMS MADE OF FINISHED MATERIALS?	ALL GRADES..... **If not all classrooms are made of finished materials, note the grades that typically use the classrooms made of finished materials.** CI ..... CP..... CE1..... CE2..... CM1 ..... CM2	|___| |___| |___| |___| |___| |___| |___|
SS4. HOW MANY CLASSROOMS CAN BE USED WHEN IT RAINS?	CLASSROOMS.....	|___|___| IF 0 → SS4
SS4A. WHAT GRADES TYPICALLY USE THE CLASSROOMS WHEN IT RAINS?	ALL GRADES..... **If not all classrooms can be used when it rains, note the grades that typically use the classrooms when it rains.** CI ..... CP..... CE1..... CE2..... CM1 ..... CM2	|___| |___| |___| |___| |___| |___| |___|
SS5. HOW SATISFIED ARE YOU WITH THE CLASSROOMS AVAILABLE AT YOUR SCHOOL?	NOT AT ALL SATISFIED ..... 1 A LITTLE DISSATISFIED .....2 SOMEWHAT SATISFIED ..... 3 SATISFIED 4	|___|
SS6. DO ALL STUDENTS IN THIS SCHOOL HAVE THEIR OWN SEATS AND DESKS SPACE IN ACCORDANCE WITH THE NORMS ESTABLISHED BY THE DEPT OF ED?	YES ..... 1 NO 2	|___|

SS7. IN THIS SCHOOL ARE THERE SUFFICIENT SEATS FOR UP TO 50 STUDENTS IN EACH CLASS IN ACCORDANCE WITH THE NORMS ESTABLISHED BY THE DEPT OF ED?	YES ..... 1 NO 2	|___|
SS8. IN THIS SCHOOL ARE THERE SUFFICIENT DESKS FOR UP TO 50 STUDENTS IN EACH CLASS IN ACCORDANCE WITH THE NORMS ESTABLISHED BY THE DEPT OF ED?	YES ..... 1 NO 2	|___|
SS9. HOW MANY OF THESE CLASSROOMS HAVE A BLACKBOARD?	NUMBER.....	|___|___|
SS10. HOW MANY OF THESE CLASSROOMS HAVE A BLACKBOARD THAT IS VISIBLE TO ALL STUDENTS?	NUMBER.....	|___|___|
SS11. HOW MANY OF THESE CLASSROOMS HAVE A CUPBOARD?	NUMBER.....	|___|___|
SS12. HOW MANY OF THESE CLASSROOMS HAVE A TABLE FOR THE TEACHER?	NUMBER.....	|___|___|
SS13. HOW MANY OF THESE CLASSROOMS HAVE A CHAIR FOR THE TEACHER?	NUMBER.....	|___|___|
SS14. DOES THIS SCHOOL HAVE A POTABLE WATER SOURCE (SUCH AS A BOREHOLE)?	YES ..... 1 NO 2	|___| 2⇨SS18
SS15. WHAT TYPE OF WATER SOURCE IS IT?	PIPED WATER ..... 1 TUBE WELL OR BOREHOLE..... 2 DUG WELL ..... 3 RAINWATER..... 4 TANKER TRUCK..... 5 CART WITH SMALL TANK ..... 6 OTHER (SPECIFY) .....99 _____	|___|
SS16. DOES THIS SCHOOL'S WATER SOURCE FUNCTION?	YES ..... 1 NO .....2 DON'T KNOW 98	|___| 1⇨SS18
SS17. IF NO, WHEN WAS THE LAST TIME ANY MAINTENANCE WAS PERFORMED?	<1 MONTH ..... 1 1-5 MONTHS .....2 >5 MONTHS .....3 DON'T KNOW 98	|___|
SS18. DOES THIS SCHOOL HAVE TOILET FACILITIES FOR STUDENTS?	YES ..... 1 NO 2	|___| 2⇨SS24
SS19. DO THE TOILETS FUNCTION?	YES ..... 1 NO 2	|___| 2⇨SS22
SS20. ARE THE TOILETS BEING USED BY THE STUDENTS?	YES ..... 1 NO 2	|___| 2⇨SS23
SS21. DO GIRLS AND BOYS HAVE SEPARATE TOILET FACILITIES?	YES, SEPARATE BLOCKS..... 1 YES, SAME BLOCK..... 2 NO 3	|___|

SS22. WHEN WAS THE LAST TIME MAINTENANCE WAS PERFORMED ON THE TOILETS?	<1 MONTH ..... 1 1-5 MONTHS .....2 >5 MONTHS .....3 DON'T KNOW 98	|___|
SS23. HOW SATISFIED ARE YOU WITH THE TOILET FACILITIES AT YOUR SCHOOL?	NOT AT ALL SATISFIED..... 1 A LITTLE DISSATISFIED..... 2 SOMEWHAT SATISFIED .....3 SATISFIED 4	|___|
SS24. DOES THIS SCHOOL HAVE A PRESCHOOL?	YES ..... 1 NO..... 2	|___|
SS25. DOES THIS SCHOOL HAVE A PLAYGROUND?	YES ..... 1 NO..... 2	|___|
SS26. IS THERE LODGING SPECIFICALLY FOR THE TEACHERS?	YES ..... 1 NO..... 2	|___| 2⇨SP1
SS27. IS THE LODGING ONLY FOR FEMALE TEACHERS?	YES ..... 1 NO..... 2	|___|
SS28. HOW SATISFIED ARE YOU WITH THE LODGING FOR TEACHERS?	NOT AT ALL SATISFIED..... 1 A LITTLE DISSATISFIED.....2 SOMEWHAT SATISFIED .....3 SATISFIED 4	|___|

SCHOOL PERSONNEL CHARACTERISTICS SCHOOL ID: |___|___|___|		SP
SP1A. HOW MANY TEACHERS ARE CURRENTLY TEACHING IN THIS SCHOOL, INCLUDING TRAINEES AND VOLUNTEERS?	TEACHERS	|___|___|
SP1B. ARE THERE A SUFFICIENT NUMBER OF TEACHERS IN THIS SCHOOL IN ACCORDANCE WITH THE NORMS ESTABLISHED BY THE MINISTRY OF EDUCATION?	YES .....1 NO.....2	|___|
SP1C. HOW MANY CI TEACHERS ARE CURRENTLY TEACHING IN THIS SCHOOL, INCLUDING TRAINEES AND VOLUNTEERS?	CI TEACHERS.....	|___|___|
SP1D. HOW MANY CP TEACHERS ARE CURRENTLY TEACHING IN THIS SCHOOL, INCLUDING TRAINEES AND VOLUNTEERS?	CP TEACHERS	|___|___|
SP2A. HOW MANY OF THESE TEACHERS ARE FEMALE?	FEMALE TEACHERS.....	|___|___|
SP2B. HOW MANY OF THE CI TEACHERS ARE FEMALE?	FEMALE TEACHERS.....	|___|___|
SP2C. HOW MANY OF THE CP TEACHERS ARE FEMALE?	FEMALE TEACHERS.....	|___|___|
SP3A. HOW MANY TEACHERS HAVE AN ADVANCED DEGREE? MARK 00 IF NONE	TEACHERS WITH : BAC..... DUEEG/DUEL/DUES..... LICENSE..... OTHER (SPECIFY)..... _____	 |___|___| |___|___| |___|___| |___|___|
SP3B. HOW MANY CI TEACHERS HAVE AN ADVANCED DEGREE? MARK 00 IF NONE	TEACHERS WITH : BAC..... DUEEG/DUEL/DUES..... LICENSE..... OTHER (SPECIFY)..... _____	 |___|___| |___|___| |___|___| |___|___|
SP3C. HOW MANY CP TEACHERS HAVE AN ADVANCED DEGREE? MARK 00 IF NONE	TEACHERS WITH : BAC..... DUEEG/DUEL/DUES..... LICENSE..... OTHER (SPECIFY)..... _____	 |___|___| |___|___| |___|___| |___|___|
SP4. HOW MANY TEACHERS ARE THERE IN EACH CATEGORY?	NR OF PERMANENT TEACHERS ..... NR OF TRAINEES TEACHERS..... NR OF VOLUNTEER TEACHERS	|___|___| |___|___| |___|___|

SCHOOL PERSONNEL CHARACTERISTICS SCHOOL ID: |___|___|___|		SP
SP5. HOW MANY TEACHERS ARE THERE IN EACH RANK?	NR OF ASSISTANT TEACHERS	|___|___|
	NR OF TRAINEES ASST. TEACHERS.....	|___|___|
	NR OF CERTIFIED TEACHERS	|___|___|
	NR OF CERTIFIED TRAINEES TEACHERS.....	|___|___|
	NR OF MONITORS	|___|___|
	NR WITHOUT FORMAL TRAINING.....	|___|___|
SP6. NOW, I WOULD LIKE SOME INFORMATION ON THE TEACHING EXPERIENCE OF THESE TEACHERS. HOW MANY OF THESE TEACHERS HAVE…	LESS THAN 3 YEARS	|___|___|
	3 TO 5 YEARS	|___|___|
	5 TO 10 YEARS	|___|___|
	10 OR MORE YEARS	|___|___|
SP7. HOW OFTEN IS A TYPICAL TEACHER ABSENT?	NO ABSENCES.....0 ONCE PER WEEK .....1 2-3 TIMES PER WEEK .....2 MORE THAN 3 TIMES PER WEEK..... 3	|___|
SP8. HOW MANY TEACHERS OR SCHOOL OFFICIALS (INCLUDING THE DIRECTOR) HAVE RECEIVED PRE-SERVICE TRAINING ON TEACHING READING?	TEACHERS	|___|___|
	SCHOOL OFFICIALS ..... (ENTER 00 IF NONE)	|___|___|
SP9. HOW MANY TEACHERS OR SCHOOL OFFICIALS (INCLUDING THE DIRECTOR) HAVE RECEIVED PROFESSIONAL DEVELOPMENT TRAINING ON TEACHING READING?	TEACHERS	|___|___|
	SCHOOL OFFICIALS ..... (ENTER 00 IF NONE)	|___|___|
SP10. HOW MANY TEACHERS OR SCHOOL OFFICIALS (INCLUDING THE DIRECTOR) HAVE RECEIVED TRAINING ON LOCAL LANGUAGE READING?	TEACHERS	|___|___|
	SCHOOL OFFICIALS ..... (ENTER 00 IF NONE)	|___|___|
SP11. HOW MANY TEACHERS OR SCHOOL OFFICIALS (INCLUDING THE DIRECTOR) HAVE RECEIVED TRAINING ON THE EQUAL TREATMENT OF BOYS AND GIRLS?	TEACHERS	|___|___|
	SCHOOL OFFICIALS ..... (ENTER 00 IF NONE)	|___|___|
SP12. IN GENERAL, HOW SATISFIED ARE YOU WITH THE TEACHERS AT YOUR SCHOOL?	NOT AT ALL SATISFIED .....1 A LITTLE DISSATISFIED..... 2 SOMEWHAT SATISFIED ..... 3 SATISFIED 4	|___|
SP13. DOES THIS SCHOOL HAVE A STUDENT GOVERNMENT?	YES .....1 NO.....2	|___| 2⇨SP17

SCHOOL PERSONNEL CHARACTERISTICS SCHOOL ID: |___|___|___|		SP
SP14. IS THE STUDENT GOVERNMENT ELECTED OR APPOINTED?	ELECTED ..... 1 APPOINTED 2	|___|
SP15A. DOES THE STUDENT GOVERNMENT HAVE AN ACTION PLAN?	YES ..... 1 NO 2	|___|
SP15B. HAS THE STUDENT GOVERNMENT CONDUCTED LITERACY PROMOTION ACTIVITIES IN THE COMMUNITY DURING THE 2015/2016 SCHOOL YEAR?	YES ..... 01 NO ..... 02 DON'T KNOW 98	|___|___|
SP16. HOW MANY GIRLS AND HOW MANY BOYS ARE ELECTED/APPOINTED REPRESENTATIVES OF THE STUDENT GOVERNMENT?	GIRLS ..... BOYS	|___|___| |___|___|
SP17. DOES THIS SCHOOL HAVE ANY SCHOOL MANAGEMENT COMMITTEE (CGDES/AME/APE)?		
A1. AME (MOTHERS' ASSOCIATION)	YES ..... 1 NO ..... 2 DON'T KNOW 98	|___| 2 or 98 ⇨SP17B1
A2. IF YES, HOW MANY AME MEMBERS ARE THERE?	NUMBER OF AME MEMBERS ..... DON'T KNOW 98	|___|
B1. APE (PTA)	YES ..... 1 NO ..... 2 DON'T KNOW 98	|___| 2 or 98⇨SP17C1
B2. IF YES, HOW MANY APE MEMBERS ARE THERE?	NUMBER OF APE MEMBERS ..... DON'T KNOW 98	|___|
C1. CGDES (SCHOOL MANAGEMENT COMMITTEE)	YES ..... 1 NO ..... 2 DON'T KNOW 98	|___| 2 or 98 ⇨SP26
C2. IF YES, HOW MANY CGDES MEMBERS ARE THERE?	NUMBER OF CGDES MEMBERS ..... DON'T KNOW 98	|___|
SP18. WHAT YEAR WAS THE CGDES CREATED?	YEAR ..... DON'T KNOW 0098	|__|__|__|__|
SP19. DOES THE CGDES HAVE REGULAR MEETINGS?	YES ..... 01 NO ..... 02 DON'T KNOW 98	|___|___|
SP20A. DOES THE CGDES HAVE AN ACTION PLAN?	YES ..... 01 NO ..... 02 DON'T KNOW 98	|___|___|
SP20B. HAS THE CGDES CONDUCTED LITERACY PROMOTION ACTIVITIES IN THE COMMUNITY DURING THE 2015/2016 SCHOOL YEAR?	YES ..... 01 NO ..... 02 DON'T KNOW 98	|___|___|

SP21. HOW MANY CGDES MEMBERS HAVE RECEIVED TRAINING ON THE EQUAL TREATMENT OF BOYS AND GIRLS IN THE CLASSROOM WITHIN THE PREVIOUS YEAR?	MEMBERS ..... DON'T KNOW ..... 98 (MARK 00 IF NONE)	|___|___|
SP21A. HAS THE CGDES AT THIS SCHOOL RECEIVED FUNDING THIS YEAR?	YES ..... 01 NO ..... 02 DON'T KNOW 98	|___|___| 02⇨SP22
SP21B. IF YES, WHO PROVIDED THE FUNDING? MARK ALL THAT APPLY	NECS/PLAN/AIDE ET ACTION ..... 01 MEP/A/PLN/EC ..... 02 THE LOCAL COMMUNITY ..... 03 ANOTHER NGO (SPECIFIER) ..... 04 DON'T KNOW 98	|___|___|
SP22. HOW MANY CGDES MEMBERS HAVE RECEIVED TRAINING IN BOREHOLE MAINTENANCE WITHIN THE PREVIOUS YEAR?	MEMBERS ..... DON'T KNOW ..... 98 (MARK 00 IF NONE)	|___|___|
SP23. HOW MANY CGDES MEMBERS HAVE RECEIVED TRAINING IN THE IMPORTANCE OF LOCAL LANGUAGE READING WITHIN THE PREVIOUS YEAR?	MEMBERS ..... DON'T KNOW ..... 98 (MARK 00 IF NONE)	|___|___|
SP24. HOW MANY CGDES MEMBERS HAVE RECEIVED TRAINING ABOUT MENTORING WITHIN THE PREVIOUS YEAR?	MEMBERS ..... DON'T KNOW ..... 98 (MARK 00 IF NONE)	|___|___|
SP25A. HOW MANY CGDES MEMBERS HAVE RECEIVED ADULT LITERACY TRAINING WITHIN THE PREVIOUS YEAR?	MEMBERS ..... DON'T KNOW ..... 98 (MARK 00 IF NONE)	|___|___| 00⇨SP26
SP25B. IN GENERAL, HOW EFFECTIVE DO YOU THINK THE ADULT LITERACY TRAININGS HAVE BEEN FOR THE CGDES?	VERY EFFECTIVE ..... 1 SOMEWHAT EFFECTIVE ..... 2 SOMEWHAT INEFFECTIVE ..... 3 INEFFECTIVE 4	|___|
SP26. IS THERE AN ACTIVE MENTORING PROGRAM IN THE SCHOOL?	YES ..... 1 NO ..... 2 DON'T KNOW 9	|___| 2 or 9⇨SP28
SP27. HOW MANY STUDENTS PARTICIPATE IN THE PROGRAM?	GIRLS ..... BOYS ..... DON'T KNOW ..... 98 (ENTER 00 IF NONE)	|___|___| |___|___|
SP28. HOW MANY ADMINISTRATIVE INSPECTIONS HAS THE SCHOOL HAD DURING THIS SCHOOL YEAR (2015-2016)?	DON'T KNOW ..... 98 (MARK 00 IF NONE)	|___|___|
SP29. HOW MANY PEDAGOGICAL SUPERVISIONS HAS THE SCHOOL HAD DURING THIS SCHOOL YEAR (2015-2016)?	DON'T KNOW ..... 98 (MARK 00 IF NONE)	|___|___|

SP30. HOW MANY TIMES HAS THE SCHOOL PARTICIPATED IN CLUSTER MEETINGS WITH OTHER SCHOOLS DURING THIS SCHOOL YEAR (2015-2016)?	DON'T KNOW..... 98 (MARK 00 IF NONE)	|___|___|

INTERVIEW RESULT ***VILLAGE ID:*** |__|__|__| ***SCHOOL ID:*** |__|__|__| **RE**

AFTER THE QUESTIONNAIRE FOR THE SCHOOL HAS BEEN COMPLETED, FILL IN THE FOLLOWING INFORMATION:

RE1. RESULT OF SCHOOL INTERVIEW :

COMPLETE 1

INCOMPLETE 2

REFUSED 3

SCHOOL NOT FOUND/DESTROYED 4

OTHER 99

(SPECIFY) _____

INTERVIEWER/SUPERVISOR NOTES : *USE THIS SPACE TO RECORD NOTES ABOUT THE INTERVIEW WITH THIS SCHOOL, SUCH AS CALL-BACK TIMES, INCOMPLETE INDIVIDUAL INTERVIEW FORMS, NUMBER OF ATTEMPTS TO RE-VISIT, ETC.*

RE2. NAME OF DATA ENTRY CLERK : _____

DATA ENTRY CLERK NUMBER: |__|__|

ENROLEMENT INFORMATION SCH

VISITS SHOULD BE MADE AROUND THE SAME TIME EACH MORNING, WHEN THE SCHOOL IS OPEN AND THE STUDENTS ARE IN CLASS, BUT BEFORE THE LUNCH BREAK. THE SCHOOL REGISTER FORM CAN BE COMPLETED AT THE SAME TIME AS THE SCHOOL QUESTIONNAIRE. THE INFORMATION IN MODULE SCH SHOULD MATCH THE SCHOOL QUESTIONNAIRE. TO FILL OUT THE STUDENT ATTENDANCE ROSTER, REQUEST THE OFFICIAL ROSTER OF STUDENTS ENROLLED IN THE SCHOOL. AFTER THE ENROLLMENT VERIFICATION IS COMPLETE, KEEP TOGETHER WITH THE CORRESPONDING SCHOOL QUESTIONNAIRE.

SCH1. RÉGION: _____ ID|___|

SCH2. COMMUNE: _____ ID |___|___|

SCH3. VILLAGE: _____ ID |___|___|___|

SCH4. SCHOOL: _____ ID |___|___|___|

SCH5. INTERVIEWER NAME AND NUMBER :

1. NAME_____ ID |___|___|
2. NAME_____ ID |___|___|
3. NAME_____ ID |___|___|

SCH6. SUPERVISOR NAME AND NUMBER :

NAME_____ ID |___|___|

SCH7. DAY/MONTH/YEAR OF INTERVIEW: |___|___| / |___|___| / |_2_|_0_|_1_|_6_|

SCH8. NAME OF SCHOOL:

_____

AFTER ALL THE SCHOOL REGISTER FORMS ARE COMPLETED BY THE INTERVIEWERS, NOTE THE TOTAL NUMBER OF PAGES FILLED AND THE TOTAL NUMBER OF CHILDREN WHO SHOULD BE IN THE SCHOOL REGISTER FOR EACH INTERVIEWER:

SCH9. INTERVIEWER NAME AND NUMBER, NUMBER OF PAGES FILLED, & TOTAL NUMBER OF CHILDREN:

1. NOM _____ID |___|___| NR OF PAGES |___|___| TOTAL NR OF CHILDREN |___|___|
2. NOM _____ID |___|___| NR OF PAGES |___|___| TOTAL NR OF CHILDREN |___|___|
3. NOM _____ID |___|___| NR OF PAGES |___|___| TOTAL NR OF CHILDREN |___|___|
4. NOM _____ID |___|___| NR OF PAGES |___|___| TOTAL NR OF CHILDREN |___|___|

SCHOOL REGISTER RESULT ***VILLAGE ID:*** |__|__|__| ***SCHOOL ID :*** |__|__|__| **RE**

AFTER THE QUESTIONNAIRE FOR THE SCHOOL HAS BEEN COMPLETED, FILL IN THE FOLLOWING INFORMATION:

RE1. RESULT OF SCHOOL INTERVIEW :

COMPLETE 1
INCOMPLETE 2
REFUSED 3
SCHOOL NOT FOUND/DESTROYED 4
OTHER 9
(SPECIFY) _____

INTERVIEWER/SUPERVISOR NOTES : *USE THIS SPACE TO RECORD NOTES ABOUT THE INTERVIEW WITH THIS SCHOOL, SUCH AS CALL-BACK TIMES, INCOMPLETE INDIVIDUAL INTERVIEW FORMS, NUMBER OF ATTEMPTS TO RE-VISIT, ETC.*

RE2A. NAME OF DATA ENTRY CLERK – 1ST DATA ENTRY :_____

DATA ENTRY CLERK NUMBER |__|__|
DAY/MONTH/YEAR OF DATA ENTRY: |__|__| / |__|__| / |2|0|1|6|

RE2B. NAME OF DATA ENTRY CLERK – 2ND DATA ENTRY :_____

DATA ENTRY CLERK NUMBER |__|__|
DAY/MONTH/YEAR OF DATA ENTRY: |__|__| / |__|__| / |2|0|1|6|

SCHOOL REGISTER — SAR

DATE OF VISIT |___|___| / |___|___| / |___|___|1|6| VILLAGE ID: |___|___|___|

COMPLETE THIS REGISTER BY RECORDING EACH STUDENT IDENTIFIED AS BEING ENROLLED IN THE SCHOOL IN THE HOUSEHOLD SURVEY. BE SURE THAT THE DATE ON THIS REGISTER CORRESPONDS TO THE DATE OF THE SCHOOL VISIT. COLLECT DATA FOR ALL GRADES IN PRIMARY SCHOOLS. THE FIRST SIX COLUMNS (SAR1-SAR6) MUST BE FILLED OUT BEFORE GOING TO THE SCHOOL. USE THE SCHOOL ROSTER FOR SAR7 AND SAR8. SAR9 MUST BE BASED ON INTERVIEWER OBSERVATION. USE THE SCHOOL ROSTER FOR SAR10-SAR11. THE STUDENT HOUSEHOLD ID NUMBER (SAR3) IS THE SAME AS THE CHILD ID NUMBER FOR QUESTION HL1 IN THE HOUSEHOLD SURVEY. **USE ADDITIONAL SHEETS AS NECESSARY.**

ECOLE ID: |___|___|___| NAME OF SCHOOL: _____

SAR1. LINE NO.	SAR2. STUDENT HOUSEHOLD NUMBER (IM4)	SAR3. STUDENT HOUSEHOLD ID NUMBER (HL1)	SAR4. STUDENT NAME (HL2)	SAR5. SEX 1 MALE 2 FEMALE (HL3)	SAR6. AGE (HL4)	SAR7. IS STUDENT ENROLLED IN SCHOOL? 1 YES 2 NO IF NO, SKIP TO NEXT STUDENT	SAR8. *IF ENROLLED, RECORD* GRADE 0 PRESCHOOL 1 CI 2 CP 3 CE1 4 CE2 5 CM1 6 CM2	SAR9. IS STUDENT PRESENT AT SCHOOL TODAY? 1 YES 2 NO	SAR10. DURING THE LAST SEVEN DAYS THE SCHOOL WAS OPEN, HOW MANY TIMES WAS THE STUDENT PRESENT?	SAR11. NUMBER OF DAYS THE STUDENT WAS ABSENT, PER MONTH, SINCE THE START OF THE 2015-2016 SCHOOL YEAR. WRITE 00 IF THE STUDENT WAS NOT ABSENT DURING THE MONTH CONSIDERED. RECORD 88 IF THE INFORMATION IS NOT AVAILABLE IN THE RECORDS. (CHECK WITH SC7)					
	IM4	HL1	HL2	HL3	HL4	ENROLLED	GRADE	PRESENCE	DAYS	A. OCT 2015	B. NOV 2015	C. DEC 2015	D. JAN 2016	E. FEB 2016	F. MAR 2016
					___				___		___		___

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APPENDIX C

HOUSEHOLD QUESTIONNAIRE

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HELLO. MY NAME IS [NAME] AND I AM WORKING WITH THE RESEARCH INSTITUTE CIERPA. WE ARE WORKING ON A STUDY CONCERNED WITH EDUCATION IN YOUR COMMUNITY. THE STUDY IS FUNDED BY THE MILLENNIUM CHALLENGE CORPORATION, AN AMERICAN FOREIGN AID AGENCY, AND IS BEING CARRIED OUT BY MATHEMATICA POLICY RESEARCH. I WOULD LIKE TO TALK TO YOU ABOUT YOUR HOUSEHOLD. THE INTERVIEW WILL TAKE SOME TIME. ALL THE INFORMATION WE OBTAIN WILL REMAIN STRICTLY CONFIDENTIAL AND THIS INFORMATION WILL NOT BE RELEASED IN ANY WAY THAT WOULD ALLOW IDENTIFICATION OF YOUR HOUSEHOLD OR YOUR FAMILY'S ANSWERS. THIS INFORMATION WILL BE USED FOR EVALUATION PURPOSES ONLY, AND ONCE THE STUDY IS COMPLETED DATA FROM THE STUDY THAT DOES NOT IDENTIFY YOU PERSONALLY WILL BE MADE PUBLICLY AVAILABLE TO ENABLE ADDITIONAL ANALYSES. YOUR PARTICIPATION IS VOLUNTARY AND YOU MAY CHOOSE NOT TO ANSWER ANY OR ALL QUESTIONS FOR ANY REASON. IN OTHER WORDS, YOU HAVE THE ALTERNATIVE TO NOT PARTICIPATE. THERE ARE NO RISKS AND NO DIRECT BENEFITS TO YOU IN PARTICIPATING IN THIS STUDY. YOU MAY CONTACT M. KOURGUENI, THE DIRECTOR OF CIERPA, AT 96.59.80.79, IF YOU HAVE QUESTIONS, CONCERNS OR COMPLAINTS ABOUT THE STUDY OR YOUR RIGHTS AS PARTICIPANTS. IF YOU HAVE ANY QUESTIONS FOR ME, PLEASE FEEL FREE TO ASK AT ANY TIME. DURING THIS TIME I WOULD LIKE TO SPEAK WITH THE HOUSEHOLD HEAD AND ALL MOTHERS OR OTHERS WHO TAKE CARE OF CHILDREN IN THE HOUSEHOLD.

IDENTIFICATION OF HOUSEHOLD — IM

IM1. REGION: _____ ID |___|	IM2. COMMUNE: _____ ID |___|___|
IM3. VILLAGE: _____ ID |___|___|___|	IM4. HOUSEHOLD NUMBER: |___|___|
IM5. INTERVIEWER NAME AND NUMBER: NAME_____ ID |___|___|___|	IM6. SUPERVISOR NAME AND NUMBER: NAME_____ ID |___|___|___|

IM7. DAY/MONTH/YEAR OF INTERVIEW: |___|___| / |___|___| / | 2 | 0 | 1 | 6 |

HOUSEHOLD CHARACTERISTICS — HC

HC1. NAME OF HEAD OF HOUSEHOLD: _____

HC2. RESPONDENT RELATIONSHIP TO HEAD OF HOUSEHOLD: |___|___|

HEAD 01	MOTHER/FATHER 05	ADOPTED/FOSTER/STEPCHILD 09
WIFE OR HUSBAND 02	BROTHER OR SISTER 06	NOT RELATED 10
SON OR DAUGHTER 03	UNCLE/AUNT 07	OTHER RELATION 96
GRANDCHILD 04	NIECE/NEPHEW 08	DON'T KNOW 98

HC3. RESPONDENT'S NAME (IF NOT HEAD OF HOUSEHOLD) _____

HC4. DESCRIPTION OF HOUSEHOLD LOCATION: _____

HC5. RESPONDENT'S TELEPHONE NR.: |___|___|___|___|___|___|___|___|

HC6. HEAD OF HOUSEHOLD'S TELEPHONE NR.: |___|___|___|___|___|___|___|___|

HC7. PERSON TO CONTACT TO FIND THE RESPONDENT IN THE FUTURE. IF POSSIBLE, THIS PERSON SHOULD LIVE IN THE VILLAGE. IF THE CODE IS 'OTHER', SPECIFY THE RELATIONSHIP.

HEAD 01	MOTHER/FATHER 05	ADOPTED/FOSTER/STEPCHILD 09
WIFE OR HUSBAND 02	BROTHER OR SISTER 06	NEIGHBOR 10
SON OR DAUGHTER 03	UNCLE/AUNT 07	COUSIN 11
GRANDCHILD 04	NIECE/NEPHEW 08	FRIEND 11
		OTHER (SPECIFY) 96

NAME _____ RELATIONSHIP: |___|___| _____

TELEPHONE NR: |___|___|___|___|___|___|___|___|

HOUSEHOLD CHARACTERISTICS		HC
HC8. SEX OF HEAD OF HOUSEHOLD:	MALE ..... 1 FEMALE 2	|___|
HC9. AGE OF HEAD OF HOUSEHOLD: (DON'T KNOW, 98)		|___|___|
HC10. HIGHEST LEVEL OF EDUCATION OF HEAD OF HOUSEHOLD: ***MARK THE HIGHEST LEVEL, UP TO TWO RESPONSES ARE POSSIBLE*** NONE ..... 00 PRE-SCHOOL ..... 01 PRIMARY ..... 02 SECONDARY ..... 03 HIGHER 04	PROFESSIONAL ..... 05 KORANIC SCHOOL ..... 06 MADRASA ..... 07 LITERACY TRAINING ..... 08 DON'T KNOW 98	A. |___|___| B. |___|___|
HC11. TOTAL NUMBER OF HOUSEHOLD MEMBERS:		|___|___|
HC12A. TOTAL NUMBER OF CHILDREN FROM 13 TO 18 YEARS OLD IN HOUSEHOLD:		|___|___|
HC12B. TOTAL NUMBER OF CHILDREN FROM 6 TO 12 YEARS OLD IN HOUSEHOLD:		|___|___|
HC12C. TOTAL NUMBER OF CHILDREN UNDER 6 YEARS OLD IN HOUSEHOLD:		|___|___|
HC13. WHAT NATIONAL LANGUAGES DOES THE HEAD OF THIS HOUSEHOLD SPEAK? ***MARK ALL THAT APPLY, UP TO THREE***	HAUSA ..... 01 ZARMA ..... 02 TAMASHEQ ..... 03 FULFULDE ..... 04 KANURI ..... 05 TOUBOU ..... 06 ARABE ..... 07 BOUDOUMA ..... 08 GOURMANTCHE ..... 09 TASSAWAK ..... 10 OTHER LANGUAGE (SPECIFY) ..... 96 _____	A. |___|___| B. |___|___| C. |___|___|
HC14. DOES THE HEAD OF THIS HOUSEHOLD SPEAK FRENCH?	YES ..... 01 NO ..... 02 DON'T KNOW 98	|___|___|
HC15. CAN THE HEAD OF THE HOUSEHOLD READ A SIMPLE PHRASE IN FRENCH?	YES ..... 01 NO ..... 02 DON'T KNOW 98	|___|___|
HC16. CAN THE HEAD OF THE HOUSEHOLD READ A SIMPLE PHRASE IN ANY OTHER LANGUAGE?	YES ..... 01 NO ..... 02 DON'T KNOW 98	|___|___|

HOUSEHOLD CHARACTERISTICS		HC
HC17. MAIN MATERIAL OF THE DWELLING FLOOR?	NATURAL MATERIAL (EARTH, SAND) ..... 01 RUDIMENTARY MATERIAL (WOOD PLANKS)..... 02 FINISHED MATERIAL (VINYL, ASPHALT, CERAMIC, CEMENT, TILE) ..... 03 OTHER (SPECIFY) ..... 96 _____	|___|___|
HC18. MAIN MATERIAL OF THE ROOF?	NATURAL MATERIAL (NO ROOF, STRAW) ..... 01 RUDIMENTARY MATERIAL (RUSTIC MAT, WOOD PLANKS) ..... 02 FINISHED MATERIAL (METAL, WOOD, CEMENT, SHINGLES)..... 03 OTHER (SPECIFY) ..... 96 _____	|___|___|
HC19. MAIN MATERIAL OF THE DWELLING WALLS?	NATURAL MATERIAL (EARTH, SAND)..... 01 RUDIMENTARY MATERIAL (WOOD PLANKS, PALM, STEM/STALK, STRAW) ..... 02 FINISHED MATERIAL (ASPHALT, TILES, CEMENT) ..... 03 WITHOUT WALLS ..... 04 OTHER (SPECIFY) ..... 96 _____	|___|___|
HC20. DO ANY MEMBERS OF YOUR HOUSEHOLD OWN ANY OF THE FOLLOWING FUNCTIONING GOODS?		
A. RADIO	YES .....1 NO 2	|___|
B. TELEPHONE /CELL PHONE	YES .....1 NO 2	|___|
C. WATCH	YES .....1 NO 2	|___|
D. BICYCLE	YES .....1 NO 2	|___|
E. ANIMAL DRAWN-CART	YES .....1 NO 2	|___|
F. CATTLE	YES .....1 NO 2	|___|
G. CAMELS	YES .....1 NO 2	|___|
HC21. DOES THIS HOUSEHOLD OWN ANY READING MATERIALS? (NOT INCLUDING THE KORAN)	YES .....1 NO 2	|___|
HC22. IF HC20B =1, HOW MANY CELL PHONES ARE OWNED BY MEMBERS OF THE HOUSEHOLD?	NUMBER OF CELL PHONES	|___|___|

HOUSEHOLD CHARACTERISTICS		HC
HC23. IF HC20B =1, WHICH MEMBERS OF THE HOUSEHOLD HAVE THESE CELL PHONES? ***MARK ALL APPLICABLE RELATIONS TO THE HEAD OF THE HOUSEHOLD***	HEAD.....01 WIFE OR HUSBAND .....02 SON OR DAUGHTER .....03 GRANDCHILD.....04 MOTHER/FATHER .....05 BROTHER/SISTER .....06 UNCLE/AUNT .....07 NIECE/NEPHEW .....08 ADOPTED/FOSTER/STEP CHILD.....09 NOT RELATED .....10 OTHER RELATIONS (SPECIFY) ..... 96 _____	A. |___|___| B.|___|___| C.|___|___|
HC24. IF HC20B =1, WHICH MEMBERS OF THE HOUSEHOLD ARE ALLOWED TO USE THESE CELL PHONES? ***MARK ALL APPLICABLE RELATIONS TO THE HEAD OF THE HOUSEHOLD*** ***TICK HERE IF ALL HOUSEHOLD MEMBERS ARE ALLOWED TO USE THE CELL PHONES*** ☐	HEAD.....01 WIFE OR HUSBAND .....02 SON OR DAUGHTER .....03 GRANDCHILD.....04 MOTHER/FATHER .....05 BROTHER/SISTER .....06 UNCLE/AUNT .....07 NIECE/NEPHEW .....08 ADOPTED/FOSTER/STEP CHILD.....09 NOT RELATED .....10 OTHER RELATIONS (SPECIFY) ..... 96 _____	A. |___|___| B.|___|___| C. |___|___|
HC25. WHAT IS THE MAIN SOURCE OF DRINKING WATER FOR MEMBERS OF YOUR HOUSEHOLD DURING THE RAINY SEASON?	PIPED WATER.....01 TUBE WELL OR BOREHOLE .....02 COVERED WELL.....03 TRADITIONAL WELL.....04 TANKER TRUCK .....05 SURFACE WATER (RAIN, RIVER, STREAM, ETC.) .....06 BOTTLED WATER .....07 OTHER (SPECIFY).....96 _____	|___|___|
HC26. WHAT IS THE PRINCIPAL TYPE OF TOILET THAT IS USED BY YOUR HOUSEHOLD?	MODERN TOILET.....01 IMPROVED LATRINE.....02 TRADITIONAL LATRINE .....03 BUSH/IN NATURE .....04 OTHER (SPECIFY).....96 _____	|___|___|
HC27. HAVE ANY ADULT MEMBERS OF THIS HOUSEHOLD PARTICIPATED IN LITERACY TRAINING OF ANY KIND?	YES .....1 NO 2	|___| 2⇨HC31
HC28. HOW MANY ADULT MEMBERS PARTICIPATED, BY GENDER?	A. MALES ..... B. FEMALES	|___|___| |___|___|
HC29. DO ANY ADULT MEMBERS CURRENTLY PARTICIPATE?	YES .....1 NO 2	|___| 1⇨HC31

HOUSEHOLD CHARACTERISTICS		HC
HC30. HAVE ANY ADULT MEMBERS PARTICIPATED DURING THE PREVIOUS 1 YEAR?	YES .....1 NO 2	|____|
HC31. HAVE ANY MEMBERS OF THIS HOUSEHOLD PARTICIPATED IN ANY COMMUNITY EVENTS RELATED TO LITERACY AND READING?	YES .....1 NO 2	|____| 2⇨HC33
HC32. HAVE THEY PARTICIPATED IN AN EVENT IN THE PREVIOUS 1 YEAR?	YES .....1 NO 2	|____|
HC33. ON AVERAGE, HOW MANY MEALS PER DAY DO YOU HAVE IN YOUR HOUSEHOLD?	NUMBER OF MEALS	|____|
HC34. IN THE PREVIOUS 7 DAYS, HAVE YOU OR ANY MEMBER OF YOUR HOUSEHOLD GONE TO BED HUNGRY BECAUSE THERE WAS NOT ENOUGH FOOD AVAILABLE?	YES .....1 NO 2	|____|
HC35. HOW SATISFIED ARE YOU WITH THE INFRASTRUCTURE IN THE PRIMARY SCHOOL IN YOUR VILLAGE? *IF THERE IS MORE THAN 1 SCHOOL, THINK OF THE SCHOOL THAT THE LARGEST NUMBER OF YOUR CHILDREN ATTEND.*	UNSATISFIED .....1 A LITTLE SATISFIED .....2 SOMEWHAT SATISFIED .....3 SATISFIED 4	|____|
HC36. HOW SATISFIED ARE YOU WITH THE TEACHERS IN THE PRIMARY SCHOOL IN YOUR VILLAGE? *IF THERE IS MORE THAN 1 SCHOOL, THINK OF THE SCHOOL THAT THE LARGEST NUMBER OF YOUR CHILDREN ATTEND.*	UNSATISFIED .....1 A LITTLE SATISFIED .....2 SOMEWHAT SATISFIED .....3 SATISFIED 4	|____|
HC37. DOES SOMEONE (ADULT) IN YOUR HOUSEHOLD PARTICIPATE IN ACTIVITIES WITH THE COGES/CGDES, AME OR APE DURING THE PREVIOUS YEAR?	YES .....01 NO .....02 DON'T KNOW 98	|___|___|
HC38. DOES THE PRIMARY SCHOOL OFFER SEPARATE BATHROOMS FOR BOYS & GIRLS?	YES .....01 NO .....02 DON'T KNOW 98	|___|___|
HC39. DOES THE PRIMARY SCHOOL OFFER A SCHOOL CANTEEN?	YES .....01 NO .....02 DON'T KNOW 98	|___|___|
HC40. DOES THE PRIMARY SCHOOL OFFER DRY RATIONS?	YES .....01 NO .....02 DON'T KNOW 98	|___|___| 2⇨HC42
HC41. IF YES, ARE THE DRY RATIONS FOR GIRLS ONLY?	YES .....01 NO .....02 DON'T KNOW 98	|___|___|
HC42. DOES THE PRIMARY SCHOOL HAVE BOOKS AVAILABLE FOR STUDENT USE?	YES .....01 NO .....02 DON'T KNOW 98	|___|___|
HC43. AT WHAT AGE DO YOU EXPECT CHILDREN TO BE ABLE TO READ?	AGE ..... DON'T KNOW 98	|___|___|

HOUSEHOLD LISTING FORM **Village ID:** |___|___|___| **Household Number** |___|___| **HL**

FIRST, PLEASE TELL ME THE NAME OF EACH CHILD WHO USUALLY LIVES HERE BETWEEN THE AGES OF 6 AND 12. *List all household members between 6 and 12 years old in HL2, their relationship to the household head (HL5), their sex (HL3), and their age (HL4). Then ask:* ARE THERE ANY OTHER CHILDREN BETWEEN THE AGE OF 6 AND 12 WHO LIVE HERE, EVEN IF THEY ARE NOT MEMBERS OF YOUR FAMILY, DO NOT HAVE PARENTS LIVING IN THIS HOUSEHOLD, OR ARE NOT AT HOME NOW? (INCLUDING CHILDREN IN SCHOOL OR AT WORK). *If yes, complete listing. Add a continuation sheet if there are more than 10 children in the household between the ages of 6 and 12. Tick here if continuation sheet used* ☐

The ID code of the child noted in HL1 has to be constant on all following pages.

HL1. *Child ID*	HL2. CHILD'S NAME	HL3. IS (NAME) MALE OR FEMALE? 1 MALE 2 FEMALE	HL4A. HOW OLD IS (NAME)? RECORD IN COMPLETED YEARS 98 DON'T KNOW	HL4B. DO YOU HAVE (NAME'S) LEGAL BIRTH DOCUMENTS? 1 YES 2 NO	HL5. WHAT IS THE RELATIONSHIP OF (NAME) TO THE HEAD OF THE HOUSEHOLD? 01 SON OR DAUGHTER 02 GRANDSON OR GRANDDAUGHTER 03 BROTHER OR SISTER 04 NIECE OR NEPHEW 05 ADOPTED/FOSTERED/ STEPCHILD 06 NO RELATION 96 OTHER (SPECIFY) _____ 98 DON'T KNOW	HL6. WHAT IS (NAME)'S MOTHER TONGUE? 01 HAUSA 02 ZARMA 03 TAMASHEQ 04 FULFULDE 05 KANURI 06 TOUBOU 07 ARABE 08 BOUDOUMA 09 GOURMANTCHE 10 TASSAWAK 11 FRENCH 96 OTHER (SPECIFY) _____	HL7. AT ANY TIME DURING THE PAST YEAR, DID (NAME) DO ANY KIND OF WORK FOR SOMEONE WHO IS NOT A MEMBER OF THIS HOUSEHOLD? IF YES: FOR PAY IN CASH/ IN KIND OR NON-PAID? 1 YES, PAID (CASH OR IN KIND) 2 YES, NON-PAID 3 NO	HL8. WHAT IS THE HIGHEST LEVEL OF SCHOOL (NAME) ATTENDED? LEVEL: 00 NO SCHOOL 01 PRESCHOOL 02 PRIMARY 03 SECONDARY 04 NON FORMAL 98 DON'T KNOW 00 OR 04 OR 98 ⇨ HL10	HL9. WHAT IS THE HIGHEST GRADE (NAME) COMPLETED AT THIS LEVEL? GRADE: 1 PRESCHOOL 2 CI 3 CP 4 CE1 5 CE2 6 CM1 7 CM2 8 6TH 9 ABOVE 6TH	HL10. WHAT IS THE HIGHEST LEVEL YOU THINK (NAME) WILL COMPLETE? LEVEL: 00 NO SCHOOL 01 PRESCHOOL 02 PRIMARY 03 SECONDARY 04 ADVANCED DEGREE 98 DON'T KNOW	HL11. WHAT IS THE HIGHEST LEVEL OF SCHOOL YOU WOULD LIKE (NAME) TO ATTEND? LEVEL: 00 NO SCHOOL 01 PRESCHOOL 02 PRIMARY 03 SECONDARY 04 ADVANCED DEGREE 98 DON'T KNOW
ID	NAME	SEX	AGE	BIRTH CERTIFICATE	RELATION	MOTHER TONGUE	WORK	LEVEL	GRADE	LEVEL	LEVEL
01		|___|	|___|___|	|___|	|___|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|___|
02		|___|	|___|___|	|___|	|___|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|___|
03		|___|	|___|___|	|___|	|___|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|___|
04		|___|	|___|___|	|___|	|___|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|___|
05		|___|	|___|___|	|___|	|___|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|___|
06		|___|	|___|___|	|___|	|___|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|___|
07		|___|	|___|___|	|___|	|___|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|___|
08		|___|	|___|___|	|___|	|___|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|___|
09		|___|	|___|___|	|___|	|___|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|___|
10		|___|	|___|___|	|___|	|___|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|___|

HOUSEHOLD LISTING FORM **Village ID: |___|___|___|** **HOUSEHOLD NUMBER |___|___|** **HL**

To be administered for every child in the household age 6 through 12 years

HL1. *CHILD ID*	HL2. CHILD'S NAME	HL12. DURING THE (2014-2015) SCHOOL YEAR, DID (NAME) ATTEND SCHOOL OR PRESCHOOL AT ANY TIME? 01 YES 02 NO ⇨ HL15 98 DON'T KNOW ⇨ HL16	HL13. WHAT GRADE DID (NAME) ATTEND DURING THE 2014-2015 SCHOOL YEAR? GRADE: 1 PRESCHOOL 2 CI 3 CP 4 CE1 5 CE2 6 CM1 7 CM2 8 6IEME 9 5IEME OR HIGHER 98 DON'T KNOW	HL14. DID (NAME) COMPLETE THE 2014-2015 SCHOOL YEAR? 01 YES 02 NO 98 DON'T KNOW GO TO HL16	HL15. IF NO IN HL12: WHAT IS THE PRIMARY REASON (NAME) DID NOT ENROLL IN SCHOOL IN 2014-2015? 01 NO SCHOOL IN THE VILLAGE 02 SCHOOL FEES 03 CHILD TOO YOUNG 04 SCHOOL TOO FAR 05 WORK FOR INCOME 06 HOUSEHOLD WORK 07 TAKING CARE OF SIBLINGS 08 NO SEPARATE TOILETS 09 CHILD TOO OLD 10 AVOID DEBAUCHERY 11 EARLY MARRIAGE 12 FAMILY REFUSED 13 NO CERTIFICATE OF BIRTH 14 VIOLENCE IN SCHOOL 15 VIOLENCE OUT OF SCHOOL 16 CHILD HAS HEALTH PROBLEMS 17 CHILD DISABLED 18 CHILD REFUSED 19 EXPELLED/FAILED 20 SECURITY PROBLEMS 96 OTHER (SPECIFY) 98 DON'T KNOW	HL16. DURING THE (2015-2016) SCHOOL YEAR, HAS (NAME) ATTENDED SCHOOL OR PRESCHOOL AT ANY TIME? 01 YES 02 NO ⇨ HL19 98 DON'T KNOW ⇨ ED1	HL17. WHAT GRADE DID (NAME) ATTEND DURING THE 2015-2016 SCHOOL YEAR? GRADE: 1 PRESCHOOL 2 CI 3 CP 4 CE1 5 CE2 6 CM1 7 CM2 8 6IEME 9 5IEME OR HIGHER 98 DON'T KNOW	HL18. IS (NAME) CURRENTLY ENROLLED IN SCHOOL? 01 YES 02 NO 98 DON'T KNOW GO TO ED1	HL19. IF NO IN HL16: WHAT IS THE PRIMARY REASON (NAME) DID NOT ENROLL IN SCHOOL IN 2015-2016? 01 NO SCHOOL IN THE VILLAGE 02 SCHOOL FEES 03 CHILD TOO YOUNG 04 SCHOOL TOO FAR 05 WORK FOR INCOME 06 HOUSEHOLD WORK 07 TAKING CARE OF SIBLINGS 08 NO SEPARATE TOILETS 09 CHILD TOO OLD 10 AVOID DEBAUCHERY 11 EARLY MARRIAGE 12 FAMILY REFUSED 13 NO CERTIFICATE OF BIRTH 14 VIOLENCE IN SCHOOL 15 VIOLENCE OUT OF SCHOOL 16 CHILD HAS HEALTH PROBLEMS 17 CHILD DISABLED 18 CHILD REFUSED 19 EXPELLED/ FAILED 20 SECURITY PROBLEMS 96 OTHER (SPECIFY) 98 DON'T KNOW
ID	NAME	ENROLLMENT 2014-2015	GRADE 2014-2015	COMPLETED 2014-2015	REASON NOT ENROLLED 2014-	ENROLLMENT 2015-2016	GRADE 2015-2016	COMPLETED 2015-2016	REASON NOT ENROLLED 2015-
01		|___|___|	|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
02		|___|___|	|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
03		|___|___|	|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
04		|___|___|	|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
05		|___|___|	|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
06		|___|___|	|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
07		|___|___|	|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
08		|___|___|	|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
09		|___|___|	|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
10		|___|___|	|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|

MODULE EDUCATION **Village ID: |___|___|___|** **HOUSEHOLD NUMBER |___|___|** **ED**

TO BE ADMINISTERED FOR EVERY CHILD IN THE HOUSEHOLD AGE 6 THROUGH 12 YEARS THAT WENT TO SCHOOL AT ANY TIME DURING THE 2015-2016 SCHOOL YEAR (HL16=1)

HL1. CHILD ID	HL2. CHILD'S NAME **HL16=1**	ED1. DID (NAME) HAVE ACCESS TO A COMPLETE SET OF TEXTBOOKS FOR HIS OR HER USE? 1 YES 2 NO	ED2. WHAT IS THE NAME OF THE SCHOOL THAT (NAME) ATTENDED IN 2015-2016 AND IN WHICH VILLAGE IS IT LOCATED? WRITE THE APPROPRIATE SCHOOL AND VILLAGE CODE FROM THE LIST. IF SCHOOL IS NOT LISTED, RECORD 888 AND WRITE FULL NAME OF SCHOOL AND THE VILLAGE ID. IF VILLAGE IS NOT LISTED, WRITE 888 IN VILLAGE ID AND RECORD VILLAGE NAME.		ED3. WHEN (NAME) GOES DIRECTLY TO SCHOOL, HOW LONG DOES IT TAKE HIM/HER TO ARRIVE AT SCHOOL? 01 LESS THAN 10 MINUTES 02 10 – 20 MINUTES 03 20 – 30 MINUTES 04 MORE THAN 30 MINUTES 98 DON'T KNOW	ED4. OF THE FOLLOWING FACTORS, (READ THE OPTIONS) WHAT IS THE MOST IMPORTANT TO YOU FOR SENDING (NAME) TO THIS SCHOOL? 01 DISTANCE TO SCHOOL 02 TEXTBOOKS 03 SCHOOL CANTEEN 04 DRY RATIONS 05 SEPARATE BATHROOMS FOR BOYS AND GIRLS 06 READING MATERIALS IN LOCAL LANGUAGE	ED5. OF THE FOLLOWING FACTORS, (READ THE OPTIONS) WHAT IS THE SECOND MOST IMPORTANT REASON TO YOU FOR SENDING (NAME) TO THIS SCHOOL? 01 DISTANCE TO SCHOOL 02 TEXTBOOKS 03 SCHOOL CANTEEN 04 DRY RATIONS 05 SEPARATE BATHROOMS FOR BOYS AND GIRLS 06 READING MATERIALS IN LOCAL LANGUAGE
ID	NAME	MANUALS	ID SCHOOL	ID VILLAGE	ONE WAY	PRINCIPAL REASON	SECONDARY REASON
01		|___|	|___|___|___|	|___|___|___|	|___|___|	|___|___|	|___|___|
02		|___|	|___|___|___|	|___|___|___|	|___|___|	|___|___|	|___|___|
03		|___|	|___|___|___|	|___|___|___|	|___|___|	|___|___|	|___|___|
04		|___|	|___|___|___|	|___|___|___|	|___|___|	|___|___|	|___|___|
05		|___|	|___|___|___|	|___|___|___|	|___|___|	|___|___|	|___|___|
06		|___|	|___|___|___|	|___|___|___|	|___|___|	|___|___|	|___|___|
07		|___|	|___|___|___|	|___|___|___|	|___|___|	|___|___|	|___|___|
08		|___|	|___|___|___|	|___|___|___|	|___|___|	|___|___|	|___|___|
09		|___|	|___|___|___|	|___|___|___|	|___|___|	|___|___|	|___|___|
10		|___|	|___|___|___|	|___|___|___|	|___|___|	|___|___|	|___|___|

MODULE EDUCATION **Village ID: |___|___|___|** **HOUSEHOLD NUMBER |___|___|** **ED**

TO BE ADMINISTERED FOR EVERY CHILD IN THE HOUSEHOLD AGE 6 THROUGH 12 YEARS THAT WENT TO SCHOOL DURING THE 2015-2016 SCHOOL YEAR (HL16=1)

HL1. *CHILD ID*	HL2. CHILD'S NAME **HL16=1**	ED6. DID (NAME) ATTEND SCHOOL ON THE MOST RECENT DAY THE SCHOOL WAS OPEN? 01 YES 02 NO 98 DON'T KNOW	ED7. HOW MANY DAYS DID (NAME) MISS DURING THE LAST 7 DAYS THAT SCHOOL WAS OPEN? 98 DON'T KNOW IF 00 OR 98, GO TO ED9	ED8. WHAT WAS THE PRINCIPAL REASON FOR (NAME) MISSING SCHOOL? 01 SICK 02 FUNERAL 03 OTHER CEREMONY 04 WORK FOR INCOME 05 HOUSEHOLD CHORES 06 FINANCIAL REASONS 07 TAKING CARE OF SIBLINGS 08 CHILD REFUSED 09 TEACHER ABSENT 10 SCHOOL CLOSED 11 TRAVEL 12 VIOLENCE IN SCHOOL 12 VIOLENCE OUT OF SCHOOL 13 WORKING IN THE FIELD/PASTURAGE 14 SECURITY PROBLEMS 96 OTHER (SPECIFY)	ED9. HOW OLD WAS (NAME) WHEN HE/SHE FIRST ENTERED PRIMARY SCHOOL? 96 NOT APPLICABLE (IF CHILD IS CURRENTLY IN PRESCHOOL)	ED10. DOES (NAME) HAVE A MENTOR? 01 YES 02 NO 98 DON'T KNOW	ED11. HAS (NAME) RECEIVED DE-WORMING TREATMENT IN THE PREVIOUS 12 MONTHS? 01 YES 02 NO 98 DON'T KNOW

ID	NAME	PRESENCE	NR OF DAYS	REASON	AGE	MENTOR	DEWORMING
01		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|
02		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|
03		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|
04		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|
05		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|
06		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|
07		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|
08		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|
09		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|

10		|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|

OPINIONS OF CHILDREN **Village ID:** |___|___|___| **HOUSEHOLD NUMBER** |___|___| **OE**

To be administered for every child in the household age 6 through 12 years, even those that are not currently enrolled in school. Before speaking with each child, obtain consent to speak to the child from the household head or the child's parent. "I am [name]. I work with parents and children. I am trying to learn more about the daily life of children like you. I would like to ask you a few questions." **Pose some simple questions to the child to build a rapport. Make them feel comfortable. Use the language most comfortable to the child, his/her mother tongue, and note it in OE1.** "What is your name? What is the name of your father? What is the name of your mother?" **If the child refuses to speak with you, note the refusal and move to the next child. If the child speaks with you, say:** "Now I would like to ask you a few questions about school and then give you a short test in [local language] and French. I will ask you a set of questions. You should give the answer that fits best. If you don't understand the question, I will read the question again. You can ask me anytime to explain a question. You can choose not to answer, or you can tell me if a question is hard for you and we will skip that question. If you like, you can end the interview at any time. Do you understand?" **If the child understands, continue. If the child does not understand, ask what the child does not understand and clarify the issue for the child. If the child agrees, begin with a few questions about schooling in OE2-OE6 and then move to the first reading test. Record the result code of the child.**

HL1. *CHILD ID*	HL2. CHILD'S NAME COPY FROM HL2	**RESULT CODE CHILD** AFTER OBTAINING CONSENT, RECORD THE RESULT CODE 1 INTERVIEW COMPLETED IN THE HOME 2 INTERVIEW COMPLETED AT THE SCHOOL 3 PARENT REFUSED 4 CHILD REFUSED 5 CHILD NOT AVAILABLE 6 OTHER (SPECIFY)	OE1. *WRITE THE LANGUAGE USED TO POSE QUESTION TO THE CHILD* 01 FRENCH 02 HAUSA 03 ZARMA 04 KANURI 05 TAMASHEQ 06 FULFULDE 96 OTHER LOCAL LANGUAGE (SPECIFY)	OE2. HOW OLD ARE YOU? 98 DON'T KNOW	OE3. DID YOU GO TO SCHOOL DURING THIS SCHOOL YEAR (2015-2016)? 1 YES 2 NO ⇨ OE6	OE4. DID YOU EXPERIENCE VIOLENCE IN SCHOOL? 1 YES 2 NO	OE5. DID YOUR TEACHER CALL MORE ON BOYS OR ON GIRLS? 1 BOYS 2 GIRLS 3 SAME	OE6. DO YOU WANT TO GO TO SCHOOL? 1 YES 2 NO
ID	NAME	RESULT	LANGUAGE	AGE	ENROLLED	VIOLENCE	GENDER	SCHOOL
01		|___|	|___|___|	|___|___|	|___|	|___|	|___|	|___|
02		|___|	|___|___|	|___|___|	|___|	|___|	|___|	|___|
03		|___|	|___|___|	|___|___|	|___|	|___|	|___|	|___|
04		|___|	|___|___|	|___|___|	|___|	|___|	|___|	|___|
05		|___|	|___|___|	|___|___|	|___|	|___|	|___|	|___|
06		|___|	|___|___|	|___|___|	|___|	|___|	|___|	|___|
07		|___|	|___|___|	|___|___|	|___|	|___|	|___|	|___|
08		|___|	|___|___|	|___|___|	|___|	|___|	|___|	|___|
09		|___|	|___|___|	|___|___|	|___|	|___|	|___|	|___|
10		|___|	|___|___|	|___|___|	|___|	|___|	|___|	|___|

LOCAL LANGUAGE **VILLAGE ID: |___|___|___|** **HOUSEHOLD NUMBER |___|___|___|**

Based on the local language chosen for the main school, the reading tests begin either in Hausa, Zarma, Kanuri, Tamasheq, or Fulfulde, and the children are only given one local language test. All the children in the village will take the same language test. After the local language test (Hausa, Zarma, Kanuri, Tamasheq or Fulfulde), proceed to the French test and then the Math test, which will be administered to all children. Note that no matter what test is given, explain the instructions to the child in the language that they understand best.

The instructions for all the reading tests in local languages and French are the same.

LANGUAGE AND TEST CODE IN LOCAL LANGUAGE: |___| _____

HAUSA.....1

ZARMA.....2

KANURI.....3

TAMASHEQ.....4

FULFULDE.....5

Use the sheets for the local language noted above.

After finishing the local language tests, continue with the French test.

FRENCH **VILLAGE ID: |___|___|___|** **HOUSEHOLD NUMBER |___|___|___|** **FA1**

Subtask 1: Receptive Oral Language

This is not a timed exercise and is administered orally.

Interviewer states: "We are going to play a game, ok? I am going to give you instructions, and we can see if you can follow what I say!"

Example 1: Interviewer states: "Point to your nose". The interviewer then points to his nose, and encourages the child to do the same. If the child points correctly, the interviewer states "Bravo that is correct!" If the child does not point, the interviewer repeats the instructions and asks, "Can you point to your nose?"

Example 2: Interviewer states: "Point to your head". The interviewer does not point to his head, but encourages child to point.

Interviewer states: "Do you understand?" If the child does not understand, the interviewer explains the instructions again and repeats the examples. If the child understands, the interviewer starts the test. If child makes 5 consecutive errors, continue to the next subtask. If child does not respond, mark "No Response", and continue to the next subtask.

Ask each question in French and note the response in the questionnaire. **RESPONSE CODES: 1= CORRECT, 2= INCORRECT, 3= NO RESPONSE**

HL1.	HL2. CHILD'S NAME	FA11. MONTRE TON OREILLE	FA12. MONTRE TA BOUCHE	FA13. LEVE TA MAIN	FA14. LEVE UN PIED	FA15. TAPE DANS TES MAINS	FA16. SAUTE!	FA17. LEVE LES BRAS	FA18. REGARDE EN ARRIERE	FA19. ASSIEDS-TOI	FA110. METS CET OBJET DEVANT TOI	**NO RESPONSE**
ID	NAME	TOUCH YOUR EAR	TOUCH YOUR MOUTH	RAISE YOUR HAND	RAISE YOUR FOOT	CLAP YOUR HANDS	JUMP !	RAISE YOUR ARMS	LOOK BEHIND	SIT DOWN	PUT THE OBJECT IN FRONT OF YOU	NO RESPONSE
01		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
02		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
03		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
04		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
05		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
06		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
07		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
08		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
09		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
10		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|

Before continuing, say "Good effort! Let's continue to the next section!"

FRENCH **VILLAGE ID: |___|___|___|** **HOUSEHOLD NUMBER |___|___|___|** **FA2**

Subtask 2: Expressive Oral Language

This is not a timed exercise and is administered orally.

Interviewer states: "Now I am going to show you things, and you tell me what they are called."

Example 1: Interviewer points to his eye and states: "What is this?" Then the interviewer states: "You say 'it is an eye'".

Example 2: Interviewer points to his ear and states: "What is this?" Then the interviewer encourages the child to say 'ear'.

Interviewer states: "Do you understand?" If the child does not understand, the interviewer explains the instructions again and repeats the examples. If the child understands, the interviewer starts the test. If child makes 5 consecutive errors, continue to the next subtask. If child does not respond, mark "No Response", and continue to the next subtask.

Ask each question in French and note the response in the questionnaire. **RESPONSE CODES: 1= CORRECT, 2= INCORRECT, 3=NO RESPONSE**

HL1.	HL2. CHILD'S NAME	FA21. NEZ	FA22. TETE	FA23. PIED	FA24. DOIGT	FA25. COU	FA26. DENTS	FA27. BOUCHE/ LEVRES	FA28. GENOU	FA29. PANTALON/ PAGNE	FA210. CHAUSSURE	**NO RESPONSE**
ID	NAME	NOSE	HEAD	FOOT	FINGER	NECK	TEETH	MOUTH/LIPS	KNEE	PANTS/SKIRT	SHOE	NO RESPONSE
01		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
02		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
03		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
04		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
05		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
06		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
07		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
08		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
09		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
10		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|

Before continuing, say "Good effort! Let's continue to the next section!"

FRENCH **VILLAGE ID: |___|___|___|** **HOUSEHOLD NUMBER |___|___|___|** **FA3**

Subtask 3: Listening Comprehension

This is not a timed exercise and this is administered orally only.

Interviewer states "Now, I am going to read to you a story aloud one time. Afterwards, I will ask you some questions about the story. Listen carefully, and after you will answer the questions the best you can. Okay? Do you understand what are you supposed to do? Let's begin! Listen carefully."

The interviewer reads aloud the short story, ONE TIME, slowly, (about 1 word per second), in French.

After reading the text, ask the child each comprehension question and note the response. If the child does not give any response after 10 seconds, repeat the question, and give the child another 5 seconds to respond. If the child still does not respond, go on to the next question.

TEXT:

LA PETITE POULE BLANCHE EST TOMBEE DANS LA MARE. « AIDE-MOI ! » ELLE CRIE. UN AGNEAU NOIR VIENT A SON SECOURS. MAIS IL TOMBE LUI AUSSI DANS LA MARE. « QUE FAIRE? » DEMANDE-T-IL. LA POULE DIT « REGARDE CE TRONC D'ARBRE QUI FLOTTE. IL PEUT NOUS SAUVER ! » LES DEUX AMIS GRIMPENT ALORS SUR LE TRONC D'ARBRE ET CRIENT, « OUF, NOUS ALLONS POUVOIR RETROUVER LA TERRE FERME ! »

QUESTIONS :

FA31. OU EST TOMBEE LA PETITE POULE?
FA32. DE QUELLE COULEUR EST L'AGNEAU?
FA33. QUEL OBJET IMPORTANT LA PETITE POULE A VU?
FA34. POURQUOI L'AGNEAU VIENT AU SECOURS DE LA PETITE POULE?
FA35. QUAND EST-CE QUE LES DEUX AMIS CRIENT?

RESPONSE CODE: 1=CORRECT, 2=INCORRECT, 3=NO RESPONSE

RESPONSE LANGUAGE: 01 FRANÇAIS, 02 HAUSA, 03 ZARMA, 04 KANURI, 05 TAMASHEQ, 06 FULFULDE, 96 OTHER (SPECIFY)

HL1. *ID*	HL2. CHILD'S NAME	FA31. OU EST TOMBEE LA PETITE POULE ?		FA32. DE QUELLE COULEUR EST L'AGNEAU ?		FA33. QUEL OBJET IMPORTANT LA PETITE POULE A VU?		FA34. POURQUOI L'AGNEAU VIENT AU SECOURS DE LA PETITE POULE?		FA35. QUAND EST-CE QUE LES DEUX AMIS CRIENT ?	
ID	NAME	A. LA MARE	B. RESPONSE LANGUAGE	A. NOIR	B. RESPONSE LANGUAGE	A. LE TRONC D'ARBRE	B. RESPONSE LANGUAGE	A. ELLE EST TOMBEE	B. RESPONSE LANGUAGE	A. APRÈS GRIMPER	B. RESPONSE LANGUAGE
01		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
02		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
03		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
04		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
05		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
06		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
07		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
08		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
09		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
10		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|

Before continuing, say "Good effort! Let's continue to the next section!"

FRENCH **VILLAGE ID: |___|___|___|** **HOUSEHOLD NUMBER |___|___|___|** **FA4**

Subtask 4: Letter identification (name or sound)

This is a timed exercise and is administered using the test booklet.

Show the test booklet to the child for subtask 4. Explain the subtask in the child's maternal language, using the examples in the booklet. After explaining the examples, say "Ok? Do you understand? When I say "Begin", point to each letter with your finger as you read it. Be careful to read from left to right, line by line. Do you understand what I am asking? Put your finger on the first letter. Ready? Try to read quickly and correctly. Begin."

Start the timer when the child reads the first letter **name** or **sound**. If the child does not respond after 10 seconds, mark 'Auto Stop'. Count self-corrections as correct. Stay quiet, except if the child hesitates on a letter for 3 seconds. In this case, point to the next letter and say "Please go on." Mark the letter skipped as incorrect on the test sheet.

After 60 seconds say, "Stop and Thank you." Note the total number correct. If the child read everything in less than one minute, note the exact number of seconds remaining on the timer. Otherwise, if the child has not finished the exercise, mark '00' seconds.

Auto stop rule: If the child does not give a single correct response in the first 10 letters, gently tell the child to stop, and mark 'Auto Stop'. Say "Thank you" and go on to the next subtask.

HL1.	HL2. CHILD'S NAME	FA41.	FA42.	FA43.	FA44.	FA45.	FA46.	FA47.	FA48.	FA49.	FA410.	AUTO STOP	TIME REMAINING	TOTAL CORRECT
ID	NAME	(10)	(20)	(30)	(40)	(50)	(60)	(70)	(80)	(90)	(100)	AUTO	SECONDS	TOTAL
01		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
02		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
03		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
04		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
05		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
06		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
07		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
08		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
09		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
10		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|

Before continuing, say "Good effort! Let's continue to the next section!"

FRENCH **VILLAGE ID: |___|___|___|** **HOUSEHOLD NUMBER |___|___|___|** **FA5**

Subtask 5: Word Identification

This is a timed exercise and is administered using the test booklet.

Show the test booklet to the child for subtask 5. Explain the subtask in the child's maternal language, using the examples in the booklet. After explaining the examples, say "Ok? Do you understand what I am asking you to do? When I say "Start", read the words from left to right, line by line. At the end of the line, continue to the next line. Try to read quickly and correctly. Ready? Begin."

Start the timer when the child reads the first word. If the child does not respond after 10 seconds, mark 'Auto Stop'. Count self-corrections as correct. Stay quiet, except if the child hesitates for 3 seconds. In this case, point to the next word and say "Please go on." Mark the word as incorrect on the test sheet.

After 60 seconds say, "Stop and Thank you." Note the total number correct. If the child read everything in less than one minute, note the exact number of seconds remaining on the timer. Otherwise, if the child has not finished the exercise, mark '00' seconds.

Auto stop rule: If the child does not give a single correct response in the first 5 words, gently tell the child to stop, and mark 'Auto Stop'. Say "Thank you" and go on to the next subtask.

HL1.	HL2. CHILD'S NAME	FA51.	FA52.	FA53.	FA54.	FA55.	FA56.	FA57.	FA58.	FA59.	FA510.	AUTO STOP	TIME REMAINING	TOTAL CORRECT
ID	NAME	(5)	(10)	(15)	(20)	(25)	(30)	(35)	(40)	(45)	(50)	AUTO	SECONDS	TOTAL
01		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
02		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
03		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
04		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
05		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
06		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
07		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
08		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
09		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
10		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|

Before continuing, say "Good effort! Let's continue to the next section!"

FRENCH SUBTASK 6 & 7 **VILLAGE ID: |___|___|___|** **HOUSEHOLD NUMBER |___|___|___|** **FA6 & FA7**

HL1. HL2. CHILD'S NAME

SUBTASK 6- ORAL READING FLUENCY

Give the child 60 seconds to read as much of the text as possible. Note the number of words read correctly per each line. Show the child the test booklet.

"Here is a story. Now I would like you to read it out loud, quickly and correctly, and afterwards, I will ask you some questions. Start here when I tell you. If you don't know a word, continue to the next word. Ready? Start."

Give the child 60 seconds to read all that he can.

Stay quiet, except when providing answers as follows: if the child hesitates for 3 seconds, point to the next word and say "Please go on." Mark the word as incorrect on the test sheet.

Auto stop rule: if the child cannot read correctly a single word in the first two lines, stop the test and note "auto-stop". Say "thank you" and end the test.

NOTE THE NUMBER OF WORDS READ CORRECTLY FOR EACH LINE. IF THE CHILD READ EVERYTHING IN LESS THAN ONE MINUTE, NOTE THE EXACT NUMBER OF SECONDS REMAINING ON THE TIMER. OTHERWISE, MARK '00' SECONDS.

SUBTASK 7 – READING COMPREHENSION

After the child has finished reading, take the card from the child and ask the first question. If the child does not give any response after 10 seconds, repeat the question, and give the child another 5 seconds to respond. If the child still does not answer, go to the next question.

Ask only those questions that correspond to the lines of text read by the child, up to the last line the child was able to read.

"Now I am going to ask you a few questions about the story you just read." Pose the questions to the child, *in French*.

A QUI A FAIM?

B. QU'EST-CE QUI N'EST PAS PRÊT ?

C. Où VA ISSA?

D. QU'EST-CE QUE MAMAN PREPARE ?

E. POURQUOI ISSA EST-IL CONTENT?

RESPONSE : 1=CORRECT, 2=INCORRECT, 3=NO RESPONSE
LANGUAGE OF RESPONSE : 01 FRENCH, 02 HAUSA, 03 ZARMA, 04 KANURI, 05 TAMASHEQ, 06 FULFULDE, 96 OTHER (SPECIFY)

ID	NAME	A (8)	B (11)	C (9)	D (10)	E (10)	TIME	AUTO STOP	A1. ISSA	A2. LANGUAGE	B1. LE REPAS	B2. LANGUAGE	C1. A LA CUISINE	C2. LANGUAGE	D1. LE RIZ	D2. LANGUAGE	E1. IL MANGE LE PLAT QU'IL AIME	E2. LANGUAGE
01		|__|	|__|	|__|	|__|	|__|	|__|__|	|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|
02		|__|	|__|	|__|	|__|	|__|	|__|__|	|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|
03		|__|	|__|	|__|	|__|	|__|	|__|__|	|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|
04		|__|	|__|	|__|	|__|	|__|	|__|__|	|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|
05		|__|	|__|	|__|	|__|	|__|	|__|__|	|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|
06		|__|	|__|	|__|	|__|	|__|	|__|__|	|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|
07		|__|	|__|	|__|	|__|	|__|	|__|__|	|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|
08		|__|	|__|	|__|	|__|	|__|	|__|__|	|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|
09		|__|	|__|	|__|	|__|	|__|	|__|__|	|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|
10		|__|	|__|	|__|	|__|	|__|	|__|__|	|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|

Before continuing, say "Good effort! Let's continue to the next section!"

MATH TEST **VILLAGE ID: |___|___|___|** **HOUSEHOLD NUMBER |___|___|** **MA**

To be administered for every child in the household age 5 through 14 years, even those are not currently enrolled in school. Pose the questions in the language that is most comfortable for the child. Do not assist the child by reading the numbers to them. If the child misses four questions in a row, stop the test.
RESPONSE CODES: 1= CORRECT; 2=INCORRECT

HL1. *CHILD ID*	HL2. CHILD'S NAME	MA1 COUNT FROM 1 TO 10 ENTER HIGHEST NUMBER CORRECT MARK 00 IF NOT ABLE TO COUNT	MA2. ARE YOU ABLE TO IDENTIFY THE FOLLOWING NUMBERS? A. 3 B. 9 *Show Card* *Do not say the number*		MA3. ARE YOU ABLE TO COUNT THE FOLLOWING ITEMS? A. CANARIS B. ROOSTERS *Show Card* *Do not say the number*		MA4. OF THE NUMBERS BELOW, ARE YOU ABLE TO IDENTIFY THE GREATER NUMBER? WHICH IS LARGER? A. 7 8 B. 63 54 C. 381 279 *Show Card* *Do not say the numbers*			MA5. ARE YOU ABLE TO COMPLETE THE FOLLOWING ADDITION? A. 4+2= B. 13+3= *Show Card* *Do not say the number*		MA6. ARE YOU ABLE TO COMPLETE THE FOLLOWING SUBTRACTION? A. 3-1= B. 12-9= *Show Card* *Do not say the numbers*		MA7. ORAL QUESTION: ARE YOU ABLE TO SOLVE THE FOLLOWING PROBLEMS I WILL READ OUT LOUD? A. MOHAMMED HAS 2 MANGOES. HIS FATHER GIVES HIM 5 MORE MANGOES. HOW MANY DOES HE HAVE NOW? B. THERE ARE 8 KIDS WALKING TO SCHOOL. 6 ARE BOYS, AND THE OTHERS ARE GIRLS. HOW MANY GIRLS ARE WALKING TO SCHOOL ?		MA8. ARE YOU ABLE TO INDENTIFY THE TRIANGLE AMONG THE FOLLOWING FIGURES? *Show Card*	MA9. ARE YOU ABLE TO COMPLETE THE FOLLOWING CALCULATIONS? A. 2X4= B. 12 : 3= *Show Card* *Do not say the numbers*		MA10. ORAL QUESTION: AMADOU GOES 180KM IN 6 HOURS. WHAT IS HIS AVERAGE SPEED? 180KM/H 60KM/H 30KM/H
ID	NAME	COUNT	A= 3	B= 9	A= 4	B= 7	A = 8	B = 63	C = 381	A = 6	B = 16	A = 2	B = 3	A = 7	B = 2	TRIANGLE	A = 8	B = 4	30 KM/H
01		|___|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
02		|___|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
03		|___|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
04		|___|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
05		|___|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
06		|___|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
07		|___|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
08		|___|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
09		|___|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
10		|___|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|

After finishing the test, say "Very good effort! Thank you!"

INTERVIEW RESULT **Village ID:** |___|___|___| **Household Number**|___|___|___| **RE**

AFTER THE QUESTIONNAIRE HAS BEEN COMPLETED, FILL IN THE FOLLOWING INFORMATION:

RE1. RESULT OF HOUSEHOLD INTERVIEW: |___|___|

COMPLETE 01	REFUSED 03
INCOMPLETE 02	OTHER (SPECIFY)..... 96
	_____

RE2. *INTERVIEWER/SUPERVISOR NOTES:* USE THIS SPACE TO RECORD NOTES ABOUT THE INTERVIEW WITH THIS HOUSEHOLD.

RE3A. NAME OF DATA ENTRY CLERK -1ST ENTRY: _____

DATA ENTRY CLERK NUMBER: |___|___|

DATA ENTRY DAY/MONTH/YEAR: |___|___| / |___|___| / |2|0|1|6|

RE3B. NAME OF DATA ENTRY CLERK -2ND ENTRY: _____

DATA ENTRY CLERK NUMBER: |___|___|

DATA ENTRY DAY/MONTH/YEAR: |___|___| / |___|___| / |2|0|1|6|

HAUSA **VILLAGE ID: |___|___|___|** **HOUSEHOLD NUMBER |___|___|___|** **HA1**

Subtask 1: Receptive Oral Language

This section is not timed and there are no stimuli for the child (to be administered orally).
Interviewer states: "We are going to play a game, ok? I am going to give you instructions, and we can see if you can follow what I say."
Example 1: Interviewer states: "Point to your nose"." The interviewer points to his nose, and encourages the child to do the same. If the child points correctly, say "Bravo, that is correct!" If the child does not point, repeat the instructions and ask, "Can you point to your nose?"
Example 2: Interviewer states: "Point to your head". This time the interviewer does not point, but encourages child to point. If the child does not understand, the Interviewer states the instructions again and repeats the examples. If the child understands, start the test.
If child makes 5 consecutive errors, stop and continue to the next subtask. If child does not respond, mark "No Response", and continue to the next subtask. Ask each question in Hausa and note the response in the questionnaire. **RESPONSE CODES: 1= CORRECT, 2= INCORRECT, 3= NO RESPONSE**

HL1.	HL2. CHILD'S NAME	HA11. GWODI KUNAN KA/KI	HA12. GWODI BAKIN KA/KI	HA13. GWODI GUWA HANNU KA/KI	HA14. ƊAGA ƙAFA KA/KI	HA15. GWODI MINI YATSA/ FARCE KA/KI	HA16. TAþA HUNNUA KA/KI	HA17. TUMA DA BAYA BAYA	HA18. ƊAGA HANU KA/KI	HA19. DUKA	HA110. SA WANNAN ABU A GABAN KA/KI	NO RESPONSE
ID	NAME	EAR	MOUTH	ELBOW	FOOT	FINGER	CLAP	JUMP BACKWARDS	HAND	BEND FORWARD	PLACE IN FRONT	NO RESPONSE
01		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
02		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
03		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
04		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
05		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
06		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
07		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
08		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
09		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
10		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|

Before continuing, say "Good effort! Let's continue to the next section!"

HAUSA **VILLAGE ID:** |___|___|___| **HOUSEHOLD NUMBER** |___|___|___| **HA2**

Subtask 2: Expressive Oral Language

This section is not timed and there are no stimuli for the child (to be administered orally).
Interviewer states: "Now I am going to show you things, and you tell me what they are called."
Example 1: Interviewer points to his eye and says, "What is this?" Interviewer says, "You say it is an eye!"
Example 2: Interviewer points to his ear, and says, "What is this?" The interviewer encourages the child to say "ear". "Interviewer asks, "Do you understand?"
If the child does not understand, the Interviewer states the instructions again and repeats the examples. If the child understands, start the test.
If child makes 5 consecutive errors, stop the test and continue to the next subtask. If child does not respond, mark "No Response", and continue to the next subtask.
Ask each question in the test language and note the response in the questionnaire. **RESPONSE CODES: 1= CORRECT, 2= INCORRECT, 3=NO RESPONSE**

HL1.	HL2. CHILD'S NAME	HA21. HANCI	HA22. YATSA/FARCE	HA23. WUYA	HA24. HAKURA	HA25. LEBA/BAKI	HA26. GWUWA	HA27. WANDO/ZANE	HA28. GWUWA HANNU	HA29. HAMMATA	HA210. KAFADA	NO RESPONSE
ID	NAME	NOSE	FINGER	NECK	TEETH	MOUTH/LIPS	KNEE	PANTS/SKIRT	ELBOW	ARMPIT	SHOLDER	NO RESPONSE
01		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
02		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
03		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
04		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
05		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
06		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
07		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
08		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
09		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
10		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|

Before continuing, say "Good effort! Let's continue to the next section!"

HAUSA **VILLAGE ID:** |___|___|___| **HOUSEHOLD NUMBER** |___|___|___| **HA3**

Subtask 3: Listening Comprehension

This is not a timed exercise and this is administered orally only. The Interviewer states "Now, I am going to read to you a story aloud ONE TIME. Afterwards, I will ask you some questions about the story. Listen carefully, and after you will answer the questions the best you can. Okay? Do you understand what are you supposed to do? Let's begin! Listen carefully."

The interviewer reads aloud the short story, ONE TIME, slowly, (about 1 word per second), in the language of the test.

After reading the text, ask the child each comprehension question and note the response. If the child does not give any response after 10 seconds, repeat the question, and give the child another 5 seconds to respond. If the child still does not respond, go on to the next question.

TEXT:

MUSA DA ABOKIN SA ALI SUKA HADU DAN SU CI SHINKAFA. MUSA YA YI ZARIN LOMA, SAI SHINKAFA TA SARKE SHI.SAI YA FARA TARI, ALI YA DAMU KWARAI. SAI YA YI SAURI YA KAWO MASA RUWA YA SHA. BAYAN MUSA YA SHA RUWA, SAI SUKA GAMA CIN SHINFKAFARSU, SAI SUKA RUGA A GUJE YIN WASAR KWALLO.

QUESTIONS:

HA31. MINENE MUSA DA ALI SUKA CI TARE?
HA32. YAYA ALI YA TAIMAKI MUSA ?
HA33. ME SUKAYI BAYAN SUN KARE CIN ABINCI ?
HA34. DOMI ALI YA KAWO MA MUSA RUWA?
HA35. A WANE LOKACI SUN KA TAHI WASSAN KOLLON KAFA (BALLO)?

RESPONSE CODES : 1=CORRECT, 2=INCORRECT, 3=PAS DE REPONSE

REPONSE LANGUAGE: 01 FRENCH, 02 HAUSA, 03 ZARMA, 04 KANURI, 05 TAMASHEQ, 06 FULFULDE, 96 OTHER (SPECIFY)

HL1. *ID*	HL2. CHILD'S NAME	HA31. MINENE MUSA DA ALI SUKA CI TARE?		HA32. YAYA ALI YA TAIMAKI MUSA?		HA33. ME SUKAYI BAYAN SUN KARE CIN ABINCI?		HA34. DOMI ALI YA KAWO MA MUSA RUWA?		HA35. A WANE LOKACI SUN KA TAHI WASSAN KOLO (BALLO)?	
ID	NAME	A. SHINKAFA	B. LANGUAGE	A. YA KAWO MASA RUWA	B. LANGUAGE	A. WASAN KWALLO	B. LANGUAGE	A. MUSA NA TWARI	B. LANGUAGE	A. DA SUKA KARE CIN CINKAFA	B. LANGUAGE
01		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
02		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
03		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
04		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
05		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
06		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
07		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
08		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
09		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
10		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|

Before continuing, say "Good effort! Let's continue to the next section!"

HAUSA **VILLAGE ID: |___|___|___|** **HOUSEHOLD NUMBER |___|___|___|** **HA4**

Subtask 4: Letter Identification (name or sound)

This is a timed exercise and is administered using the test booklet.

Show the test booklet to the child for subtask 4. Explain the subtask in the child's maternal language, using the examples in the booklet. After explaining the examples, say "Ok? Do you understand? When I say "Start", point to each letter with your finger as you read it. Read from left to right, line by line. Do you understand what I am asking? Put your finger on the first letter. Ready? Try to read quickly and correctly. Begin."

Start the timer when the child reads the first letter **name** or **sound**. If the child does not respond after 10 seconds, mark 'Auto Stop'. Count self-corrections as correct. Stay quiet, except if the child hesitates on a letter for 3 seconds. In this case, point to the next letter and say "Please go on." Mark the letter skipped as incorrect on the test sheet.

After 60 seconds say, "Stop and Thank you." Note the total number correct. If the child read everything in less than one minute, note the exact number of seconds remaining on the timer. Otherwise, if the child has not finished the exercise, mark '00' seconds.

Auto stop rule: If the child does not give a single correct response in the first 10 letters, gently tell the child to stop, and mark 'Auto Stop'. Say "Thank you" and go on to the next subtask.

HL1.	HL2. CHILD'S NAME	HA41.	HA42.	HA43.	HA44.	HA45.	HA46.	HA47.	HA48.	HA49.	HA410.	AUTO STOP	TIME REMAINING	TOTAL CORRECT
ID	NAME	(10)	(20)	(30)	(40)	(50)	(60)	(70)	(80)	(90)	(100)	AUTO	SECONDS	TOTAL
01		|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|	|__|__|	|__|__|
02		|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|	|__|__|	|__|__|
03		|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|	|__|__|	|__|__|
04		|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|	|__|__|	|__|__|
05		|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|	|__|__|	|__|__|
06		|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|	|__|__|	|__|__|
07		|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|	|__|__|	|__|__|
08		|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|	|__|__|	|__|__|
09		|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|	|__|__|	|__|__|
10		|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|	|__|__|	|__|__|

Before continuing, say "Good effort! Let's continue to the next section!"

HAUSA	VILLAGE ID: |___|___|___|	HOUSEHOLD NUMBER |___|___|___|	FA5

Subtask 5: Word Identification

This is a timed exercise and is administered using the test booklet.

Show the test booklet to the child for subtask 5. Explain the subtask in the child's maternal language, using the examples in the booklet. After explaining the examples, say "Ok? Do you understand what I am asking you to do? When I say "Start", read the words from left to right, line by line. At the end of the line, continue to the next line. Try to read quickly and correctly. Ready? Begin."

Start the timer when the child reads the first word. If the child does not respond after 10 seconds, mark 'Auto Stop'. Count self-corrections as correct. Stay quiet, except if the child hesitates for 3 seconds. In this case, point to the next word and say "Please go on." Mark the word as incorrect on the test sheet. After 60 seconds say, "Stop and Thank you." Note the total number correct. If the child read everything in less than one minute, note the exact number of seconds remaining on the timer. Otherwise, if the child has not finished the exercise, mark '00' seconds.

Auto stop rule: If the child does not give a single correct response in the first 5 words, gently tell the child to stop, and mark 'Auto Stop'. Say "Thank you" and go on to the next subtask.

HL1.	HL2. CHILD'S NAME	HA51.	HA52.	HA53.	HA54.	HA55.	HA56.	HA57.	HA58.	HA59.	HA510.	AUTO STOP	TIME REMAINING	TOTAL CORRECT
ID	NAME	(5)	(10)	(15)	(20)	(25)	(30)	(35)	(40)	(45)	(50)	AUTO	SECONDS	TOTAL
01		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
02		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
03		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
04		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
05		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
06		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
07		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
08		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
09		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
10		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|

Before continuing, say "Good effort! Let's continue to the next section!"

HAUSA SUBTASKS 6 & 7 | **VILLAGE ID:** |___|___|___| | **HOUSEHOLD NUMBER** |___|___|___| | **HA6 & HA7**

HL1. | HL2. CHILD'S NAME

SUBTASK 6- ORAL READING FLUENCY

Give the child 60 seconds to read as much of the text as possible. Note the number of words read correctly per each line. Show the child the test booklet.

"Here is a story. Now I would like you to read it out loud, quickly and correctly, and afterwards, I will ask you some questions. Start here when I tell you. If you don't know a word, continue to the next word. Ready? Start."

Give the child 60 seconds to read all that he can.

Stay quiet, except when providing answers as follows: if the child hesitates for 3 seconds, point to the next word and say "Please go on." Mark the word as incorrect on the test sheet.

Auto stop rule: if the child cannot read correctly a single word in the first two lines, stop the test and note "auto-stop". Say "thank you" and end the test.

NOTE THE NUMBER OF WORDS READ CORRECTLY FOR EACH LINE. IF THE CHILD READ EVERYTHING IN LESS THAN ONE MINUTE, NOTE THE EXACT NUMBER OF SECONDS REMAINING ON THE TIMER. OTHERWISE, MARK '00' SECONDS.

SUBTASK 7 – READING COMPREHENSION

After the child has finished reading, **take the card from the child** and ask the first question. If the child does not give any response after 10 seconds, repeat the question, and give the child another 5 seconds to respond. If the child still does not answer, go to the next question. Ask only those questions that correspond to the lines of text read by the child, up to the last line the child was able to read.

"Now I am going to ask you a few questions about the story you just read."
Pose the corresponding questions to the child, in Hausa.

Yanzu zan yi miki/maka wasu yan tambayoyi game da labarin da kika/ka karanta. Ki/ka yi kokari Kika/ka bada amsa gwargwadon iyawarka/ki

A. Yaw wace rana ce ?
B. Minene Raabi ta ke son ta sayé?
C. Wane irin kalan riga ne Rabi take nema ?
D. Ta samu jan rigan ?
E. Minene Raabi ta samu ?

RESPONSE : 1=CORRECT, 2=INCORRECT, 3=NO RESPONSE
LANGUAGE OF RESPONSE : 01 FRENCH, 02 HAUSA, 03 ZARMA, 04 KANURI, 05 TAMASHEQ, 06 FULFULDE, 96 OTHER (SPECIFY)

ID	NAME	A (4)	B (7)	C (5)	D (11)	E (10)	TIME	AUTO STOP	A1. RANAN KASUWA	A2. LANGUAGE	B1. RIGA	B2. LANGUAGE	C1. JAN RIGA	C2. LANGUAGE	D1. A'A	D2. LANGUAGE	E1. SABUAR RIGA/RIGA MAY KAW	E2. LANGUAGE
01		|__|	|__|	|__|	|__|	|__|	|__|__|	|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|
02		|__|	|__|	|__|	|__|	|__|	|__|__|	|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|
03		|__|	|__|	|__|	|__|	|__|	|__|__|	|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|
04		|__|	|__|	|__|	|__|	|__|	|__|__|	|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|
05		|__|	|__|	|__|	|__|	|__|	|__|__|	|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|
06		|__|	|__|	|__|	|__|	|__|	|__|__|	|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|
07		|__|	|__|	|__|	|__|	|__|	|__|__|	|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|
08		|__|	|__|	|__|	|__|	|__|	|__|__|	|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|
09		|__|	|__|	|__|	|__|	|__|	|__|__|	|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|
10		|__|	|__|	|__|	|__|	|__|	|__|__|	|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|	|__|	|__|__|

Before continuing, say "Good effort! Let's continue to the next section!"

ZARMA **VILLAGE ID: |___|___|___|** **HOUSEHOLD NUMBER |___|___|___|** **ZA1**

Subtask 1: Receptive Oral Language

This section is not timed and there are no stimuli for the child (to be administered orally).
Interviewer states: "We are going to play a game, ok? I am going to give you instructions, and we can see if you can follow what I say."
Example 1: Interviewer states: "Point to your nose"." The interviewer points to his nose, and encourages the child to do the same. If the child points correctly, say "Bravo, that is correct!" If the child does not point, repeat the instructions and ask, "Can you point to your nose?"
Example 2: Interviewer states: "Point to your head". This time the interviewer does not point, but encourages child to point. If the child does not understand, the Interviewer states the instructions again and repeats the examples. If the child understands, start the test.
If child makes 5 consecutive errors, stop and continue to the next subtask. If child does not respond, mark "No Response", and continue to the next subtask.
Ask each question in Zarma and note the response in the questionnaire.

RESPONSE CODES: 1= CORRECT, 2= INCORRECT, 3= NO RESPONSE

HL1.	HL2. CHILD'S NAME	ZA11. CEBE NI HANGA	ZA12. CEBE NI MEYO	ZA13. CE BE AY SE NI KAMBA GOLLA	ZA14. SAMBU NI CE FA	ZA15. AY CEBE NI KAMBAYZO	ZA16. KOBI	ZA17. NI MA SAR BANDA	ZA18. SAMBU NI KAMBA	ZA19. GUNGUM	ZA110. JINA WO GISI NI JINE	**NO RESPONSE**
ID	NAME	EAR	MOUTH	ELBOW	FOOT	FINGER	CLAP	JUMP BAKCWARDS	HAND	BEND	PLACE IN FRONT	NO RESPONSE
01		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
02		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
03		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
04		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
05		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
06		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
07		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
08		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
09		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
10		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|

Before continuing, say "Good effort! Let's continue to the next section!"

ZARMA **VILLAGE ID: |___|___|___|** **HOUSEHOLD NUMBER |___|___|___|** **ZA2**

Subtask 2: Expressive Oral Language

This section is not timed and there are no stimuli for the child (to be administered orally).
Interviewer states: "Now I am going to show you things, and you tell me what they are called."
Example 1: Interviewer points to his eye and says, "What is this?" Interviewer says, "You say it is an eye!"
Example 2: Interviewer points to his ear, and says, "What is this?" The interviewer encourages the child to say "ear". "Interviewer asks, "Do you understand?"
If the child does not understand, the Interviewer states the instructions again and repeats the examples. If the child understands, start the test.
If child makes 5 consecutive errors, stop the test and continue to the next subtask. If child does not respond, mark "No Response", and continue to the next subtask.
Ask each question in the test language and note the response in the questionnaire. **RESPONSE CODES: 1= CORRECT, 2= INCORRECT, 3=NO RESPONSE**

HL1.	HL2. CHILD'S NAME	ZA21. NINE	ZA22. CANBAIZE	ZA23. GINDE	ZA24. HINGEY	ZA25. ME	ZA26. KANGE	ZA27. MUDUNE-ZARA	ZA28. KAMBA GOLLO	ZA29. FATA	ZA210. GESA	NO RESPONSE
ID	NAME	NOSE	FINGER	NECK	TEETH	MOUTH	KNEE	PANTS/SKIRT	ELBOW	ARMPIT	SHOLDER	NO RESPONSE
01		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
02		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
03		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
04		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
05		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
06		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
07		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
08		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
09		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
10		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|

Before continuing, say "Good effort! Let's continue to the next section!"

ZARMA **VILLAGE ID: |___|___|___|** **HOUSEHOLD NUMBER |___|___|___|** **ZA3**

Subtask 3: Listening Comprehension

This is not a timed exercise and this is administered orally only. The Interviewer states "Now, I am going to read to you a story aloud ONE TIME. Afterwards, I will ask you some questions about the story. Listen carefully, and after you will answer the questions the best you can. Okay? Do you understand what are you supposed to do? Let's begin! Listen carefully."

The interviewer reads aloud the short story, ONE TIME, slowly, (about 1 word per second), in the language of the test.

After reading the text, ask the child each comprehension question and note the response. If the child does not give any response after 10 seconds, repeat the question, and give the child another 5 seconds to respond. If the child still does not respond, go on to the next question.

TEXT:
MUSA DA INGA CERA ALI NA CARE KUBEY GA NWA MOO HAWROU. MUSA NA LAKALZAREY LOMA TE KALA MOA NADI. A SINTIN GA KOTO, ALI LAKALEY TUNU GUMO. ALI WASI GA KANDE A SE HARI. MUSA NA HARO HAN YAN BANDA INA INGAY MOA NWA GA BANE, KULU IZURU WASU GA KOY GA INGAY BALL FORI TE.

QUESTIONS:
ZA31. I FO NO MUSA DA INGA CEAR ALI INWA CARE BANDE?
ZA32. MATE NO ALI NA MUSA FABA DA ?
ZA33. IFO NO ITE KAN INWA GA BAN?
ZA34. IFO SE NO ALI KANDE MUSA SE HARI?
ZA3 5. WATI FO CINE NO I ZURU GA KOY GA BALLE KARE?

RESPONSE CODES : 1=CORRECT, 2=INCORRECT, 3=No RESPONSE

RESPONSE LANGUAGE : 01 FRENCH, 02 HAUSA, 03 ZARMA, 04 KANURI, 05 TAMASHEQ, 06 FULFULDE, 96 OTHER (SPECIFY)

HL1. *ID*	HL2. CHILD'S NAME	ZA31. IFO NO MUSA INGA ALI INWA CARE BANDE?		ZA32. MATE NO ALI NA MUSA FABA DA ?		ZA33. IFO NO ITE KAN INWA GA BAN?		ZA34. IFO SE NO ALI KANDE MUSA SE HARI?		ZA35. WATI FO CINE NO I ZURU GA KOY GA BALLE KAR YAN?	
ID	NAME	A. MOO	B. LANGUAGE	A. A KONDA SE HARI	B. LANGUAGE	A. BALLE KARE YAN	B. LANGUAGE	A. MUSA GO KWATOI	B. LANGUAGE	A. HAWRU WAYAN BANDA	B. LANGUAGE
01		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
02		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
03		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
04		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
05		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
06		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
07		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
08		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
09		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
10		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|

Before continuing, say "Good effort! Let's continue to the next section!"

ZARMA **VILLAGE ID: |___|___|___|** **HOUSEHOLD NUMBER |___|___|___|** **ZA4**

Subtask 4: Letter Identification (name or sound)

This is a timed exercise and is administered using the test booklet.

Show the test booklet to the child for subtask 4. Explain the subtask in the child's maternal language, using the examples in the booklet. After explaining the examples, say "Ok? Do you understand? When I say "Start", point to each letter with your finger as you read it. Read from left to right, line by line. Do you understand what I am asking? Put your finger on the first letter. Ready? Try to read quickly and correctly. Begin."

Start the timer when the child reads the first letter **name** or **sound**. If the child does not respond after 10 seconds, mark 'Auto Stop'. Count self-corrections as correct. Stay quiet, except if the child hesitates on a letter for 3 seconds. In this case, point to the next letter and say "Please go on." Mark the letter skipped as incorrect on the test sheet.

After 60 seconds say, "Stop and Thank you." Note the total number correct. If the child read everything in less than one minute, note the exact number of seconds remaining on the timer. Otherwise, if the child has not finished the exercise, mark '00' seconds.

Auto stop rule: If the child does not give a single correct response in the first 10 letters, gently tell the child to stop, and mark 'Auto Stop'. Say "Thank you" and go on to the next subtask.

HL1.	HL2. CHILD'S NAME	ZA41.	ZA42.	ZA43.	ZA44.	ZA45.	ZA46.	ZA47.	ZA48.	ZA49.	ZA410.	AUTO STOP	TIME REMAINING	TOTAL CORRECT
ID	NAME	(10)	(20)	(30)	(40)	(50)	(60)	(70)	(80)	(90)	(100)	AUTO	SECONDS	TOTAL
01		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
02		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
03		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
04		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
05		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
06		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
07		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
08		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
09		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
10		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|

Before continuing, say "Good effort! Let's continue to the next section!"

ZARMA **VILLAGE ID: |___|___|___|** **HOUSEHOLD NUMBER |___|___|___|** **ZA5**

Subtask 5: Word Identification

This is a timed exercise and is administered using the test booklet.

Show the test booklet to the child for subtask 5. Explain the subtask in the child's maternal language, using the examples in the booklet. After explaining the examples, say "Ok? Do you understand what I am asking you to do? When I say "Start", read the words from left to right, line by line. At the end of the line, continue to the next line. Try to read quickly and correctly. Ready? Begin."

Start the timer when the child reads the first word. If the child does not respond after 10 seconds, mark 'Auto Stop'. Count self-corrections as correct. Stay quiet, except if the child hesitates for 3 seconds. In this case, point to the next word and say "Please go on." Mark the word as incorrect on the test sheet. After 60 seconds say, "Stop and Thank you." Note the total number correct. If the child read everything in less than one minute, note the exact number of seconds remaining on the timer. Otherwise, if the child has not finished the exercise, mark '00' seconds.

Auto stop rule: If the child does not give a single correct response in the first 5 words, gently tell the child to stop, and mark 'Auto Stop'. Say "Thank you" and go on to the next subtask.

HL1.	HL2. CHILD'S NAME	ZA51.	ZA52.	ZA53.	ZA54.	ZA55.	ZA56.	ZA57.	ZA58.	ZA59.	ZA510.	AUTO STOP	TIME REMAINING	TOTAL CORRECT
ID	NAME	(5)	(10)	(15)	(20)	(25)	(30)	(35)	(40)	(45)	(50)	AUTO	SECONDS	TOTAL
01		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
02		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
03		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
04		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
05		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
06		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
07		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
08		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
09		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
10		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|

Before continuing, say "Good effort! Let's continue to the next section!"

ZARMA SUBTASKS 6 & 7 | **VILLAGE ID: |___|___|___|** | **HOUSEHOLD NUMBER |___|___|___|** | **ZA6 & ZA7**

HL1. | HL2. CHILD'S NAME

SUBTASK 6- ORAL READING FLUENCY

Give the child 60 seconds to read as much of the text as possible. Note the number of words read correctly per each line. Show the child the test booklet.

"Here is a story. Now I would like you to read it out loud, quickly and correctly, and afterwards, I will ask you some questions. Start here when I tell you. If you don't know a word, continue to the next word. Ready? Start."

Give the child 60 seconds to read all that he can.

Stay quiet, except when providing answers as follows: if the child hesitates for 3 seconds, point to the next word and say "Please go on." Mark the word as incorrect on the test sheet.

Auto stop rule: if the child cannot read correctly a single word in the first two lines, stop the test and note "auto-stop". Say "thank you" and end the test.

NOTE THE NUMBER OF WORDS READ CORRECTLY FOR EACH LINE. IF THE CHILD READ EVERYTHING IN LESS THAN ONE MINUTE, NOTE THE EXACT NUMBER OF SECONDS REMAINING ON THE TIMER. OTHERWISE, MARK '00' SECONDS.

SUBTASK 7 – READING COMPREHENSION

After the child has finished reading, **take the card from the child** and ask the first question. If the child does not give any response after 10 seconds, repeat the question, and give the child another 5 seconds to respond. If the child still does not answer, go to the next question. Ask only those questions that correspond to the lines of text read by the child, up to the last line the child was able to read.

"Now I am going to ask you a few questions about the story you just read."
Pose the corresponding questions to the child, in Zarma.

SOHON AY GA HAYAN TE NI SE LABAREY KAN NI CAW BON, NI MA KOKARI GA TU AY SE MATE KAN NI GA HINE

A.HONKUNA ZARRI FO NO ?
B. IFO NO RAABI GABA INGA MA DAY?
C.HARI FO DUMI NO KWAAYO KAN RAABI GA BA?
D. A DU KWAAYI CIRAA NO?
E. IFO NO RAABI DU ?

RESPONSE : 1=CORRECT, 2=INCORRECT, 3=NO RESPONSE
LANGUAGE OF RESPONSE : 01 FRENCH, 02 HAUSA, 03 ZARMA, 04 KANOURI, 05 TAMASHEQ, 06 FULFULDE, 96 OTHER (SPECIFY)

ID	NAME	A (5)	B (8)	C (6)	D (9)	E (9)	TIME	AUTO STOP	A1. HABOU ZAARI	A2. LANGUAGE	B1. KWAYI	B2. LANGUAGE	C1. KWAYI CIREY	C2. LANGUAGE	D1. HA'A	D2. LANGUAGE	E1. KWAYI TAGGI HANO	E2. LANGUAGE
01		|___|	|___|	|___|	|___|	|___|	|___|___|	|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
02		|___|	|___|	|___|	|___|	|___|	|___|___|	|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
03		|___|	|___|	|___|	|___|	|___|	|___|___|	|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
04		|___|	|___|	|___|	|___|	|___|	|___|___|	|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
05		|___|	|___|	|___|	|___|	|___|	|___|___|	|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
06		|___|	|___|	|___|	|___|	|___|	|___|___|	|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
07		|___|	|___|	|___|	|___|	|___|	|___|___|	|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
08		|___|	|___|	|___|	|___|	|___|	|___|___|	|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
09		|___|	|___|	|___|	|___|	|___|	|___|___|	|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
10		|___|	|___|	|___|	|___|	|___|	|___|___|	|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|

Before continuing, say "Good effort! Let's continue to the next section!"

KANURI **VILLAGE ID: |___|___|___|** **HOUSEHOLD NUMBER |___|___|___|** **KA1**

Subtask 1: Receptive Oral Language

This section is not timed and there are no stimuli for the child (to be administered orally).
Interviewer states: "We are going to play a game, ok? I am going to give you instructions, and we can see if you can follow what I say."
Example 1: Interviewer states: "Point to your nose"." The interviewer points to his nose, and encourages the child to do the same. If the child points correctly, say "Bravo, that is correct!" If the child does not point, repeat the instructions and ask, "Can you point to your nose?"
Example 2: Interviewer states: "Point to your head". This time the interviewer does not point, but encourages child to point. If the child does not understand, the Interviewer states the instructions again and repeats the examples. If the child understands, start the test.
If child makes 5 consecutive errors, stop and continue to the next subtask. If child does not respond, mark "No Response", and continue to the next subtask.
Ask each question in Kanuri and note the response in the questionnaire.

RESPONSE CODES: 1= CORRECT, 2= INCORRECT, 3= NO RESPONSE

HL1.	HL2. CHILD'S NAME	KA11. SƝMONƝM FƝLENE	KA12. CINƝM FƝLENE	KA13. N'DJURAMI OUM FƝLENE	KA14. SI FAL SANGE	KA15. NGULONDO FAL FƝLESƝGƝNE	KA16. KAWA JANE	KA17. SƝKTƝNE NGAWORO	KA18. NUKKO SANGE	KA19. N'GUOUNE	KA110. KARE ADƝA FUWUNƝMBO YAKKE	**NO RESPONSE**
ID	NAME	EAR	MOUTH	ELBOW	FOOT	FINGER	CLAP	JUMP BACKWARDS	HAND	BEND	PLACE IN FRONT	NO RESPONSE
01		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
02		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
03		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
04		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
05		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
06		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
07		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
08		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
09		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
10		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|

Before continuing, say "Good effort! Let's continue to the next section!"

KANURI **VILLAGE ID: |___|___|___|** **HOUSEHOLD NUMBER |___|___|___|** **KA2**

Subtask 2: Expressive Oral Language

This section is not timed and there are no stimuli for the child (to be administered orally).
Interviewer states: "Now I am going to show you things, and you tell me what they are called."
Example 1: Interviewer points to his eye and says, "What is this?" Interviewer says, "You say it is an eye!"
Example 2: Interviewer points to his ear,and says, "What is this?". The interviewer encourages the child to say "ear". "Interviewer asks, "Do you understand?"
If the child does not understand, the Interviewer states the instructions again and repeats the examples. If the child understands, start the test.
If child makes 5 consecutive errors, stop the test and continue to the next subtask. If child does not respond, mark "No Response", and continue to the next subtask. Ask each question in the test language and note the response in the questionnaire.

RESPONSE CODES: 1= CORRECT, 2= INCORRECT, 3=NO RESPONSE

HL1.	HL2. CHILD'S NAME	KA21. KINJA	KA22. NGULONDO	KA23. DAU	KA24. SHEƊI	KA25. KA CIYE	KA26. N'GURUNGURAM	KA27. YANGE	KA28. N'DJURAMI	KA29. TƎLWU	KA210. N'GAWARNA	NO RESPONSE
ID	NAME	NOSE	FINGER	NECK	TEETH	MOUTH	KNEE	PANTS/SKIRT	ELBOW	ARMPIT	SHOULDER	NO RESPONSE
01		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
02		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
03		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
04		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
05		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
06		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
07		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
08		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
09		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
10		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|

Before continuing, say "Good effort! Let's continue to the next section!"

KANURI **VILLAGE ID: |___|___|___|** **HOUSEHOLD NUMBER |___|___|___|** **KA3**

Subtask 3: Listening Comprehension

This is not a timed exercise and this is administered orally only. The Interviewer states "Now, I am going to read to you a story aloud ONE TIME. Afterwards, I will ask you some questions about the story. Listen carefully, and after you will answer the questions the best you can. Okay? Do you understand what are you supposed to do? Let's begin! Listen carefully."

The interviewer reads aloud the short story, ONE TIME, slowly, (about 1 word per second), in the language of the test.

After reading the text, ask the child each comprehension question and note the response. If the child does not give any response after 10 seconds, repeat the question, and give the child another 5 seconds to respond. If the child still does not respond, go on to the next question.

TEXT:

MUSA SWANJU ALI YA KƎLDANE SHINGAWA BUWORO NAPKERA. MUSA KOLAMA KIDƎNIYA, SAY SHINGAWA DAW U JULAN DAYENO. KASAWUDU BADIYENO, ALYEHANGAL JU JAWURO CI YENO, SAY DUWA CIDE INGI CUKKUDE KIYANO. N'GAWO MUSA INGI CANAYEN, SAY KUMBO SHINGAWA YE DA TUMOYERA SAY CIJANE N'GURMJANE KƎLANGA BALL YERO LEYERA.

QUESTIONS:

KA31. AWI MUSA SHIA ALI RROKKO JAWO?
KA32. AWILAN ALI, MUSA BANAYENO?
KA33. AWI TCHADO GAWO JAWOU NAYEN?
KA34. ABIRO ALI MOUSSARO INGUI TCHIWDO?
KA35. YIMBI LIDYANÉ KLELANGUA BALL YÉ TCHADIRA?

RESPONSE CODE: 1=CORRECT, 2=INCORRECT, 3=PAS DE REPONSE

RESPONSE LANGUAGE : 01 FRENCH, 02 HAUSA, 03 FULFULDE, 04 KANURI, 05 TAMASHEQ, 06 FULFULDE, 96 OTHER (SPECIFY)

HL1. *ID*	HL2. CHILD'S NAME	KA31. AWI MUSA SHIA ALI RROKKO JAWO?		KA32. AWILAN ALI, MUSA BANAYENO?		KA33. AWI TCHADO GAWO JAWOU NAYEN?		KA34. ABIRO ALI MOUSSARO INGUI TCHIWDO?		KA35. YIMBI LIDYANÉ KLELANGUA BALL YÉ TCHADIRA?	
ID	NAME	A. SHINGAWA	B. LANGUAGE	A. INGI	B. LANGUAGE	A. KƎLANGA BALL	B. LANGUAGE	A. KOSSAKTOU BADIJINA NANKARO	B. LANGUAGE	A. BIRIN DJA NDJASSAOUÉ N'GOUWOLAN	B. LANGUAGE
01		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
02		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
03		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
04		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
05		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
06		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
07		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
08		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
09		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
10		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|

Before continuing, say "Good effort! Let's continue to the next section!"

KANURI **VILLAGE ID: |___|___|___|** **HOUSEHOLD NUMBER |___|___|___|** **KA4**

Subtask 4: Letter Identification (name or sound)

This is a timed exercise and is administered using the test booklet.

Show the test booklet to the child for subtask 4. Explain the subtask in the child's maternal language, using the examples in the booklet. After explaining the examples, say "Ok? Do you understand? When I say "Start", point to each letter with your finger as you read it. Read from left to right, line by line. Do you understand what I am asking? Put your finger on the first letter. Ready? Try to read quickly and correctly. Begin."

Start the timer when the child reads the first letter **name** or **sound**. If the child does not respond after 10 seconds, mark 'Auto Stop'. Count self-corrections as correct. Stay quiet, except if the child hesitates on a letter for 3 seconds. In this case, point to the next letter and say "Please go on." Mark the letter skipped as incorrect on the test sheet.

After 60 seconds say, "Stop and Thank you." Note the total number correct. If the child read everything in less than one minute, note the exact number of seconds remaining on the timer. Otherwise, if the child has not finished the exercise, mark '00' seconds.

Auto stop rule: If the child does not give a single correct response in the first 10 letters, gently tell the child to stop, and mark 'Auto Stop'. Say "Thank you" and go on to the next subtask.

HL1.	HL2. CHILD'S NAME	KA41.	KA42.	KA43.	KA44.	KA45.	KA46.	KA47.	KA48.	KA49.	KA410.	AUTO STOP	TIME REMAINING	TOTAL CORRECT
ID	NAME	(10)	(20)	(30)	(40)	(50)	(60)	(70)	(80)	(90)	(100)	AUTO	SECONDS	TOTAL
01		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
02		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
03		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
04		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
05		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
06		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
07		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
08		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
09		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
10		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|

Before continuing, say "Good effort! Let's continue to the next section!"

KANURI **VILLAGE ID:** |___|___|___| **HOUSEHOLD NUMBER** |___|___|___| **KA5**

Subtask 5: Word Identification

This is a timed exercise and is administered using the test booklet.

Show the test booklet to the child for subtask 5. Explain the subtask in the child's maternal language, using the examples in the booklet. After explaining the examples, say "Ok? Do you understand what I am asking you to do? When I say "Start", read the words from left to right, line by line. At the end of the line, continue to the next line. Try to read quickly and correctly. Ready? Begin."

Start the timer when the child reads the first word. If the child does not respond after 10 seconds, mark 'Auto Stop'. Count self-corrections as correct. Stay quiet, except if the child hesitates for 3 seconds. In this case, point to the next word and say "Please go on." Mark the word as incorrect on the test sheet.

After 60 seconds say, "Stop and Thank you." Note the total number correct. If the child read everything in less than one minute, note the exact number of seconds remaining on the timer. Otherwise, if the child has not finished the exercise, mark '00' seconds.

Auto stop rule: If the child does not give a single correct response in the first 5 words, gently tell the child to stop, and mark 'Auto Stop'. Say "Thank you" and go on to the next subtask.

HL1.	HL2. CHILD'S NAME	KA51.	KA52.	KA53.	KA54.	KA55.	KA56.	KA57.	KA58.	KA59.	KA510.	AUTO STOP	TIME REMAINING	TOTAL CORRECT
ID	NAME	(5)	(10)	(15)	(20)	(25)	(30)	(35)	(40)	(45)	(50)	AUTO	SECONDS	TOTAL
01		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
02		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
03		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
04		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
05		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
06		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
07		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
08		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
09		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
10		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|

Before continuing, say "Good effort! Let's continue to the next section!"

KANURI SUBASK 6 & 7 **VILLAGE ID: |___|___|___|** **HOUSEHOLD NUMBER |___|___|___|** **KA6 & KA7**

HL1. HL2. CHILD'S NAME

SUBTASK 6- ORAL READING FLUENCY

Give the child 60 seconds to read as much of the text as possible. Note the number of words read correctly per each line. Show the child the test booklet.

"Here is a story. Now I would like you to read it out loud, quickly and correctly, and afterwards, I will ask you some questions. Start here when I tell you. If you don't know a word, continue to the next word. Ready? Start."

Give the child 60 seconds to read all that he can.

Stay quiet, except when providing answers as follows: if the child hesitates for 3 seconds, point to the next word and say "Please go on." Mark the word as incorrect on the test sheet.

Auto stop rule: if the child cannot read correctly a single word in the first two lines, stop the test and note "auto-stop". Say "thank you" and end the test.

NOTE THE NUMBER OF WORDS READ CORRECTLY FOR EACH LINE. IF THE CHILD READ EVERYTHING IN LESS THAN ONE MINUTE, NOTE THE EXACT NUMBER OF SECONDS REMAINING ON THE TIMER. OTHERWISE, MARK '00' SECONDS.

SUBTASK 7 – READING COMPREHENSION

After the child has finished reading, **take the card from the child** and ask the first question. If the child does not give any response after 10 seconds, repeat the question, and give the child another 5 seconds to respond. If the child still does not answer, go to the next question. Ask only those questions that correspond to the lines of text read by the child, up to the last line the child was able to read.

"Now I am going to ask you a few questions about the story you just read. ."
Pose the corresponding questions to the child, in Kanuri.

Kirmaa koro laa niro n'djidiki kla hawara kranemba di kawari de nounksine kla awo nonumbadi.

A. Ku kingal fi?
B. Awi rabi cirawo tiro casukuworo?
C. Kaluwu kala fiya rabi maji?
D. Kaluwu kime da cuwandina'a?
E. Awi rabi cakko?

RESPONSE : 1=CORRECT, 2=INCORRECT, 3=NO RESPONSE

LANGUAGE OF RESPONSE : 01 FRENCH, 02 HAUSA, 03 ZARMA, 04 KANURI, 05 TAMASHEQ, 06 FULFULDE, 96 OTHER (SPECIFY)

ID	NAME	A (4)	B (6)	C (4)	D (8)	E (8)	TIME	AUTO STOP	A1.	A2. LANGUAGE	B1.	B2. LANGUAGE	C1.	C2. LANGUAGE	D1.	D2. LANGUAGE	E1.	E2. LANGUAGE
01		|___|	|___|	|___|	|___|	|___|	|___|___|	|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
02		|___|	|___|	|___|	|___|	|___|	|___|___|	|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
03		|___|	|___|	|___|	|___|	|___|	|___|___|	|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
04		|___|	|___|	|___|	|___|	|___|	|___|___|	|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
05		|___|	|___|	|___|	|___|	|___|	|___|___|	|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
06		|___|	|___|	|___|	|___|	|___|	|___|___|	|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
07		|___|	|___|	|___|	|___|	|___|	|___|___|	|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
08		|___|	|___|	|___|	|___|	|___|	|___|___|	|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
09		|___|	|___|	|___|	|___|	|___|	|___|___|	|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
10		|___|	|___|	|___|	|___|	|___|	|___|___|	|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|

Before continuing, say "Good effort! Let's continue to the next section!"

FULFULDE **VILLAGE ID: |___|___|___|** **HOUSEHOLD NUMBER |___|___|___|** **FU1**

Subtask 1: Receptive Oral Language

This section is not timed and there are no stimuli for the child (to be administered orally).
Interviewer states: "We are going to play a game, ok? I am going to give you instructions, and we can see if you can follow what I say."
Example 1: Interviewer states: "Point to your nose"." The interviewer points to his nose, and encourages the child to do the same. If the child points correctly, say "Bravo, that is correct!" If the child does not point, repeat the instructions and ask, "Can you point to your nose?"
Example 2: Interviewer states: "Point to your head". This time the interviewer does not point, but encourages child to point. If the child does not understand, the Interviewer states the instructions again and repeats the examples. If the child understands, start the test.
If child makes 5 consecutive errors, stop and continue to the next subtask. If child does not respond, mark "No Response", and continue to the next subtask.
Ask each question in Fulfulde and note the response in the questionnaire.

RESPONSE CODES: 1= CORRECT, 2= INCORRECT, 3= NO RESPONSE

HL1.	HL2. CHILD'S NAME	FU11. HOLLU NOWRU MAAƊA	FU12. HOLLU HUNNDUKO MAAƊA	FU13. YOLLAM SOBUDU MADA	FU14. ƁANTU KOYNGAL	FU15. HOLLAM HONNDU WO'OTURU	FU16. HELLU	FU17. FITIR GADA MA	FU18. ƁANTU JUNNGO	FU19. POPPINA	FU110. [HOKKA SUKA HUUND] RESU HUUNDE NDEE YEESO MAAƊA	**NO RESPONSE**
ID	NAME	EAR	MOUTH	ELBOW	LEG	FINGER	CLAP	JUMP BAKCWARDS	HAND	BEND	PLACE IN FRONT	NO RESPONSE
01		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
02		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
03		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
04		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
05		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
06		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
07		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
08		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
09		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
10		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|

Before continuing, say "Good effort! Let's continue to the next section!"

FULFULDE **VILLAGE ID: |___|___|___|** **HOUSEHOLD NUMBER |___|___|___|** **FU2**

Subtask 2: Expressive Oral Language

This section is not timed and there are no stimuli for the child (to be administered orally).
Interviewer states: "Now I am going to show you things, and you tell me what they are called."
Example 1: Interviewer points to his eye and says, "What is this?" Interviewer says, "You say it is an eye!"
Example 2: Interviewer points to his ear, and says, "What is this?". The interviewer encourages the child to say "ear". "Interviewer asks, "Do you understand?"
If the child does not understand, the Interviewer states the instructions again and repeats the examples. If the child understands, start the test.
If child makes 5 consecutive errors, stop the test and continue to the next subtask. If child does not respond, mark "No Response", and continue to the next subtask. Ask each question in the test language and note the response in the questionnaire.

RESPONSE CODES: 1= CORRECT, 2= INCORRECT, 3=NO RESPONSE

HL1.	HL2. CHILD'S NAME	FU21. HINERE	FU22. HUNDU	FU23. DADE	FU24. NIJE	FU25. HUNDUKO	FU26. HOWRU	FU27. SARA	FU28. SOBUDU	FU29. NAWKI	FU210. WALAWO	NO RESPONSE
ID	NAME	NOSE	HAIR/HEAD	FOOT	FINGER	NECK	TEETH	SHIRT	PANTS/SKIRT	SHOE	PEN/PENCIL	NO RESPONSE
01		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
02		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
03		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
04		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
05		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
06		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
07		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
08		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
09		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
10		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|

Before continuing, say "Good effort! Let's continue to the next section!"

FULFULDE **VILLAGE ID: |___|___|___|** **HOUSEHOLD NUMBER |___|___|___|** **FU3**

SUBTASK 3: ORAL COMPREHENSION

This is not a timed exercise and this is administered orally only. The Interviewer states "Now, I am going to read to you a story aloud ONE TIME. Afterwards, I will ask you some questions about the story. Listen carefully, and after you will answer the questions the best you can. Okay? Do you understand what are you supposed to do? Let's begin! Listen carefully."

The interviewer reads aloud the short story, ONE TIME, slowly, (about 1 word per second), in the language of the test.

After reading the text, ask the child each comprehension question and note the response. If the child does not give any response after 10 seconds, repeat the question, and give the child another 5 seconds to respond. If the child still does not respond, go on to the next question.

TEXT:

MUSA ET HIGHDUME ALI BE POTTI BE NYAMI NYIRI MAARO. MUSA HOLLI GUGAKU, NAAKO LONGORE NDEN SONDIMO. O FUNDI OMO DOJA. ALI HAKKILLOMUNE UMMI SANNE. ALI WADI LAW WADONOWIMO DIYAM. GADA MUSSA YARI DIYAN DAM, BE KANTIDI NYAMDE MAARO MABE FU BE DOGI LAW LAW BE PIYOYE BAL.

QUESTIONS:

FU31. DUME MUSSA E ALI NYAMI?

FU32. DUME ALI WALLIRI MUSA?

FU33. DUME BE NGADI KOBE NYAMIDI?

FU34. GUA DOUMÉ ALI WADDANI MUSA N'DIAM?

FU35. N'DÉ HBE DJAHI BE BADI FIJO BALL?

RESPONSE CODE: 1=CORRECT, 2=INCORRECT, 3=PAS DE REPONSE

RESPONSE LANGUAGE : 01 FRENCH, 02 HAUSA, 03 FULFULDE, 04 KANURI, 05 TAMASHEQ, 06 FULFULDE, 96 OTHER (SPECIFY)

HL1. *ID*	HL2. CHILD'S NAME	FU31. DUME MUSSA E ALI NYAMI?		FU32. DUME ALI WALLIRI MUSA?		FU33. DUME BE NGADI KOBE NYAMIDI?		FU34. GUA DOUMÉ ALI WADDANI MUSA N'DIAM?		FU35. N'DÉ HBE DJAHI BE BADI FIJO BALL?	
ID	NAME	A. MAARO	B. LANGUAGE	A. DIYAME	B. LANGUAGE	A. BE PIYOYI BAL	B. LANGUAGE	A. GAME MO FOUDDI N'DOJJAE	B. LANGUAGE	A. BAWTIN BE KEEGNI GNAAMKI GNIRI	B. LANGUAGE
01		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
02		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
03		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
04		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
05		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
06		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
07		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
08		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
09		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
10		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|

Before continuing, say "Good effort! Let's continue to the next section!"

FULFULDE **VILLAGE ID: |___|___|___|** **HOUSEHOLD NUMBER |___|___|___|** **FU4**

Subtask 4: Letter Identification (name or sound)

This is a timed exercise and is administered using the test booklet.

Show the test booklet to the child for subtask 4. Explain the subtask in the child's maternal language, using the examples in the booklet. After explaining the examples, say "Ok? Do you understand? When I say "Start", point to each letter with your finger as you read it. Read from left to right, line by line. Do you understand what I am asking? Put your finger on the first letter. Ready? Try to read quickly and correctly. Begin."

Start the timer when the child reads the first letter **name** or **sound**. If the child does not respond after 10 seconds, mark 'Auto Stop'. Count self-corrections as correct. Stay quiet, except if the child hesitates on a letter for 3 seconds. In this case, point to the next letter and say "Please go on." Mark the letter skipped as incorrect on the test sheet.

After 60 seconds say, "Stop and Thank you." Note the total number correct. If the child read everything in less than one minute, note the exact number of seconds remaining on the timer. Otherwise, if the child has not finished the exercise, mark '00' seconds.

Auto stop rule: If the child does not give a single correct response in the first 10 letters, gently tell the child to stop, and mark 'Auto Stop'. Say "Thank you" and go on to the next subtask.

HL1.	HL2. CHILD'S NAME	FU41.	FU42.	FU43.	FU44.	FU45.	FU46.	FU47.	FU48.	FU49.	FU410.	AUTO STOP	TIME REMAINING	TOTAL CORRECT
ID	NAME	(10)	(20)	(30)	(40)	(50)	(60)	(70)	(80)	(90)	(100)	AUTO	SECONDS	TOTAL
01		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
02		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
03		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
04		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
05		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
06		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
07		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
08		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
09		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
10		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|

Before continuing, say "Good effort! Let's continue to the next section!"

FULFULDE **VILLAGE ID:** |___|___|___| **HOUSEHOLD NUMBER** |___|___|___| **FU5**

Subtask 5: Word Identification

This is a timed exercise and is administered using the test booklet.

Show the test booklet to the child for subtask 5. Explain the subtask in the child's maternal language, using the examples in the booklet. After explaining the examples, say "Ok? Do you understand what I am asking you to do? When I say "Start", read the words from left to right, line by line. At the end of the line, continue to the next line. Try to read quickly and correctly. Ready? Begin."

Start the timer when the child reads the first word. If the child does not respond after 10 seconds, mark 'Auto Stop'. Count self-corrections as correct. Stay quiet, except if the child hesitates for 3 seconds. In this case, point to the next word and say "Please go on." Mark the word as incorrect on the test sheet.
After 60 seconds say, "Stop and Thank you." Note the total number correct. If the child read everything in less than one minute, note the exact number of seconds remaining on the timer. Otherwise, if the child has not finished the exercise, mark '00' seconds.
Auto stop rule: If the child does not give a single correct response in the first 5 words, gently tell the child to stop, and mark 'Auto Stop'. Say "Thank you" and go on to the next subtask.

HL1.	HL2. CHILD'S NAME	FU51.	FU52.	FU53.	FU54.	FU55.	FU56.	FU57.	FU58.	FU59.	FU510.	AUTO STOP	TIME REMAINING	TOTAL CORRECT
ID	NAME	(5)	(10)	(15)	(20)	(25)	(30)	(35)	(40)	(45)	(50)	AUTO	SECONDS	TOTAL
01		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
02		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
03		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
04		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
05		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
06		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
07		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
08		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
09		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
10		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|

Before continuing, say "Good effort! Let's continue to the next section!"

FULFULDE SUBTASK 6 & 7 | **VILLAGE ID: |___|___|___|** | **HOUSEHOLD NUMBER |___|___|___|** | **FU6 & FU7**

HL1. | HL2. CHILD'S NAME

SUBTASK 6- ORAL READING FLUENCY

Give the child 60 seconds to read as much of the text as possible. Note the number of words read correctly per each line. Show the child the test booklet.

"Here is a story. Now I would like you to read it out loud, quickly and correctly, and afterwards, I will ask you some questions. Start here when I tell you. If you don't know a word, continue to the next word. Ready? Start."

Give the child 60 seconds to read all that he can.

Stay quiet, except when providing answers as follows: if the child hesitates for 3 seconds, point to the next word and say "Please go on." Mark the word as incorrect on the test sheet.

Auto stop rule: if the child cannot read correctly a single word in the first two lines, stop the test and note "auto-stop". Say "thank you" and end the test.

NOTE THE NUMBER OF WORDS READ CORRECTLY FOR EACH LINE. IF THE CHILD READ EVERYTHING IN LESS THAN ONE MINUTE, NOTE THE EXACT NUMBER OF SECONDS REMAINING ON THE TIMER. OTHERWISE, MARK '00' SECONDS.

SUBTASK 7 – READING COMPREHENSION

After the child has finished reading, **take the card from the child** and ask the first question. If the child does not give any response after 10 seconds, repeat the question, and give the child another 5 seconds to respond. If the child still does not answer, go to the next question. Ask only those questions that correspond to the lines of text read by the child, up to the last line the child was able to read.

"Now I am going to ask you a few questions about the story you just read.."
Pose the corresponding questions to the child, *in Fulfulde.*
"Djonimi diamete dow habaruji ko janguouda wad kokari gnotanam iyaka andal mada."

A. Haden nyalloma oyé non?
B. Dume Raabi yidi fa sooda?
C. Iri toggoré nde Raabi yidi ?
D. O hebi toggore wodere nden na?
E. Dume Raabi hebi?

RESPONSE : 1=CORRECT, 2=INCORRECT, 3=NO RESPONSE
LANGUAGE OF RESPONSE : 01 FRENCH, 02 HAUSA, 03 ZARMA, 04 KANURI, 05 TAMASHEQ, 06 FULFULDE, 96 OTHER (SPECIFY)

ID	NAME	A (5)	B (8)	C (6)	D (8)	E (6)	TIME	AUTO STOP	A1. HADEN LUMO NON	A2. LANGUAGE	B1. TOGG ORE	B2. LANGUAGE	C1. TOGGO RE WODERE	C2. LANGUAGE	D1. 0 HEBAYE	D2. LANGUAGE	E1. TOGGOR E HEYRE LOBBERE	E2. LANGUAGE
01		|___|	|___|	|___|	|___|	|___|	|___|___|	|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
02		|___|	|___|	|___|	|___|	|___|	|___|___|	|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
03		|___|	|___|	|___|	|___|	|___|	|___|___|	|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
04		|___|	|___|	|___|	|___|	|___|	|___|___|	|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
05		|___|	|___|	|___|	|___|	|___|	|___|___|	|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
06		|___|	|___|	|___|	|___|	|___|	|___|___|	|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
07		|___|	|___|	|___|	|___|	|___|	|___|___|	|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
08		|___|	|___|	|___|	|___|	|___|	|___|___|	|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
09		|___|	|___|	|___|	|___|	|___|	|___|___|	|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
10		|___|	|___|	|___|	|___|	|___|	|___|___|	|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|

Before continuing, say "Good effort! Let's continue to the next section!"

TAMASHEQ **VILLAGE ID: |___|___|___|** **HOUSEHOLD NUMBER |___|___|___|** **TA1**

Subtask 1: Receptive Oral Language

This section is not timed and there are no stimuli for the child (to be administered orally).
Interviewer states: "We are going to play a game, ok? I am going to give you instructions, and we can see if you can follow what I say."
Example 1: Interviewer states: "Point to your nose"." The interviewer points to his nose, and encourages the child to do the same. If the child points correctly, say "Bravo, that is correct!" If the child does not point, repeat the instructions and ask, "Can you point to your nose?"
Example 2: Interviewer states: "Point to your head". This time the interviewer does not point, but encourages child to point. If the child does not understand, the Interviewer states the instructions again and repeats the examples. If the child understands, start the test.
If child makes 5 consecutive errors, stop and continue to the next subtask. If child does not respond, mark "No Response", and continue to the next subtask.
Ask each question in Tamasheq and note the response in the questionnaire.

RESPONSE CODES: 1= CORRECT, 2= INCORRECT, 3= NO RESPONSE

HL1.	HL2. CHILD'S NAME	TA11. ŞĂKNU TANḌƏRƏK-NĂK/NAM	TA12. ŞAKNU IMI NAK/NAM	TA13. SAKNI TAɣMAR NAK/NAM	TA14. ƎTKƏL AḌAR IYYAN	TA15. ŞAKN-I AḌAḌ IYYAN	TA16. ƎQQƏS	TA17. ƎĞID ƎŞ DƎFUR	TA18. ƎTKƏL ƏFUŞ-NAK/NAM	TA19. ƎNƎẒ	TA110. [ĂKFU I BĂRAK ĂRĂṬ IYYAN] ĂGU ĂRAṬ-DI DĂT-ƏK	NO RESPONSE
ID	NAME	EAR	MOUTH	ELBOW	FOOT	FINGER	CLAP	JUMP BACKWARDS	HAND	BEND	PLACE IN FRONT	NO RESPONSE
01		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
02		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
03		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
04		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
05		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
06		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
07		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
08		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
09		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
10		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|

Before continuing, say "Good effort! Let's continue to the next section!"

TAMASHEQ **VILLAGE ID: |___|___|___|** **HOUSEHOLD NUMBER |___|___|___|** **TA2**

Subtask 2: Expressive Oral Language

This section is not timed and there are no stimuli for the child (to be administered orally).
Interviewer states: "Now I am going to show you things, and you tell me what they are called."
Example 1: Interviewer points to his eye and says, "What is this?" Interviewer says, "You say it is an eye!"
Example 2: Interviewer points to his ear, and says, "What is this?" The interviewer encourages the child to say "ear". "Interviewer asks, "Do you understand?"
If the child does not understand, the Interviewer states the instructions again and repeats the examples. If the child understands, start the test.
If child makes 5 consecutive errors, stop the test and continue to the next subtask. If child does not respond, mark "No Response", and continue to the next subtask. Ask each question in the test language and note the response in the questionnaire.

RESPONSE CODES: 1= CORRECT, 2= INCORRECT, 3=NO RESPONSE

HL1.	HL2. CHILD'S NAME	TA21. TENJART	TA22. AḌAḌ	TA23. IRI	TA24. ISENAN	TA25. IḌƏLAY	TA26. ƎFUD	TA27. EKARBAY	TA28. TAɣMAR	TA29. TEDDAWEN	TA210. ƎJƎR	NO RESPONSE
ID	NAME	NOSE	FINGER	NECK	TEETH	MOUTH	KNEE	PANTS/SKIRT	ELBOW	ARMPIT	SHOULDER	NO RESPONSE
01		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
02		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
03		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
04		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
05		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
06		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
07		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
08		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
09		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|
10		|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|

Before continuing, say "Good effort! Let's continue to the next section!"

TAMASHEQ **VILLAGE ID: |___|___|___|** **HOUSEHOLD NUMBER |___|___|___|** **TA3**

Subtask 3: Listening Comprehension

This is not a timed exercise and this is administered orally only. The Interviewer states "Now, I am going to read to you a story aloud ONE TIME. Afterwards, I will ask you some questions about the story. Listen carefully, and after you will answer the questions the best you can. Okay? Do you understand what are you supposed to do? Let's begin! Listen carefully."

The interviewer reads aloud the short story, ONE TIME, slowly, (about 1 word per second), in the language of the test.

After reading the text, ask the child each comprehension question and note the response. If the child does not give any response after 10 seconds, repeat the question, and give the child another 5 seconds to respond. If the child still does not respond, go on to the next question.

TEXT:

Mûsa əd əmidineṭ Ɣaliyu əməyan Fel ad əcĭn tafaɣat. Mûsa yiga tatôgât məqərat. Tôɣayaṣ tafaɣat. Yôfăr təṣut. Ɣaliyu yirmăɣ huḷen. Yiṭ rab yikfê ăman, yiša. Dəfur as iša ăman, aṣ ismandan têtè n'tafaɣat nasan ôzalan sər aḍalan təwayya (baló).

QUESTIONS :

TA31. May môs awa acan Mûsa əd əmidineṭ?

TA32. Mani əmuk waṣ tôgaz Ɣaliyu ?

TA33. Măgan dəfur as šan imənsiwăn ?

TA34. Mă fel Ɣaliyu aẓ deway aman î Mûsa?

TA35. Măni alôg waṣ ikkan addalan n'tawayya (baló)?

RESPONSE CODES : 1=CORRECT, 2=INCORRECT, 3=NO RESPONSE

RESPONSE LANGUAGE: 01 FRENCH, 02 HAUSA, 03 FULFULDE, 04 KANURI, 05 TAMASHEQ, 06 FULFULDE, 96 OTHER (SPECIFY)

HL1. *ID*	HL2. CHILD'S NAME	TA31. MAY MÔS AWA ACAN MÛSA ƏD ƏMIDINEṬ?		TA32. MANI ƏMUK WAS TOGAZ ƔALIYU ?		TA33. MĂGAN DƏFUR AS ŠAN IMƏNSIWĂN ?		TA34. MĂ FEL ƔALIYU Aẓ DEWAY AMAN Î MÛSA?		TA35. MĂNI ALOQ WAS IKKAN ADDALAN N'TAWAYYA (BALO)?	
ID	NAME	A. TAFAƔAT	B. LANGUAGE	A. ĂMAN	B. LANGUAGE	A. AḌALAN TƏWAYYA	B. LANGUAGE	A. FEL TƏSÛT	B. LANGUAGE	A. DƏFUR ƏMANSIWAN	B. LANGUAGE
01		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
02		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
03		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
04		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
05		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
06		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
07		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
08		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
09		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
10		|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|

Before continuing, say "Good effort! Let's continue to the next section!"

TAMASHEQ **VILLAGE ID: |___|___|___|** **HOUSEHOLD NUMBER |___|___|___|** **TA4**

Subtask 4: Letter Identification (name or sound)

This is a timed exercise and is administered using the test booklet.

Show the test booklet to the child for subtask 4. Explain the subtask in the child's maternal language, using the examples in the booklet. After explaining the examples, say "Ok? Do you understand? When I say "Start", point to each letter with your finger as you read it. Read from left to right, line by line. Do you understand what I am asking? Put your finger on the first letter. Ready? Try to read quickly and correctly. Begin."

Start the timer when the child reads the first letter **name** or **sound**. If the child does not respond after 10 seconds, mark 'Auto Stop'. Count self-corrections as correct. Stay quiet, except if the child hesitates on a letter for 3 seconds. In this case, point to the next letter and say "Please go on." Mark the letter skipped as incorrect on the test sheet.

After 60 seconds say, "Stop and Thank you." Note the total number correct. If the child read everything in less than one minute, note the exact number of seconds remaining on the timer. Otherwise, if the child has not finished the exercise, mark '00' seconds.

Auto stop rule: If the child does not give a single correct response in the first 10 letters, gently tell the child to stop, and mark 'Auto Stop'. Say "Thank you" and go on to the next subtask.

HL1.	HL2. CHILD'S NAME	TA41.	TA42.	TA43.	TA44.	TA45.	TA46.	TA47.	TA48.	TA49.	TA410.	AUTO STOP	TIME REMAINING	TOTAL CORRECT
ID	NAME	(10)	(20)	(30)	(40)	(50)	(60)	(70)	(80)	(90)	(100)	AUTO	SECONDS	TOTAL
01		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
02		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
03		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
04		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
05		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
06		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
07		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
08		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
09		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
10		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|

Before continuing, say "Good effort! Let's continue to the next section!"

TAMASHEQ **VILLAGE ID: |___|___|___|** **HOUSEHOLD NUMBER |___|___|___|** **TA5**

Subtask 5: Word Identification

This is a timed exercise and is administered using the test booklet.

Show the test booklet to the child for subtask 5. Explain the subtask in the child's maternal language, using the examples in the booklet. After explaining the examples, say "Ok? Do you understand what I am asking you to do? When I say "Start", read the words from left to right, line by line. At the end of the line, continue to the next line. Try to read quickly and correctly. Ready? Begin."

Start the timer when the child reads the first word. If the child does not respond after 10 seconds, mark 'Auto Stop'. Count self-corrections as correct. Stay quiet, except if the child hesitates for 3 seconds. In this case, point to the next word and say "Please go on." Mark the word as incorrect on the test sheet.

After 60 seconds say, "Stop and Thank you." Note the total number correct. If the child read everything in less than one minute, note the exact number of seconds remaining on the timer. Otherwise, if the child has not finished the exercise, mark '00' seconds.

Auto stop rule: If the child does not give a single correct response in the first 5 words, gently tell the child to stop, and mark 'Auto Stop'. Say "Thank you" and go on to the next subtask.

HL1.	HL2. CHILD'S NAME	TA51.	TA52.	TA53.	TA54.	TA55.	TA56.	TA57.	TA58.	TA59.	TA510.	AUTO STOP	TIME REMAINING	TOTAL CORRECT
ID	NAME	(5)	(10)	(15)	(20)	(25)	(30)	(35)	(40)	(45)	(50)	AUTO	SECONDS	TOTAL
01		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
02		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
03		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
04		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
05		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
06		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
07		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
08		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
09		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|
10		|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|___|	|___|	|___|___|	|___|___|

Before continuing, say "Good effort! Let's continue to the next section!"

TAMASHEQ SUBTASK 6 & 7 **VILLAGE ID: |___|___|___|** **HOUSEHOLD NUMER |___|___|___|** **TA6 & TA7**

HL1. *ID de l'enfant*

HL2. CHILD'S NAME

SUBTASK 6- ORAL READING FLUENCY

Give the child 60 seconds to read as much of the text as possible. Note the number of words read correctly per each line. Show the child the test booklet.

"Here is a story. Now I would like you to read it out loud, quickly and correctly, and afterwards, I will ask you some questions. Start here when I tell you. If you don't know a word, continue to the next word. Ready? Start."

Give the child 60 seconds to read all that he can. Stay quiet, except when providing answers as follows: if the child hesitates for 3 seconds, point to the next word and say "Please go on." Mark the word as incorrect on the test sheet.

Auto stop rule: if the child cannot read correctly a single word in the first two lines, stop the test and note "auto-stop". Say "thank you" and end the test.

NOTE THE NUMBER OF WORDS READ CORRECTLY FOR EACH LINE. IF THE CHILD READ EVERYTHING IN LESS THAN ONE MINUTE, NOTE THE EXACT NUMBER OF SECONDS REMAINING ON THE TIMER. OTHERWISE, MARK '00' SECONDS.

SUBTASK 7 – READING COMPREHENSION

After the child has finished reading, take the card from the child and ask the first question. If the child does not give any response after 10 seconds, repeat the question, and give the child another 5 seconds to respond. If the child still does not answer, go to the next question. Ask only those questions that correspond to the lines of text read by the child, up to the last line the child was able to read.

"Now I am going to ask you a few questions about the story you just read." Pose the corresponding questions to the child, *in Tamasheq*. « əmarda ada kâga iṣəṣtânan fel əlquiṣatta taɣrê. »

a. Aɣôra wa n'dar əzal ?

b. Mâ tarâ Răbi as ṣat wazənzu ?

c. Mâ fst tôlă tekarsat ta tağammay ?

d. Tağraw tekarsat ta zağaɣat ?

e. Mâ tazlağ Răbi ?

RESPONSE : 1=CORRECT, 2=INCORRECT, 3=NO RESPONSE
LANGUAGE OF RESPONSE : 01 FRENCH, 02 HAUSA, 03 ZARMA, 04 KANURI, 05 TAMASHEQ, 06 FULFULDE, 96 OTHER (SPECIFY)

ID	NAME	A (6)	B (7)	C (4)	D (8)	E (8)	TIME	AUTO STOP	A1. ƏZAL N'AṢUK	A2. LANGUE	B1. TEKARSAT	B2. LANGUE	C1. TEKARSAT ZAĞAɣAT	C2. LANGUE	D1. BEHU/KAY-KAY	D2. LANGUE	E1. TEKARSAT TENAYÂT/ TEKARSAT HÔṢAYAT	E2. LANGUE
01		|___|	|___|	|___|	|___|	|___|	|___|___|	|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
02		|___|	|___|	|___|	|___|	|___|	|___|___|	|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
03		|___|	|___|	|___|	|___|	|___|	|___|___|	|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
04		|___|	|___|	|___|	|___|	|___|	|___|___|	|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
05		|___|	|___|	|___|	|___|	|___|	|___|___|	|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
06		|___|	|___|	|___|	|___|	|___|	|___|___|	|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
07		|___|	|___|	|___|	|___|	|___|	|___|___|	|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
08		|___|	|___|	|___|	|___|	|___|	|___|___|	|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
09		|___|	|___|	|___|	|___|	|___|	|___|___|	|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|
10		|___|	|___|	|___|	|___|	|___|	|___|___|	|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|	|___|	|___|___|

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APPENDIX D

TEST BOOKLET

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NECS

Follow-up

e K D

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u	c	n	i	W	a	O	U	Y	S
M	f	a	Y	t	Y	G	A	y	k
a	S	T	K	o	i	h	N	U	F
a	A	i	a	C	A	K	T	s	u
y	A	t	D	N	V	k	L	e	d
i	M	y	a	m	I	r	A	R	i
N	i	R	b	A	D	N	s	A	n
A	a	u	E	m	E	X	j	w	s
i	g	U	H	N	q	A	n	B	i

ku suka wasa

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tana	in	nan	tahiya	sai
ina	kai	tsaya	yi	zo
su	malam	za	ku	ce
makaranta	audu	suna	ta	iya
shi	gida	ba	har	ka
wata	tare	ya	wasa	to
ruwa	yara	tafi	ana	mai
lahiya	ki	da	wani	daga
yana	ga	rana	aka	suka
cikin	ke	ina	ne	ni

Kasuwa. Yau raná kasuwa.

Rabi zata kasuwa domin ta saya riga.

Rabi na neman jan riga.

Ba ta samu jan riga ba, Rabi ta samu fará riga.

Raabi ta na murna, ta sa sabuwá riga mai kyan.

e c D

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u	A	d	i	ɳ	s	a	D	o	n
S	e	N	h	o	y	E	i	s	b
t	ɳ	d	U	y	s	Z	m	b	a
K	u	A	m	b	t	i	B	d	Z
g	W	c	O	j	M	u	k	G	y
l	p	ɳ	i	f	a	h	z	S	w
ã	Y	e	K	l	r	t	C	m	a
Z	h	r	E	s	k	ã	g	W	p
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habu tira kwayi

garu	ay	kaŋ	kasi	mooto
kali	afo	tira	dabu	bini
lutu	gure	mari	koli	mitti
habu	lutu	hina	jine	furu
sari	ŋuna	kwaayi	gabu	suba
pati	cawyaŋ	fansi	zagu	waasi
kande	dondon	hantum	kayne	moolo
fundi	kurŋe	zanjiḡombo	ganji	haari
dundu	tara	zunku	tamma	bindi
sungay	hungum	dangay	kollo	faasa

Habu. Hunkuna zaaro, habu no.

Raabi go ga koya habu ga day kwayi.

Raabi go ga kwaayi ciray ceeci.

A man du kwaei ciraa, Raabi du kwaayi kwaarey.

Raabi go ga farhã a du kwayi han no.

a u sh

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i	o	f	m	s	t	h	k	u	z
e	p	r	ny	i	w	y	o	ɗ	b
M	SH	H	a	ɲ	z	J	T	H	sh
o	k	y	R	t	d	a	k	N	u
w	ì	E	g	u	Ɲ	c	F	K	O
y	ɲ	L	e	i	c	D	e	n	W
s	R	k	r	a	h	j	u	z	B
m	u	t	y	ɗ	i	p	A	l	O
c	p	s	k	U	p	Ɲ	sh	ny	d
ɲ	ɗ	F	c	n	s	n	t	M	o

Wu	kɲla	bɲri		
fado	ni	wu	kare	nalle
malɲm	wu	sa	lado	bi
koro	mana	kɲska	kɲra	kange
karwu	bollo	njo	ci	bul
jaawol	kani	cidi	kolji	andi
milo	kam	ingi	kamu	bina
dondi	ti	kalu	kura	so
ngɲla	ɗeke	bɲlɲm	fe	baɗi
collo	goro	kiari	kɲri	dalo
kɲla	kaji	karo	wuri	nja

Kasuwu. Ku im kasuwuye.

Rabi Kasuwuro leji kaluwu n’jiworo.

Rabi kaluwu kime maji.

Kaluwu kime da cuwandinni, Rabi kaluwu bul cuwando.

Rabi kiji fanji, kaluwu birin shawa ciwandinna nangaro.

s k Y

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i	f	n	Y	O	E	R	G	B	ŋ
a	g	ny	s	a	h	U	y	N	Ɓ
b	ng	ŋ	B	Ng	Ƭ	I	Y	W	e
mb	h	o	mb	l	ɗ	L	P	D	Ny
ɓ	i	p	C	c	S	nj	s	J	nd
c	j	ɽ	E	H	ny	Mb	F	Ƭ	k
d	nj	s	F	m	D	Nd	ŋ	A	S
nd	k	t	J	Ng	M	w	C	O	Y
ɗ	l	u	ŋ	k	r	Nj	i	ɓ	i
e	m	w	U	A	p	g	K	f	G

pilkol **goggo** **loonde**

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emo	lila	an	iɓe	cardi
oole	liila	ɓe haako	ɓiɓɓe	ummu
sooda	ceede	daado	haala	gada
una	miilo	on	rewɓe	pilkol
uulo	ada	nder	foti	yaha
oolo	adol	jam	pade	roogo
lima	omo	nanii	pede	debbo
elol	min	weeti	lootoo	lobbo
molu	no	waali	loota	natal
daago	leele	inna	licce	mboyri

Lumo. Handen nyalooma lumo non.

Raabi no don ya lumo fa sooda toggore.

Raabi no don filoo toggoré wodere.

O hebaye toggoré woodere, Raabi heebi toggore ranere.

Raabi sehake o hebi toggore loobere.

q x ɜ

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a	i	A	Ê	ê	B	î	Ô	f	w
n	b	p	ṭ	s	ḷ	â	e	u	j
F	H	c	n	C	ô	Ğ	t	ṣ	Š
ɜ	ə	f	d	E	D	s	Â	h	r
m	Ṭ	l	ṣ	e	r	ẓ	y	Ẓ	x
ḍ	b	ɤ	ğ	L	f	z	H	M	k
r	š	ḷ	Y	q	Ṣ	g	Ḷ	p	l
Ḍ	l	Z	o	î	Q	ɣ	h	Ṣ	N
t	ğ	n	J	a	K	O	T	i	q
c	m	Ă	ǰ	ŭ	d	W	X	Û	j

ta har afud

ta	əd	yel	imi	amidi
wa	anu	tile	əwəl	eyəs
wen	aman	win	ener	idi
ɣur	anna	tin	aḷəm	tafala
daw	dadăɣ	idi	eɣăyd	ax
sər	har	taɣat	ad	bəhu
əs	fel	taṣt	iṣan	əšink
ăkal	dagman	măṣ	taḷəmt	enăle
ehăn	dənnəg	afud	as	awăra
ezăl	kăy	kăm	ehăd	ammaṣ

Əṣuk. Aɣôra wa əzal n’aṣuk.

Răbi takka əṣuk fel aṭ taẓzunzu tekarsat.

Răbi tagammay tekarsat zağaɣat.

Wər təgraw tekarsat zağaɣat, Răbi təgraw tekarsat maḷât.

Răbi tiddî wat fellas təgraw tekarsat tenâyat hôṣayat.

A b o

E	i	f	O	A	é	c	Q	z	u
b	N	o	s	i	m	L	n	G	T
w	O	g	u	L	T	j	c	p	M
V	K	a	R	u	f	é	J	s	b
s	L	c	a	D	Y	f	H	a	e
i	s	u	p	M	v	i	T	n	P
Z	n	e	g	i	F	d	o	n	v
d	é	b	A	m	n	T	C	o	r
R	L	q	B	e	n	i	a	p	u
g	E	h	V	d	U	ç	i	m	x

ta	elle	lune		
tu	il	vol	sa	ma
ou	or	lire	ami	car
sol	peur	papa	sage	bébé
carte	cri	vache	blé	fleur
sur	chaise	peau	vole	bleu
mil	mur	table	clé	monde
fin	date	tour	posé	kilo
ronde	pré	abri	faire	porter
été	beau	pain	rougir	moto
mal	douze	bol	vélo	vide

Le repas. Il est midi. Issa a faim.

Maman ne l'appelle pas. Le repas n'est pas prêt.

Issa va à la cuisine. Maman prépare le riz.

Le plat est prêt. Toute la famille est à table.

Issa est content. Il mange le plat qu'il aime.

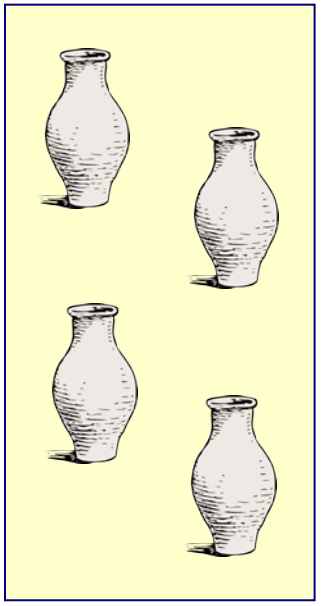
MATH

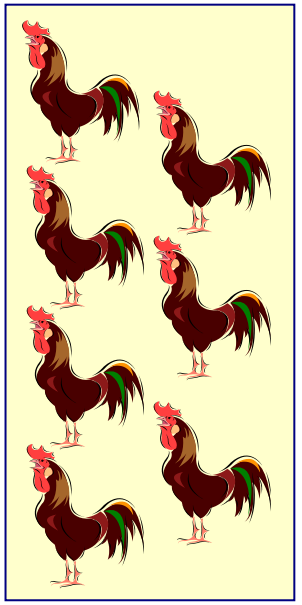
MA2.

3

9

MA3.





MA4.

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381 279

MA5.

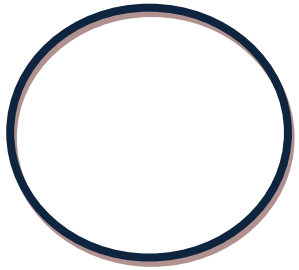
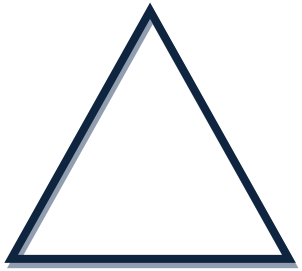
4 + 2 =

13 + 3=

MA6.

3 - 1 =

12 - 9 =

MA8.	MA9.
 	**2 x 4 =** **12 : 3 =**

Math

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APPENDIX E

IMPLEMENTATION OF IMAGINE AND NECS ACTIVITIES

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In this appendix, we present a table describing all of the activities implemented under the IMAGINE and NECS projects (Table E.1). The table includes a row for each activity and columns describing the planned activity, the activity as it was eventually implemented, the amount of the planned activity that was implemented, the project under which each activity was implemented (IMAGINE during phase 1 of the NTP or NECS during phase 2 of the NTP), and whether each intervention group (NECS & IMAGINE and NECS-only) was exposed to each activity. Note that three of the activities – construction of new boreholes, construction of water connections for new boreholes, and rehabilitating new boreholes – were conducted as a continuation of the IMAGINE project in Phase 2 under the NECS project and therefore were only conducted in NECS & IMAGINE villages.

Table E.1. Implementation of IMAGINE and NECS activities

Row #	Planned activities	Realized activities	Realization rate	Phase 1 of NTP (IMAGINE)	Phase 2 of NTP (NECS)	NECS & IMAGINE	NECS-Only
IMAGINE							
1	Construct girl-friendly schools consisting of 3 classrooms	62 out of 68 schools completed	91%	x		x	
2	Construct 3-block housing for female teachers	62 out of 68 teacher housing blocks completed	91%	x		x	
3	Construct separate latrines for boys and girls	62 out of 68 toilets completed	91%	x		x	
4	Construct boreholes (water point) at each school	49 out of 68 boreholes completed	72%	x		x	
5	Elaborate, validate, and disseminate new training modules and didactic materials	Integrated module—spelling and writing—elaborated and validated through a workshop	Partly realized	x		x	
6	Train 100 pedagogical inspectors and counselors in gender, spelling, active learning, and evaluation of students performance	52 pedagogical inspectors and counselors trained	52%	x		x	
7	Train at least 1,800 teachers on gender, spelling, active learning, evaluation of student performance, and tutoring by pedagogical inspectors and counselors	96 teachers trained	5%	x		x	
8	Organize two regional training workshops on the integrated module	Two workshops organized	100%	x		x	
9	Equip 68 project schools (initially planned) with 7 teacher guidebooks, for a total of 476 guidebooks	476 teacher guidebooks distributed to 68 schools	100%	x		x	
10	Training of 110 teachers in spelling and writing	96 teachers (school managers) trained	88%	x		x	
11	Rewards for 22 teachers and 11 schools	Not realized	0%	x		x	
12	Introduction of tutoring	Not realized	0%	x		x	

Row #	Planned activities	Realized activities	Realization rate	Phase 1 of NTP (IMAGINE)	Phase 2 of NTP (NECS)	NECS & IMAGINE	NECS-Only
13	Practical and productive activities in 198 targeted schools	78 schools	39%	x		x	
14	Teaching of hygiene and sanitation	Not realized	0%	x		x	
15	Establishment of school governments	135 schools	68%	x		x	
16	Provision of school stationery kits to 200 targeted schools	200 kits distributed	100%	x		x	
17	Provision of school manuals to 68 schools	68 schools each received 350 school manuals	100%	x		x	
18	Formulation of a vision of girls' education at national level	Not realized	0%	x		x	
19	Adoption of a communication strategy to advocate for girls' education	Document elaborated and validated but not implemented	0%	x		x	
20	Organization of annual regional advocacy day (for three years) on girls' education	Process suspended at internal ToR validation phase	0%	x		x	
21	Mobilization of financial and material means for implementation of communication strategy	Information, education and communication materials not conceived and not disseminated	0%	x		x	
22	COGES, Student Parents Association (APE), and Educational Mothers Association (AME) capacity building	Realized	100%	x		x	
23	Development and dissemination of the training modules on social mobilization	Modules and didactic support developed	100%	x		x	
24	Elaboration of 198 Local Action Plans (PALs)	155 PALs elaborated	78%	x		x	
25	Implementation of 155 PALs	155 PALs implemented	100%	x		x	
26	Training of regional and departmental education officials (198) on monitoring COGES activities	Partly realized, with 80 regional and departmental education officers trained	Approximately 40%	x		x	
27	Implementation of subsidy program to support communities in implementation of their PALs	Not realized	0%	x		x	

Row #	Planned activities	Realized activities	Realization rate	Phase 1 of NTP (IMAGINE)	Phase 2 of NTP (NECS)	NECS & IMAGINE	NECS-Only
28	Training of at least 6,000 women in income generating practices	Activity not realized	0%	x		x	
29	Literacy of 3,000 members of COGES, APE, and AME	Validation of the animators' training manuals; 35 animators and focal points participated in the initial training; 1,002 learners, of which 711 are women, started the literacy classes in 34 centers	Partly realized–35% started the activities	x		x	
NECS							
30	Establish functioning student governments	149 out of 150 schools	99%		x	x	x
31	Construct new boreholes (water points)	7 boreholes (water point) constructed- target met	100%		x	x	
32	Construct new water connections for boreholes	3 out of 6	50%		x	x	
33	Rehabilitate boreholes	all 26 boreholes rehabilitated	100%		x	x	
34	Train CGDES boreholes management committee members to maintain and monitor water points functionality	target surpassed; opted to train 5 members instead of the originally planned 2	100%		x	x	x
35	Establish PTA or similar school/community governance structures (CGDES, AME, APE, and student governments)	149 out of 150 schools	99%		x	x	x
36	Train school management (administrative/financial management, school maintenance, and annual action planning)	Opted to train five people (2 teachers members of the CGDES and 3 members of the community) instead of the originally planned 2	100%		x	x	x
37	Implement annual action plans for all the school governance structures	149 out of 150 schools	99%		x	x	x

Row #	Planned activities	Realized activities	Realization rate	Phase 1 of NTP (IMAGINE)	Phase 2 of NTP (NECS)	NECS & IMAGINE	NECS-Only
38	Train teachers and directors in the new reading curriculum (both ARL and ASL)	1458; trained more teachers than originally planned due to having both ARL and ASL training, added new teachers, and multiple grade 1 classes in some schools	100%		x	x	x
39	Develop teacher training materials	3080 (more than originally targeted for all activities below)	100%		x	x	x
40	Develop and distribute teaching and learning materials	38004	100%		x	x	x
41	Distribute local language books	14645	100%		x	x	x

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APPENDIX F

EGRA LOCAL LANGUAGE SCORES IN TREATMENT VILLAGES FOR GRADE 1 AND GRADE 2 CHILDREN

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In addition to the NECS impact evaluation, MCC and USAID requested a descriptive study focused on reading performance in local languages in early grades of NECS schools. The descriptive study measured reading skills in local languages for students in grades 1 and 2 (CI and CP in Niger) in a sample of intervention schools in 2014. Although original plans called for two or three rounds of data collection, it was ultimately decided to conduct only one round. In May 2014, 1,007 students in grades 1 and 2 from 27 randomly selected NECS intervention schools were administered a short Early Grade Reading Assessment (EGRA). The assessment was administered in the language of instruction at the student's school and comprised five subtasks: (1) letter identification, (2) familiar word reading, (3) invented word reading, (4) oral reading fluency of grade 2–level text, and (5) reading comprehension. Results from that data collection effort in 2014 indicated that reading levels were very low for grade 1 and grade 2 students across all languages and regions (Bagby et al. 2014b). In the Niger NECS Impact Evaluation Baseline Report (NECS evaluation baseline report)(Bagby et al. 2015), we used NECS Wave 1 data to calculate some of the same descriptive statistics presented in the Niger NECS EGRA Descriptive Study Round 1 Report (NECS EGRA descriptive study) (Bagby et al. 2014a). We found low levels of reading proficiency and strong floor effects (zero scores) in the subtasks measuring reading skills—such as letter identification, familiar word reading, oral reading fluency, and reading comprehension—as we had in the NECS EGRA descriptive study. There were fewer floor effects for oral language skills, which include receptive vocabulary, expressive vocabulary, and oral comprehension.

In this appendix, we use NECS Wave 2 data to calculate some of the same descriptive statistics presented in the NECS EGRA descriptive study (Bagby et al. 2014a) and the NECS evaluation baseline report (Bagby et al. 2015). These analyses provide a useful overview of the level of reading competency among students who received NECS' early grade reading curriculum during one or two school years. We included all reading-related skills that were also included in the NECS impact evaluation Wave 2 assessment: (1) receptive vocabulary, (2) expressive vocabulary, (3) oral comprehension, (4) letter identification, (5) familiar word reading, (6) oral reading fluency, and (7) reading comprehension. The sample included children in the 142 NECS intervention villages (82 NECS-only and 60 NECS & IMAGINE villages) in the impact evaluation sample who were enrolled in grade 1 or grade 2 during the current school year (2015–2016). The analysis included four languages: (1) Hausa, (2) Zarma, (3) Kanuri, and (4) another local language. We have data on a fifth local language, but no intervention schools received the NECS intervention in that language; therefore, no scores are presented in this appendix for it.

In the sections that follow, we present a description of the test results, including the maximum, minimum, and mean scores for each subtask within each language; the overall scores across languages; and raw mean scores in each language, separated by subtask and grade. As with the NECS EGRA descriptive study and the NECS baseline report, we found low levels of reading proficiency and strong floor effects in the subtasks measuring skills related to reading of print, such as letter identification, familiar word reading, oral reading fluency, and reading comprehension. However, we do find higher scores on the letter identification subtask than in the previous studies. There are fewer floor effects for the oral language skills, which include receptive vocabulary, expressive vocabulary, and oral comprehension.

A. Description of the test results by language

In Table F.1, we show the distribution of scores for each language among children in NECS treatment villages who were enrolled in grade 1 or grade 2 during the 2015–2016 school year. We present raw scores for each subtask. For subtasks 1 to 3, the score is the number of correct answers provided. For subtask 4, letter identification, the score is the number of letters identified per minute. For subtasks 5 and 6, familiar word reading and oral reading fluency, the score is words read per minute. Finally, subtask 7, reading comprehension, is measured as the percent correct.

In general, scores were high for the first two subtasks (receptive oral language and expressive oral language), which ask children to follow given instructions and to identify body parts or objects around them that are pointed out by the test administrator. Out of a maximum 10 points possible, children scored between 7.8 and 9.3 on average across languages on the two subtasks. The mean score for the listening comprehension subtask (in which the test administrator reads a story and asks the child five comprehension questions) ranged from 2.4 to 2.6 across languages.

Subtask 4 (letter identification) is the first subtask that measures reading skills. The mean score ranged from 8.1 to 9.9 letters per minute across languages. The maximum score was 103 letters per minute, which indicates that at least one child was able to correctly name all 100 letters in less than the 60 seconds provided. This was a notable increase over scores from the Wave 1 data, in which the mean for this subtask was less than 1 letter per minute and no child identified more than 50 letters in one minute. Subtasks 5 through 7, which measure increasingly advanced reading skills, exhibited much lower scores. In subtask 5, children were able to read correctly 1 to 3 familiar words per minute, on average, across all languages, out of 50 possible words. The maximum scores show that at least one child who took the test in Hausa and one who took the test in Zarma was able to read all 50 words within one minute. Similarly, although the maximum scores indicate that some children were able to score relatively well on subtasks 6 and 7, the mean scores show that the majority scored very low. Across all languages, the mean score for reading comprehension was close to zero.

Table F.1. Description of language test scores obtained in NECS villages

	Subtask 1: Receptive oral language	Subtask 2: Expressive oral language	Subtask 3: Listening comprehension	Subtask 4: Letter identification	Subtask 5: Familiar word reading	Subtask 6: Oral reading fluency	Subtask 7: Reading comprehension
	(Number correct)			(Letters/minute)	(Words/minute)		(Percent correct)
A. Hausa							
Mean	9.3	8.9	2.5	9.2	1.1	1.1	3.8
Standard deviation	1.7	1.9	1.7	14.9	3.7	4.3	14.8
Minimum	0	0	0	0	0	0	0
Maximum	10	10	5	100	58	37	100
Number of children	1846	1846	1846	1846	1846	1846	1846
B. Zarma							
Mean	9.1	8.9	2.4	9.3	1.1	0.7	0.5
Standard deviation	1.6	1.9	1.6	14.2	4.3	3.7	4.9
Minimum	0	0	0	0	0	0	0
Maximum	10	10	5	103	60	40	80
Number of children	746	746	746	746	746	746	746
C. Kanuri							
Mean	9.3	8.8	2.6	8.1	0.8	0.1	0.2
Standard deviation	1.4	1.8	1.6	11.7	2.4	1.4	2.8
Minimum	0	0	0	0	0	0	0
Maximum	10	10	5	90	15	18	40
Number of children	259	259	259	259	259	259	259
D. Other local language							
Mean	8.5	7.8	2.4	9.9	2.6	2.7	2.4
Standard deviation	2.3	2.9	1.8	10.9	5.9	6.0	9.2
Minimum	0	0	0	0	0	0	0
Maximum	10	10	5	38	30	27	60
Number of children	58	58	58	58	58	58	58

Source: NECS Wave 2 data collection, May and June 2016, household survey.

Notes: The reported figures are raw scores for children who were enrolled in grade 1 or grade 2 at some time during the current school year (2015–2016) regardless of their enrollment status at the time of data collection. All children were assessed one-on-one in the household. The sample does not include children who did not agree to take the test.

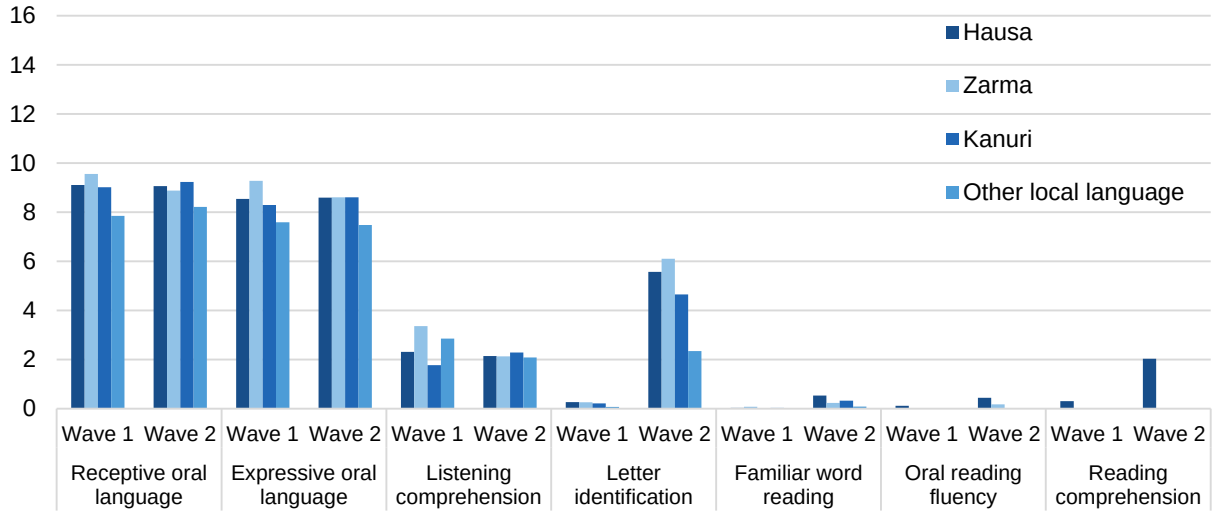
It is important to point out that we cannot directly compare raw EGRA scores between languages. Even though the tests were developed in the same way for each language, fundamental structural differences between the languages make comparisons misleading and incorrect (RTI International 2016). Specifically, differences in both the complexity of syllables and the orthographic depth (the degree to which grapheme-phoneme correspondences are consistent and predictable) affect the rate at which language acquisition occurs (Seymour et al. 2003). For example, it is widely established that early reading skills develop more slowly for English learners than for learners of other European languages (Seymour et al. 2003). Therefore, children who are English-language learners are likely to lag behind when tested on the same skills at the same age as learners of a structurally less complex language, regardless of their exposure to instruction or their innate ability. Even when languages are similar, systematic differences in scores across languages could be a product of numerous factors, including varying degrees of difficulty of the assessment itself or differences in the quality of instruction between languages. Means equating and item response theory equating are two statistical methods used to ensure that the measures obtained from the assessments of each skill are comparable. In the NECS baseline report (Bagby et al. 2015), we used item response theory to put the assessments in the different local languages on the same scale to demonstrate that it is possible to do so; however, we have not repeated the exercise here.

B. Overall scores

Given the variations in the languages themselves and in the assessments, the analysis did not allow us to directly compare the scores between languages. Nevertheless, we present the mean scores by language for all seven oral language and reading skills measured (the score is the unadjusted raw score, which differs by subtask as described above) in grade 1 (Figure F.1) and grade 2 (Figure F.2). In these figures, we also present the scores from the Wave 1 data collection. Although these comparisons cannot be used to draw conclusions about the impact of NECS on reading scores, the information provides a useful overview of the trends across the languages and over time.

As mentioned, most children possess strong oral language skills as measured by the first three subtasks—receptive oral language, expressive oral language, and listening comprehension. In both grades, scores on these subtasks were consistent across Wave 1 and Wave 2. However, we observed larger differences in scores on the subtasks measuring reading skills (subtasks 4 to 7) between the two data collection rounds. At Wave 1, reading skills for all four languages were very low and nearly indistinguishable from zero. At Wave 2, letter identification scores (subtask 4) for both grades were noticeably higher than in the Wave 1 data. Scores for the other reading subtasks (5 to 7) also were higher at Wave 2, although the differences were primarily concentrated among children in grade 2.

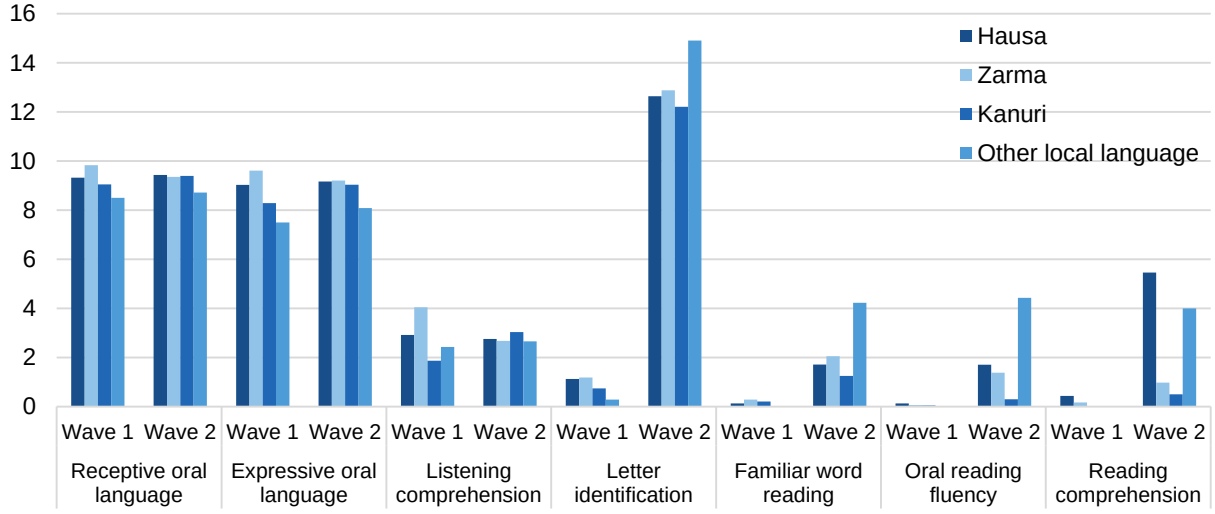
Figure F.1. Mean scores in grade 1 by language, Wave 1 and 2



Source: Bagby et al. 2015; NECS Wave 2 data collection, May and June 2016, household survey.

Notes: For subtasks 1 to 3 (receptive oral language, expressive oral language, and listening comprehension), the score is the number of correct answers provided. For subtask 4 (letter identification), the score is the number of letters identified per minute. For subtasks 5 and 6 (familiar word reading and oral reading fluency), the score is words read per minute. Subtask 7 (reading comprehension) is measured as the percent correct. The sample includes children in NECS & IMAGINE and NECS-only villages who were enrolled in grade 1 at some time during the 2015–2016 school year.

Figure F.2. Mean scores in grade 2 by language, Wave 1 and 2



Source: Bagby et al. 2015; NECS Wave 2 data collection, May and June 2016, household survey.

Notes: For subtasks 1 to 3 (receptive oral language, expressive oral language, and listening comprehension), the score is the number of correct answers provided. For subtask 4 (letter identification), the score is the number of letters identified per minute. For subtasks 5 and 6 (familiar word reading and oral reading fluency), the score is words read per minute. Subtask 7 (reading comprehension) is measured as the percent correct. The sample includes children in NECS & IMAGINE and NECS-only villages who were enrolled in grade 2 at some time during the 2015–2016 school year.

Children in grade 2 during the 2015–2016 school year should have been exposed to the NECS local language reading curriculum during the 2014–2015 school year (when they were in grade 1) as well as during the entire 2015–2016 school year, although the NECS reading curriculum changed during that time (see Section II.B in the main report). Children currently in grade 1 received local language reading instruction in grade 1 during the 2015–2016 school year. The curriculum focused specifically on basic reading skills such as the sounds and names of letters and stringing multiple sounds together into words. These areas correspond with the skills measured by the subtasks in which we observed the largest differences between data collection rounds (letter identification and familiar word reading).

C. Hausa score analyses

The Hausa language assessment was completed by 1,846 children in grades 1 and 2 across 89 villages. In Table F.2, we present mean test scores and standard deviations. Mean scores were high across the first two oral language subtasks, with children scoring between 8.59 and 9.43 out of a possible 10 points. On those subtasks, only 1 to 3 percent of children were unable to provide at least one correct response. Scores began to decline with the listening comprehension subtask, with children correctly answering, on average, about half of the five questions posed to them. Twenty-three percent of grade 1 children and 12 percent of grade 2 children were unable to answer a single listening comprehension question.

Scores on all remaining reading skills subtasks were low for both grade 1 and grade 2 children, with many children unable to answer a single correct answer. Grade 1 children were able to identify correctly 5.57 letters per minute on average, whereas grade 2 children were able to identify correctly 12.64 letters per minute on average. The results differ substantially from Wave 1, in which scores on letter identification were not statistically significantly different from zero. Mean scores, excluding zero scores, were 18.12 and 21.60 letters per minute for grade 1 and grade 2 children, respectively. On the fifth subtask (familiar word reading), grade 1 children could read 0.54 words per minute, whereas grade 2 children could read 1.71 words per minute. Scores were similar for oral reading fluency. On the final subtask (reading comprehension), the average correct scores were 2.0 percent for grade 1 children and 5.5 percent for grade 2 children. On each of the final three subtasks, the majority of children (ranging from 78 percent to 96 percent) could not answer a single question. Across all subtasks, scores were slightly higher for children in grade 2 than for children in grade 1.

Table F.2. Raw mean scores in Wave 2 in Hausa by grade, separated by subtask, NECS treatment villages only

	All children		Percentage of children scoring zero	Excluding children scoring zero		
	Mean score	Standard deviation		Mean score	Standard deviation	Sample size
Subtask 1: Receptive oral language						
Grade 1	9.06	1.95	3	9.31	1.25	870
Grade 2	9.43	1.38	1	9.52	1.04	943
Subtask 2: Expressive oral language						
Grade 1	8.59	2.14	3	8.86	1.53	867
Grade 2	9.16	1.52	1	9.25	1.24	943
Subtask 3: Listening comprehension						
Grade 1	2.14	1.66	23	2.78	1.34	690
Grade 2	2.76	1.62	12	3.15	1.32	834
Subtask 4: Letter identification						
Grade 1	5.57	11.66	69	18.12	14.67	275
Grade 2	12.64	16.76	41	21.60	16.93	557
Subtask 5: Familiar word reading						
Grade 1	0.54	2.37	93	7.16	5.27	67
Grade 2	1.71	4.47	78	7.76	6.61	210
Subtask 6: Oral reading fluency						
Grade 1	0.44	2.56	95	9.68	7.37	41
Grade 2	1.71	5.36	86	11.87	8.91	137
Subtask 7: Reading comprehension						
Grade 1	2.04	10.83	96	49.19	22.90	37
Grade 2	5.46	17.58	89	48.60	25.64	107
Sample size: Students in grade 1		894				
Sample size: Students in grade 2		952				
Sample size: Villages		89				

Source: NECS Wave 2 data collection, May and June 2016, household survey.

Notes: The reported figures are raw scores for children in NECS treatment villages who were enrolled in grade 1 or grade 2 during the current school year (2015–2016) regardless of their enrollment status at the time of data collection. The sample does not include children who did not agree to take the test.

D. Zarma score analyses

The Zarma language assessment was completed by 746 children in grades 1 and 2 in 37 villages. In Table F.3, we present mean test scores and standard deviations. Mean scores in the receptive oral language and expressive oral language subtasks were between 8.60 and 9.35 for grade 1 and grade 2 children, respectively, out of a possible 10. The scores indicate that most children were able to follow instructions and identify correctly the objects pointed out and named by the test administrator. In each subtask, fewer than 3 percent of grade 1 children and fewer than 1 percent of grade 2 children were unable to provide a single correct response. Mean scores were lower for the listening comprehension subtask, with grade 1 children answering an average of 2.13 questions correctly and grade 2 children answering an average of 2.68 questions correctly. Twenty-four percent of grade 1 children and 12 percent of grade 2 children were unable to answer a single listening comprehension question.

Scores were much lower for the reading skills subtasks. Grade 1 children were able to identify 6.10 letters per minute on average, whereas grade 2 children identified 12.88 letters per minute on average. Among grade 1 and grade 2 children, 60 percent and 31 percent of students, respectively, could not name a single letter within one minute. The results differ substantially from Wave 1, in which 97 percent and 85 percent of grade 1 and grade 2 students, respectively, scored zero on this subtask. In these Wave 2 data, scores on the remaining three reading skills subtasks drop off, with mean scores below 0.24 for grade 1 students and below 2.05 for grade 2 students. None of the grade 1 students could answer even a single reading comprehension question.

Table F.3. Raw mean scores in Wave 2 in Zarma by grade, separated by subtask, NECS treatment villages only

	All children		Percentage of children scoring zero	Excluding children scoring zero		
	Mean score	Standard deviation		Mean score	Standard deviation	Sample size
Subtask 1: Receptive oral language						
Grade 1	8.88	1.86	2	9.08	1.30	390
Grade 2	9.35	1.15	0	9.38	1.03	346
Subtask 2: Expressive oral language						
Grade 1	8.60	2.24	3	8.89	1.62	386
Grade 2	9.20	1.33	0	9.23	1.24	346
Subtask 3: Listening comprehension						
Grade 1	2.13	1.62	24	2.79	1.27	305
Grade 2	2.68	1.53	12	3.05	1.24	305
Subtask 4: Letter identification						
Grade 1	6.10	12.07	60	15.12	15.00	161
Grade 2	12.88	15.58	31	18.77	15.59	238
Subtask 5: Familiar word reading						
Grade 1	0.24	1.43	96	5.59	4.33	17
Grade 2	2.05	6.02	81	10.64	9.87	67
Subtask 6: Oral reading fluency						
Grade 1	0.18	1.42	97	7.20	5.73	10
Grade 2	1.38	5.09	90	13.32	9.64	36
Subtask 7: Reading comprehension						
Grade 1	0.00	0.00	100	n/a	n/a	0
Grade 2	0.98	7.15	98	42.50	22.52	8
Sample size: Students in grade 1		399				
Sample size: Students in grade 2		347				
Sample size: Villages		37				

Source: NECS Wave 2 data collection, May and June 2016, household survey.

Notes: The reported figures are raw scores for children in NECS treatment villages who were enrolled in grade 1 or grade 2 during the current school year (2015–2016) regardless of their enrollment status at the time of data collection. The sample does not include children who did not agree to take the test.

n/a = Not applicable because no observations.

E. Kanuri score analyses

The Kanuri language assessment was completed by 259 children in grades 1 and 2 in 13 villages. In Table F.4, we present mean scores for the oral language subtasks, which are fairly high. In the receptive oral language subtask, children in grades 1 and 2 were able to follow correctly an average of about 9 out of 10 instructions read to them. In the expressive oral

language subtask, children correctly identified an average of around 9 objects out of 10. For each subtask, only 1 to 2 percent of children were unable to provide a single correct response. Mean scores for the final oral language subtask (listening comprehension) were lower, with an average of 2.29 and 3.03 for grade 1 and grade 2 children, respectively, out of a possible 5. In addition, 16 percent of grade 1 and 4 percent of grade 2 students were unable to correctly answer a single listening comprehension question.

Table F.4. Raw mean scores in Wave 2 in Kanuri by grade, separated by subtask, NECS treatment villages only

	All children		Percentage of children scoring zero	Excluding children scoring zero		
	Mean score	Standard deviation		Mean score	Standard deviation	Sample size
Subtask 1: Receptive oral language						
Grade 1	9.23	1.43	1	9.36	0.90	138
Grade 2	9.39	1.37	1	9.47	1.07	118
Subtask 2: Expressive oral language						
Grade 1	8.61	1.84	2	8.80	1.34	137
Grade 2	9.03	1.66	2	9.19	1.17	117
Subtask 3: Listening comprehension						
Grade 1	2.29	1.55	16	2.74	1.28	117
Grade 2	3.03	1.51	4	3.17	1.40	114
Subtask 4: Letter identification						
Grade 1	4.65	8.56	65	13.29	9.74	49
Grade 2	12.21	13.44	29	17.30	12.95	84
Subtask 5: Familiar word reading						
Grade 1	0.33	1.58	94	5.11	3.95	9
Grade 2	1.25	2.99	80	6.21	3.71	24
Subtask 6: Oral reading fluency						
Grade 1	0.00	0.00	100	n/a	n/a	0
Grade 2	0.30	2.11	97	12.00	7.21	3
Subtask 7: Reading comprehension						
Grade 1	0.00	0.00	100	n/a	n/a	0
Grade 2	0.50	4.09	98	30.00	14.14	2
Sample size: Students in grade 1		140				
Sample size: Students in grade 2		119				
Sample size: Villages		13				

Source: NECS Wave 2 data collection, May and June 2016, household survey.

Notes: The reported figures are raw scores for children in NECS treatment villages who were enrolled in grade 1 or grade 2 during the current school year (2015–2016) regardless of their enrollment status at the time of data collection. The sample does not include children who did not agree to take the test.

n/a = Not applicable because no observations.

Scores on all reading skills subtasks were very low. Grade 1 children were able to name correctly an average of 4.65 letters per minute, whereas grade 2 children were able to name 12.21 letters per minute, out of a possible 100. Overall, 65 percent of grade 1 children and 29 percent of grade 2 children could not identify a single letter. Consistent with our findings for the other languages, scores on the letter identification subtask were higher for the NECS Wave 2 impact evaluation sample than for the Wave 1 sample, wherein students identified less than one letter per minute. Excluding children who scored zero, mean scores were 13.29 letters per minute for grade 1 and 17.30 letters per minute for grade 2. In the final three subtasks, mean scores were

close to zero, with over 94 percent of grade 1 students and 80 percent of grade 2 students receiving zero scores. In oral reading fluency and reading comprehension, no grade 1 student provided a correct response, while the mean scores for grade 2 students were not statistically different from zero.

F. Other local language score analyses

Fifty-eight children in grades 1 and 2 in three villages completed the other local language assessment in NECS intervention villages. In Table F.5, we present the mean test scores and standard deviations. Children demonstrated relatively good oral language skills. In the receptive and expressive oral language subtasks, children in both grades scored between 7.5 and 8.7 out of a possible 10 points. Between 3 percent and 9 percent of children in both grades scored zero. Excluding zero scores, the mean scores on the oral vocabulary tasks rose to between 8.2 and 9 across the two grades and subtasks. In the listening comprehension subtask, children correctly answered about 2.1 to 2.7 of the five questions posed to them, on average. Nearly 35 percent of grade 1 children and 9 percent of grade 2 children could not answer a single listening comprehension task. The mean scores for listening comprehension, excluding zero scores, were 3.20 and 2.91 for grade 1 and grade 2 children, respectively.

Mean scores were low for all reading skills subtasks. Grade 1 children were able to identify only 2.35 letters per minute and grade 2 children were able to identify 14.91 letters per minute, on average. If we excluded the 61 percent and 17 percent of grade 1 and grade 2 students, respectively, who scored zero, then mean scores would become slightly higher, at 6 to 7 letters identified on average across the two grades, though they would not be statistically different from zero. Although low, the mean scores for letter identification were higher than at Wave 1. Only one grade 1 child responded to the familiar word reading subtask, while none of the grade 1 children provided an answer to the final two reading skills subtasks. The mean scores for familiar word reading and oral reading fluency for grade 2 students were just above 4 words per minute, while the average score for reading comprehension was 4 percent.

Table F.5. Raw mean scores in Wave 2 in local language other than Hausa, Zarma, and Kanuri by grade, separated by subtask, NECS treatment villages only

	All children		Percentage of children scoring zero	Excluding children scoring zero		
	Mean score	Standard deviation		Mean score	Standard deviation	Sample size
Subtask 1: Receptive oral language						
Grade 1	8.22	2.30	4	8.59	1.47	22
Grade 2	8.71	2.24	3	8.97	1.68	34
Subtask 2: Expressive oral language						
Grade 1	7.48	2.81	9	8.19	1.60	21
Grade 2	8.09	3.00	9	8.84	1.72	32
Subtask 3: Listening comprehension						
Grade 1	2.09	2.07	35	3.20	1.70	15
Grade 2	2.66	1.59	9	2.91	1.42	32
Subtask 4: Letter identification						
Grade 1	2.35	5.11	61	6.00	6.87	9
Grade 2	14.91	10.92	17	17.99	9.34	29
Subtask 5: Familiar word reading						
Grade 1	0.09	0.42	96	2.00	n/a	1
Grade 2	4.23	7.21	66	12.33	7.19	12
Subtask 6: Oral reading fluency						
Grade 1	0.00	0.00	100	n/a	n/a	0
Grade 2	4.43	7.29	69	14.09	5.54	11
Subtask 7: Reading comprehension						
Grade 1	0.00	0.00	100	n/a	n/a	0
Grade 2	4.00	11.68	86	28.00	17.89	5
Sample size: Students in grade 1		23				
Sample size: Students in grade 2		35				
Sample size: Villages		3				

Source: NECS Wave 2 data collection, May and June 2016, household survey.

Notes: The reported figures are raw scores for children in NECS treatment villages who were enrolled in grade 1 or grade 2 during the current school year (2015–2016) regardless of their enrollment status at the time of data collection. The sample does not include children who did not agree to take the test.

n/a = Not applicable because no observations.

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APPENDIX G

DETAILS ON COST ANALYSES

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In this appendix, we provide details on the calculation of the cost-effectiveness analyses and cost-benefit analyses presented in Chapter VI.

A. Cost estimates

Detailed costs of different components of the NECS & IMAGINE and NECS-only projects are presented in Table G.1. Panel A presents estimated fixed costs associated with school infrastructures that are assumed to have a life span of 30 years. Panel B presents additional fixed costs of the interventions. Panel C presents periodic school equipment and material costs, such as student textbooks or chalk, that occur at the time of implementation of the interventions and at periodic intervals equal to the assumed effective life span of each item. The next two panels present estimates of variable costs that are incurred in a five-year increment (panel D) or on an annual basis (panel E). Panel D consists of costs to implement periodic supervisory missions to ensure the continued efficacy of NECS activities. The annual costs in panel E include annual maintenance costs for school infrastructure and boreholes as well as project administrative costs and teacher salaries. The annual maintenance costs are assumed to be two percent of the annualized cost of the fixed infrastructure costs in panel A. The costs in panels C, D, and E are assumed to be incurred at their respective increments throughout the full 30-year life span of the schools.

To calculate the total cost for each panel, we take into account that not all amenities were equally provided to each village. We therefore estimate the associated proportion of villages that had each amenity during the 2016 follow-up data collection, and calculate the average cost per village in each panel by taking the sum of each amenity multiplied by the fraction of villages with the given amenity in that period. We annualize the cost of each item in the subtotal by dividing it by its life span, assuming a constant rate of depreciation. For example, the total fixed cost of the IMAGINE school infrastructure components, panel A, is $186,310, which results in an annual fixed cost of $6,210 when calculated over the estimated 30-year life span. The grand total annualized costs are calculated by summing the annual costs from each panel. NECS & IMAGINE has a total annual cost of $22,027 and NECS-only a total annual cost of $3,848 per village (in 2009 USD).

Table G.1. Costs of IMAGINE and NECS per village

	Costs in 2009 USD				Costs in 2009 USD		
	NECS & IMAGINE				NECS-only		
	IMAGINE cost (USD)	Percent of villages with amenity (%)	NECS cost (USD)	Percent of villages with amenity (%)	Cost (USD)	Percent of villages with amenity (%)	Life span (years)
A. Infrastructure fixed costs							
School complex (3 classrooms/preschool)	$131,807	100%					30
Toilets	$7,144	100%					30
Teacher housing	$19,785	100%					30
Borehole (water point)	$30,132	79%	$26,942	11%			30
Connection to water source			$6,595	5%			30
Borehole rehabilitation			$2,416	100%			30
Tool box for borehole repairs			$174	100%			30
Training in borehole maintenance			$370	100%			30
Total fixed costs	**$186,310**		**$6,321**				
Annualized fixed costs[a]	**$6,210**		**$243**				
B. Training and other fixed program costs							
Teacher training	$1,059	100%					30
Kit for "enlightenment" center	$1,489	100%					30
Establish school structures (PAL, CDGES, etc.)	$741	100%					30
Establish adult literacy	$2,167	100%					30
Training in gender			$519	100%	$519	100%	30
Sensibilization in gender in the communities			$215	100%	$215	100%	30
Trainings for community structures			$1,877	100%	$1,877	100%	30
Training for ARL (rapid reading)			$2,880	100%	$2,880	100%	30
Training for ASL (systematic reading) 2014			$272	100%	$272	100%	30
Training for ASL (systematic reading) 2015			$268	100%	$268	100%	30
Supervision by the technical follow-up committee			$19	100%	$19	100%	30
Total other fixed costs	**$5,457**		**$6,049**		**$6,049**		
Annualized other fixed costs[a]	**$182**		**$233**		**$202**		

	Costs in 2009 USD				Costs in 2009 USD		
	NECS & IMAGINE				NECS-only		
	IMAGINE cost (USD)	Percent of villages with amenity (%)	NECS cost (USD)	Percent of villages with amenity (%)	Cost (USD)	Percent of villages with amenity (%)	Life span (years)
C. Periodic school equipment and material costs[b]							
Student desks/chairs/benches	$3,759	100%					8
CPUs/Laptops	$2,496	46%					3
Teacher manuals	$679	100%	$335	100%	$335	100%	8
Chairs/bench/desks for adult literacy			$213	100%	$213	100%	8
Blackboard			$28	100%	$28	100%	8
Coverings/rulers			$85	100%	$85	100%	8
Student textbooks			$641	100%	$641	100%	8
ARL documents			$270	100%	$270	100%	8
Office equipment			$499	100%	$499	100%	8
Vehicles purchased	$25,130	13%	$904	100%	$904	100%	4
Motorcycles purchased	$4,166	25%	$540	100%	$540	100%	4
Chalk			$69	100%	$69	100%	1
Total periodic costs	**$9,943**		**$3,250**		**$3,250**		
Annualized periodic costs[a]	**$2,026**		**$647**		**$647**		
D. Periodic program supervisory costs[b]							
Supervisory mission by the IEB			$25	100%	$25	100%	5
Supervisory mission by the pedagogical counselors			$97	100%	$97	100%	5
Supervisory mission by the structures focal point			$4	100%	$4	100%	5
Supervisory mission by the focal point			$49	100%	$49	100%	5
Supervisory mission by DREP			$8	100%	$8	100%	5
Total supervisory costs	**$0**		**$183**		**$183**		
Annualized supervisory costs[a]	**$0**		**$37**		**$37**		

	Costs in 2009 USD				Costs in 2009 USD		
	NECS & IMAGINE				NECS-only		
	IMAGINE cost (USD)	Percent of villages with amenity (%)	NECS cost (USD)	Percent of villages with amenity (%)	Cost (USD)	Percent of villages with amenity (%)	Life span (years)
E. Annual costs							
Maintenance of school complex, toilets, and teacher housing[c]	$106	100%					1
Maintenance of borehole[c]			$36	100%			1
IMAGINE Staff salaries	$8,001	100%					1
HQ office rental	$62	100%	$172	100%	$172	100%	1
Vehicles rented	$226	100%					1
Gasoline	$333	100%	$157	100%	$157	100%	1
Vehicle maintenance	$341	100%	$60	100%	$60	100%	1
Vehicle insurance	$47	100%	$10	100%	$10	100%	1
Adult literacy teacher salaries			$183	100%	$183	100%	1
Training for ASL (systematic reading)			$268	20%	$268	20%	1
NECS Staff salaries			$1,702	100%	$1,702	100%	1
Benefits			$481	100%	$481	100%	1
Follow-up and oversight by NECS			$141	100%	$141	100%	1
Field office rental			$80	100%	$80	100%	1
Teacher salaries	$223	1.6[d]			$223	1.8[d]	1
Total annual costs	**$9,407**		**$3,042**		**$2,962**		
Grand total annualized costs	**$17,826**		**$4,201**	**$22,027**	**$3,848**		

Note: Cost estimates for the IMAGINE and NECS projects were obtained directly from Plan. The costs of the NECS project is assumed to be the same in both the NECS & IMAGINE and NECS-only interventions. The NECS & IMAGINE project also includes costs incurred under the IMAGINE project before the NECS project was implemented. All cost estimates are presented in 2009 USD. IMAGINE costs are assumed to occur in 2009. NECS cost estimates are assumed to occur in the 2013–2016 time period and are adjusted for inflation using the GDP deflator data from the International Monetary Fund (2016). Grand total annualized costs are calculated by summing the annual costs from each panel.

[a]Annualized costs are calculated using straight-line depreciation over the expected lifetime of the investment.

[b]Costs are assumed to occur during the project implementation and periodically after the item has reached the end of its effective life span (for example, every 8 years for teacher manuals).

[c]Maintenance costs for the school complex, toilets, and teacher housing are assumed to begin the year after the implementation of IMAGINE. Maintenance costs for the boreholes are assumed to begin the year after the implementation of NECS, following the rehabilitation of existing boreholes and construction of new boreholes.

[d]These numbers represent the number of additional teachers resulting from the NECS & IMAGINE and NECS-only activities in each village (not the percent of villages with amenity, as listed in the column heading).

B. Cost-effectiveness analysis

As specified in Chapter VI, the cost-effectiveness of each project is calculated by dividing the costs of the project by its effect (or impact). To calculate the present value of the total costs of the interventions during their respective periods of evaluation, we list the annual costs (by school year) of the NECS & IMAGINE and NECS-only that were incurred up to the Wave 2 2016 follow-up survey (Table G.2). Costs are calculated using the cost of each amenity presented in Tables G.1 multiplied by the fraction of villages with the given amenity in that period, which we calculated using the Wave 2 data. Fixed and periodic costs are annualized using straight line depreciation and scaled to account for only the period of observation. For example, fixed costs with 30-year life spans are annualized then multiplied by the number of years in the evaluation period--seven years for NECS & IMAGINE and three years for NECS-only. Periodic costs, such as school supplies or supervisory missions, are included in full if the effective life span occurs within the observation period or annualized and multiplied by the remaining years in the observation period if the effective life span extends beyond the observation period. The total value of all costs is then calculated as the present value of the stream of costs in the first school-year of each project (2009-2010 for NECS & IMAGINE and 2013-2014 for NECS-only) in 2009 USD using the 10 percent discount rate recommended by the MCC (MCC 2014).

Table G.2. Costs by year incurred

	School year							
	2009 - 2010	2010 - 2011	2011 - 2012	2012 - 2013	2013 - 2014	2014 - 2015	2015 - 2016	Total cost
Panel A: NECS & IMAGINE								
Fixed costs	$44,746	$0	$0	$0	$1,427	$0	$0	$45,720
Periodic costs	$9,389	$0	$0	$1,138	$5,315	$69	$448	$14,170
Annual costs	$9,407	$9,407	$9,407	$9,407	$12,449	$12,449	$12,449	$56,062
Total	$63,542	$9,407	$9,407	$10,545	$19,191	$12,518	$12,897	$115,952
Panel B: NECS-only								
Fixed costs	n/a	n/a	n/a	n/a	$605	$0	$0	$605
Periodic costs	n/a	n/a	n/a	n/a	$2,039	$69	$69	$2,148
Annual costs	n/a	n/a	n/a	n/a	$2,962	$2,962	$2,962	$7,637
Total	n/a	n/a	n/a	n/a	$5,607	$3,032	$3,032	$10,390

Note: This table presents the costs required to generate the benefits observed between the time that the program started and the time of the 2016 data collection. For fixed costs and periodic, we include only the portion of the cost associated with the time frame under consideration. For example for fixed costs, we include seven times the annualized costs in Table D.1 when calculating the values for NECS & IMAGINE but only three times the cost for NECS-only. The NECS program began in the 2013-2014 school year, so no costs were incurred in NECS-only villages prior to that school year. Costs are in 2009 USD.

n/a = Not applicable because NECS program had not started.

In addition, impact estimates are used in the cost-effectiveness analysis. Table G.3 presents the average outcomes for treatment and comparison villages by intervention (NECS & IMAGINE and NECS-only). Mean enrollment and local language test scores are presented for each type of village, and the impact estimates are presented as the marginal effect. These values are the same as those presented in Table V.5. Using enrollment estimates from Table IV.4, we calculate the number of children enrolled in schools in each type of village by multiplying the

effect estimate in the first column by 238, the average number of children between 6 and 12 years of age in a village, as noted in Table VI.4.

Table G.3. Estimated effects of the interventions on enrollment and test scores

	Enrollment rates[a]	Children enrolled[b]	Test scores[c]
Panel A: NECS & IMAGINE			
Treatment villages (mean)	0.79	188	0.09
Comparison villages (mean)	0.69	164	-0.13
Marginal effect of intervention (percentage points)	0.10	25	0.21
Panel B: NECS-only			
Treatment villages (mean)	0.78	186	0.02
Comparison villages (mean)	0.69	164	-0.13
Marginal effect of intervention (percentage points)	0.09	23	0.15

[a]Details on the estimation of effects for treatment and comparison villages can be found in Chapter V. Estimated effects from Table V.5.

[b]Estimated by multiplying the estimated fraction of children enrolled in each village by 228, the average number of children of schooling age in each village (from Table IV.5).

[c]Test scores are local language test scores, normalized by age and language. Estimated effects from Table V.5.

The comparisons of the cost-effectiveness estimates in Table VI.4 to those of other programs are presented in Tables G.4 and G.5. Compared to these other programs, the NECS & IMAGINE intervention is less cost effective, that is, the amount needed to achieve an impact of one additional student enrolled in school per year (Table G.4) or the amount needed to achieve an impact of 0.1 of a standard deviation in test scores (Table G.5), is much higher than other programs focused on school construction for both enrollment and test scores. It is important to note that context of the programs that included infrastructure building differed across the studies. Unlike the comparison studies, the IMAGINE program built schools in villages that already had schools, so the impact of the program operated through improvements in quality rather than access to school. The NECS-only intervention also falls in the middle to upper end of cost effectiveness for enrollment and just below the high end for test scores. For enrollment, NECS-only is more cost-effective than school uniforms, girls' scholarships, conditional cash transfers, and unconditional cash transfers. It is less cost-effective than school meals at $50.24 (Vermeersch and Kremer 2005), teacher incentives at $78.41 (Duflo et al. 2007), and extremely inexpensive interventions such as deworming at $8.02 (Miguel and Kremer 2004). In terms of changes in test scores, NECS-only is less cost-effective than all but educational vouchers and minimum conditional cash transfers. .

Table G.4. Cost-effectiveness estimates of other education interventions: school enrollment

Intervention	Country	Cost-effectiveness[a]	Study
Panel A: School Construction Interventions			
Village-based Schools	Afghanistan	$46	Burde and Linden (2013)
School construction	Indonesia	$97	Duflo (2001)
School construction	Burkina Faso	$396 - $490	Kazianga et al. (2015)
School construction	Burkina Faso	$292 – $425	Davis et al. (2016)
School construction (NECS & IMAGINE)	Niger	$675	NECS 2016 Follow-up (current study)
Panel B: Other Educational Interventions			
Extra teachers (OB)	India	$3	Chin (2005)
Information on returns to education for parents	Madagascar	$5	Nguyen (2008)
Deworming	Kenya	$8	Miguel and Kremer (2004)
Information on returns to education for boys	Dominican Republic	$36	Jensen (2010)
Iron fortification and deworming	India	$41	Bobonis, Miguel and Puri-Sharma (2006)
School meals	Kenya	$50	Vermeersch and Kremer (2005)
Teacher incentives	India	$78	Duflo, Hanna, and Ryan (2007)
Free school uniforms (a)	Kenya	$101	Evans, Kremer and Ngatia (2009)
School uniforms(b)	Kenya	$152	Kremer, Moulin, and Namunyu (2003)
Reading intervention and community structures (NECS only)	Niger	$154	NECS 2016 Follow-up (current study)
Girls scholarship	Kenya	$413	Kremer, Thornton and Miguel (2007)
Girl conditional cash transfer (CCT) (minimum amount)	Malawi	$1,239	Baird, Ozler and McIntosh (2011)
Girl CCT (average amount)	Malawi	$1,593	Baird, Ozler and McIntosh (2011)
PROGRESA CCT	Mexico	$3,716	Coady and Schultz (2000)
Girl unconditional cash transfer (UCT) (average amount)	Malawi	$5,574	Baird, Ozler and McIntosh (2011)
Camera monitoring of teachers' attendance	India	No significant impacts	Duflo, Hanna, and Ryan (2008)
Computer assisted learning curriculum	India	No significant impacts	Banerjee et al. (2007)
Remedial tutoring by community volunteers	India	No significant impacts	Banerjee et al. (2007)
Cash incentives for teachers	Kenya	No significant impacts	Glewwe, Nauman, and Kremer (2003)
Textbook provision	Kenya	No significant impacts	Glewwe, Kremer, and Moulin (2003)
Flip chart provision	Kenya	No significant impacts	Glewwe et al. (2004)
Menstrual cups for teenage girls	Nepal	No significant impacts	Oster and Thorton (2011)

Sources: Dhaliwal, Duflo, Glennerster and Tulloch (2012), Evans and Ghosh (2008); Kremer, Miguel, and Thornton (2007); He, Linden, and MacLeod (2008).

Notes: The estimates in this table are different than the ones presented in the references cited for several reasons. The Evans and Ghosh (2008) estimates were in 1997 USD, whereas we have expressed them in 2009 USD. Also, Evans and Ghosh (2008) presented the "education budget cost-effectiveness" of interventions, which accounts for the deadweight loss associated with raising the necessary funds, whereas we present the original estimates given by the authors of the studies (adjusted to 2009 USD). The original figures in Dhaliwal et al. (2012) are given in 2010 USD (footnote 3, page 8). We express these figures in 2009 USD.

[a]Cost needed to achieve an impact of one additional student enrolled in school per year. Measured in 2009 USD.

Table G.5. Cost-effectiveness estimates of other education interventions: test scores

Intervention	Country	Cost-effectiveness[a]	Study
Panel A: School construction interventions			
Village-based schools	Afghanistan	$5	Burde and Linden (2013)
School construction	Burkina Faso	$21 - $26	Kazianga et al. (2015)
School construction	Burkina Faso	$55 - $81	Davis et al. (2016)
School construction (NECS & IMAGINE)	Niger	$121	NECS 2016 Follow-up (current study)
Panel B: Other educational interventions			
Providing earnings information	Madagascar	$0.10	Nguyen (2008)
Teacher training program	India	$0.23	He, Linden, and MacLeod (2008)
Tracking by achievement	Kenya	$0.32	Duflo, DuPas, and Kremer (2007)
Linking school committee to village council	Indonesia	$0.33	Pradhan et al. (2014)
Electing school committee and linking to village council	Indonesia	$0.83	Pradhan et al. (2014)
Computer-assisted learning (PicTalk)	India	$1	He, Linden, and MacLeod (2008)
Paying teachers based on their students' performance (Year 1)	India	$4	Muralidharan and Sundararaman (2011)
Remedial ed (tutors or "Balsakhi")	India	$4	Banerjee, Cole, Duflo, and Linden (2006)
Paying teachers based on their students' performance (Year 2)	India	$4	Muralidharan and Sundararaman (2011)
Paying teachers based on school-wide performance (Year 1)	India	$4	Muralidharan and Sundararaman (2011)
Teacher incentives (Kenya)	Kenya	$5	Glewwe, Nauman, and Kremer (2009)
Teacher incentives (India)	India	$5	Duflo, Hanna, and Ryan (2007)
Paying teachers based on school-wide performance (Year 2)	India	$6	Muralidharan and Sundararaman (2011)
Extra contract teachers and tracking	Kenya	$6	Duflo, Dupas and Kremer (2011)
School grants (Year 1)	India	$6	Das et al. (2013)
Textbooks	Kenya	$6	Glewwe, Kremer, and Moulin (2009)
Contract teachers (Year 1)	India	$6	Muralidharan and Sundararaman (2013)
Computer-assisted learning (CAL)	India	$7	Banerjee et al. (2007)
Individually paced CAL	India	$7	Banerjee et al. (2007)
Girls' scholarship	Kenya	$8	Kremer, Miguel, and Thornton (2007)
Textbooks for top quintile	Kenya	$8	Glewwe, Kremer and Moulin (2009)
Contract teachers (Year 2)	India	$9	Muralidharan and Sundararaman (2013)
Read-a-thon, Philippines	Philippines	$10	Abeberese, Kumler and Linden (2013)
School-based management (SBM) training	Kenya	$14	Duflo, Dupas and Kremer (2014)
Reading intervention and community structures (NECS only)	Niger	$24	NECS 2016 Follow-up (current study)
Educational vouchers	Colombia	$45	Angrist et al. (2002)
Minimum CCTs	Malawi	$181	Baird, McIntosh and Ozler (2011)
Contract teachers	Kenya	Infinitely cost effective	Duflo, Dupas and Kremer (2014)
Deworming	Kenya	No significant impact	Miguel and Kremer (2004)
Flip chart provision	Kenya	No significant impact	Glewwe et al. (2004)
Child sponsorship program	Kenya	No significant impact	Kremer, Moulin, and Namunyu (2003)
CCTs	Morocco	No significant impact	Benhassine et al. (2012)
UCTs	Malawi	No significant impact	Baird, McIntosh and Ozler (2011)

Intervention	Country	Cost-effectiveness[a]	Study
Reducing class size by adding contract teachers	Kenya	No significant impact	Duflo, Dupas and Kremer (2014)
Reducing class size	India	No significant impact	Banerjee et al. (2007)
Building/improving libraries	India	No significant impact	He and Linden (2013)
School committee grants	Indonesia	No significant impact	Pradhan et al. (2014)
School committee grants	Gambia	No significant impact	Blimpo and Evans (2011)
School grants (Year 2)	India	No significant impact	Das et al. (2013)
Diagnostic feedback	India	No significant impact	Muralidharan and Sundararaman (2012)
Adding computers to schools	Columbia	No significant impact	Barrera-Osorio and Linden (2009)
One laptop per child (OLPC)	Peru	No significant impact	Cristia et al. (2012)
Teacher incentives (Year 1)	Kenya	No significant impact	Glewwe, Ilias and Kremer (2010)
Teacher incentives (Year 2)	Kenya	No significant impact	Glewwe, Ilias and Kremer (2010)
Grants and training for school committee	Gambia	No significant impact	Blimpo and Evans (2011)
Training school committees	Indonesia	No significant impact	Pradhan et al. (2014)

Sources: Dhaliwal, Duflo, Glennerster and Tulloch (2012), Evans and Ghosh (2008); Kremer, Miguel, and Thornton (2007); He, Linden, and MacLeod (2008).

Notes: The estimates in this table are different than the ones presented in Evans and Ghosh (2008) for two reasons: First, their estimates were in 1997 USD, whereas we have expressed them in 2009 USD. Second, they presented "education budget cost-effectiveness" of interventions, which accounts for the deadweight loss associated with raising the necessary funds, whereas we present the original estimates given by the authors of the studies (adjusted to 2009 USD). The original figures in Dhaliwal et al. (2012) are given in 2010 USD (footnote 3, page 8). We express these figures in 2009 USD.

[a]Cost per student needed to achieve an impact of 0.1 of a standard deviation in test scores. Measured in 2009 USD.

C. Details on the cost-benefit analysis

As previously discussed, the cost-effectiveness estimates cannot be used to compare educational interventions with different and/or multiple outcomes. A more general option is the cost-benefit analysis, where the impacts of the IMAGINE and NECS interventions are expressed in monetary values. Using the monetary values of the benefits, we presented three measures—the net present value (NPV), the ratio of the present value of benefits and costs (or "cost-benefit ratio"), and economic rate of return (ERR)—that are comparable to other investment projects in general.

In this section, we provide details on the calculation of costs, estimation of the returns to education, and estimation of benefits that were used to calculate the two measures.

1. Estimating costs for cost-benefit analyses

To estimate annual costs, we first assume that the NECS & IMAGINE and NECS-only interventions have a life span of 30 years, starting in 2009 for NECS & IMAGINE and 2013 for NECS-only, and we calculate the fixed, recurring, and annual costs for each intervention in their respective 30 year timeframe. The fixed costs are presented in panels A and B of Table G.1. Fixed costs are assumed to be incurred in the first year of implementation for each project, starting in 2009 for NECS & IMAGINE and 2013 for NECS-only. Periodic costs are presented in panels C and D of Table G.1, and annual costs presented in panel E of Table G.1 are incurred every year. The total costs in a year are the sum of the fixed, periodic, and annual costs. Table G.6 presents the total annual marginal costs of each intervention over its respective 30 years of operation.

2. Estimating benefits of the interventions

In our cost-benefit analysis, we adopted values of years of schooling gained per year of exposure to each intervention that we estimated from the Wave 2 household survey data using models similar to models (1) and (2) in Section IV.C.2:

$$Y_{ihjk,post} = \alpha + \beta_1 IMAGINE_NECS_j * YEARS_IMAG_NECS_i + AGE_i + \delta_k + \varepsilon_{ihjk} \quad (6)$$

$$Y_{ihjk,post} = \alpha + \beta_2 NECS_j * YEARS_NECS_i + AGE_i + \delta_k + \varepsilon_{ihjk} \quad (7)$$

where $Y_{ihj,post}$ is the number of years of schooling of child *i* in household *h* in village *j* in commune *k* at the 2016 follow-up; $IMAGINE_NECS_j$ is a binary indicator that is 1 if village *j* is in NECS & IMAGINE group and 0 if it is in the control group; $NECS_j$ is a binary indicator that is 1 if village *j* is in the NECS-only group and 0 if it is in the control group; $YEARS_EXP_i$, is the number of years that child *i* was exposed to the NECS intervention; AGE_i is the age of child *i*; δ_k is a vector of binary indicators, one for each commune *k*; and ε_{ihjk} is a random error term. The parameters of interest in equations (6) and (7) are β_1 and β_2, which give the estimated average impacts per year of exposure to the respective interventions on grade attainment.

The years of exposure in our sample range from 1-6 years for children in the NECS & IMAGINE group and from 1-3 years for children in the NECS-only group. Table G.7 presents the estimated results β_1 and β_2. Children exposed to the NECS & IMAGINE intervention experienced an average increase of 0.08 years of schooling for each year of exposure to the intervention, and children exposed to the NECS-only intervention experienced an average increase of 0.09 years of schooling for each year of exposure.

We estimated the impact of the NECS & IMAGINE and NECS-only interventions on grade attainment using models (1) and (2) from Chapter IV separately for each age group in our sample and found significant impacts of both interventions on years of schooling achieved for children aged 10 and below but not for children aged 11 or 12. The results are presented in Table G.8. As a result, we adopt the estimated return to each year of schooling at the primary level from the "MCC Niger Threshold Program Design: Constraints Analysis Final Report" for our return to schooling (rather than the average return to schooling across all levels or the return to years of schooling at the higher levels). It is still possible that the age patterns of the impacts reflect birth cohort rather than age patterns, so we later perform sensitivity checks on our assumption regarding returns to education in Section 4 below.

Table G.6. Marginal costs of the NECS & IMAGINE and NECS-only projects over 30 years of operation

	Year															
	2009	2010	2011	2012	2013	2014	2015	2016	…	2036	2037	2038	2039	2040	2041	2042
Panel A. NECS & IMAGINE																
Total Marginal Cost	$211,012	$9,407	$9,407	$10,545	$32,584	$12,518	$13,656	$12,518	…	$13,656	$20,402	$12,702	n/a	n/a	n/a	n/a
Panel B. NECS-only																
Total Marginal Cost	n/a	n/a	n/a	n/a	$12,445	$3,032	$3,032	$3,032	…	$3,032	$6,547	$3,215	$3,032	$3,032	$4,476	$3,302

Notes: The table presents the marginal costs per year incurred of the NECS & IMAGINE and NECS-only projects over 30 years of operation. Cost are reflected in 2009 USD.

n/a = Not applicable because year falls outside of assumed life span of the project.

Table G.7. Impacts of NECS & IMAGINE and NECS-only on years of schooling attained, by years of exposure

	NECS & IMAGINE group	NECS-only group
Estimated impact by years of exposure	0.08	0.09
p-value of estimated impact	0.00	0.00
Sample size	7,406	9,060

Source: NECS Wave 2 data collection, May and June 2016, household survey.

Note: The table presents estimated OLS regression coefficients for treatment status interacted with years of exposure for each child. All regressions include child age, commune fixed effects, and village-level weights. The regression for the NECS-only group includes a control for the village-level enrollment at baseline. Regressions account for clustering within villages. The years of exposure in the sample ranges from 1-6 years for children in the NECS & IMAGINE group and 1-3 years for children in the NECS only group.

Table G.8. Impacts of NECS & IMAGINE and NECS-only on highest grade attained, by age

	Means			Impacts		P-values		Sample size		
Age	NECS & IMAGINE group	NECS-only group	Control group	NECS & IMAGINE group	NECS-only group	NECS & IMAGINE group	NECS-only group	NECS & IMAGINE group	NECS-only group	Control group
6	0.9	1.0	0.7	0.3	0.3	0.00	0.00	638	860	555
7	1.9	1.9	1.6	0.3	0.3	0.00	0.00	617	941	529
8	2.5	2.7	2.2	0.3	0.5	0.02	0.00	680	915	512
9	3.5	3.5	3.1	0.4	0.4	0.00	0.00	507	805	417
10	4.0	3.9	3.6	0.4	0.3	0.00	0.02	644	962	534
11	5.2	4.9	5.0	0.2	-0.2	0.20	0.37	394	535	284
12	5.6	5.2	5.3	0.3	-0.1	0.19	0.55	610	728	483

Source: NECS Wave 2 data collection, May and June 2016, household survey.

Note: We tested differences between group means using two-tailed t-tests. Treatment group means are regression-adjusted, including commune fixed effects and village-level weights. The NECS-only group mean includes a control for the village-level enrollment at baseline. Control group means include village-level weights. Regressions account for clustering within villages. Normalized scores take into account child age. Attendance is unconditional on enrollment, meaning those who are not enrolled are all scored as having been absent.

Using the estimates of returns to schooling described in Table VI.5, we use several steps to estimate monetary benefits of the NECS & IMAGINE and NECS-only projects for all birth cohorts of children exposed to the interventions (where birth cohort is defined by the year in which the children were born). First, we calculate the number of years these birth cohorts are exposed to each intervention. For NECS & IMAGINE, the 1997 birth cohort was 12 years old in 2009 and was exposed to the intervention for one year before entering the labor market in 2012. Each subsequent birth cohort after that would experience one additional year of exposure to the intervention, with the birth cohorts from 2002 to 2027 experiencing the full six years of the intervention. The 2028 birth cohort would experience five years of the intervention before the schools stop operating in 2038. Similarly, each subsequent birth cohort after that would be exposed to one year less of the intervention, with the youngest birth cohort of 2032 experiencing only one year of the intervention. By comparison, NECS-only benefits begin accruing with the 2001 birth cohort and ending with the 2036 birth cohort, who are only exposed to one year of the intervention. In Figures G.1 and G.2 the solid line depicts the number of years that children in each birth cohort are exposed to NECS & IMAGINE and NECS-only, respectively. Exposure ranges from zero years, for children who started school before or after the interventions, to six years, for children whose school received the intervention for all six years of primary school.

Figure G.1. Exposure by birth cohort to the NECS & IMAGINE project and resulting additional grades gained

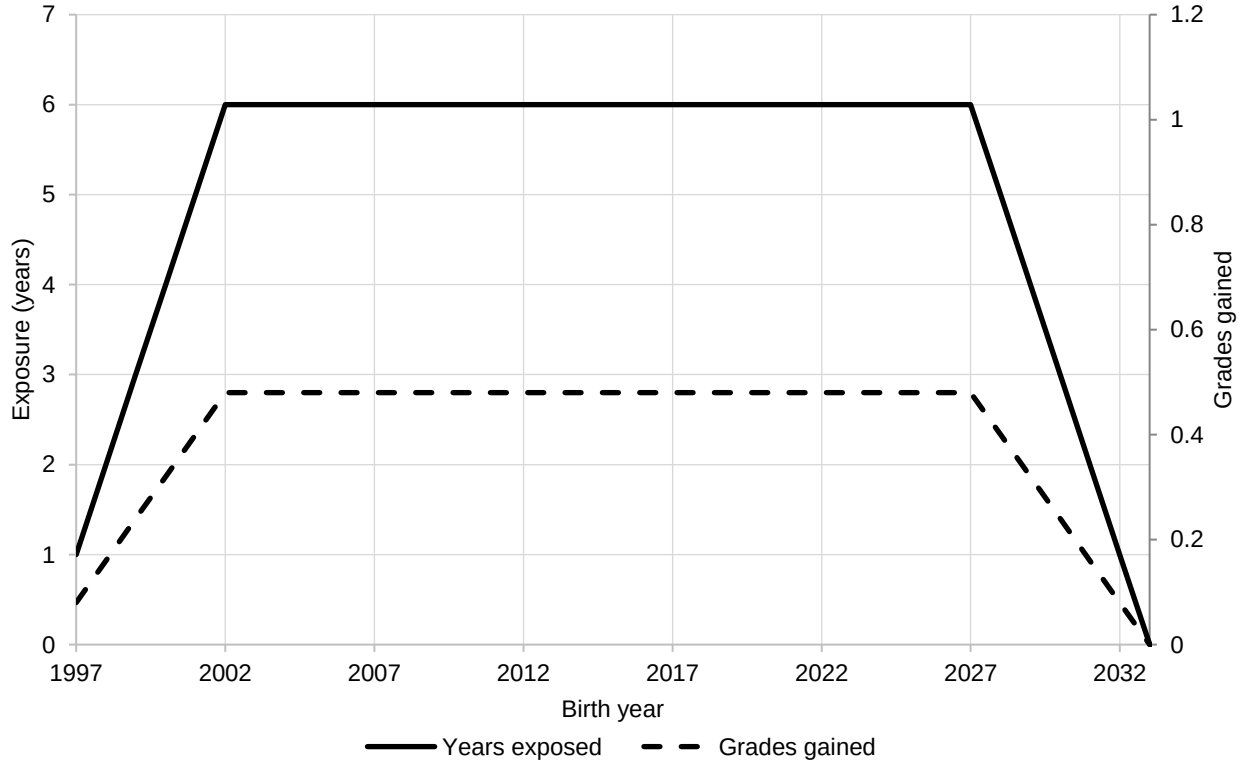
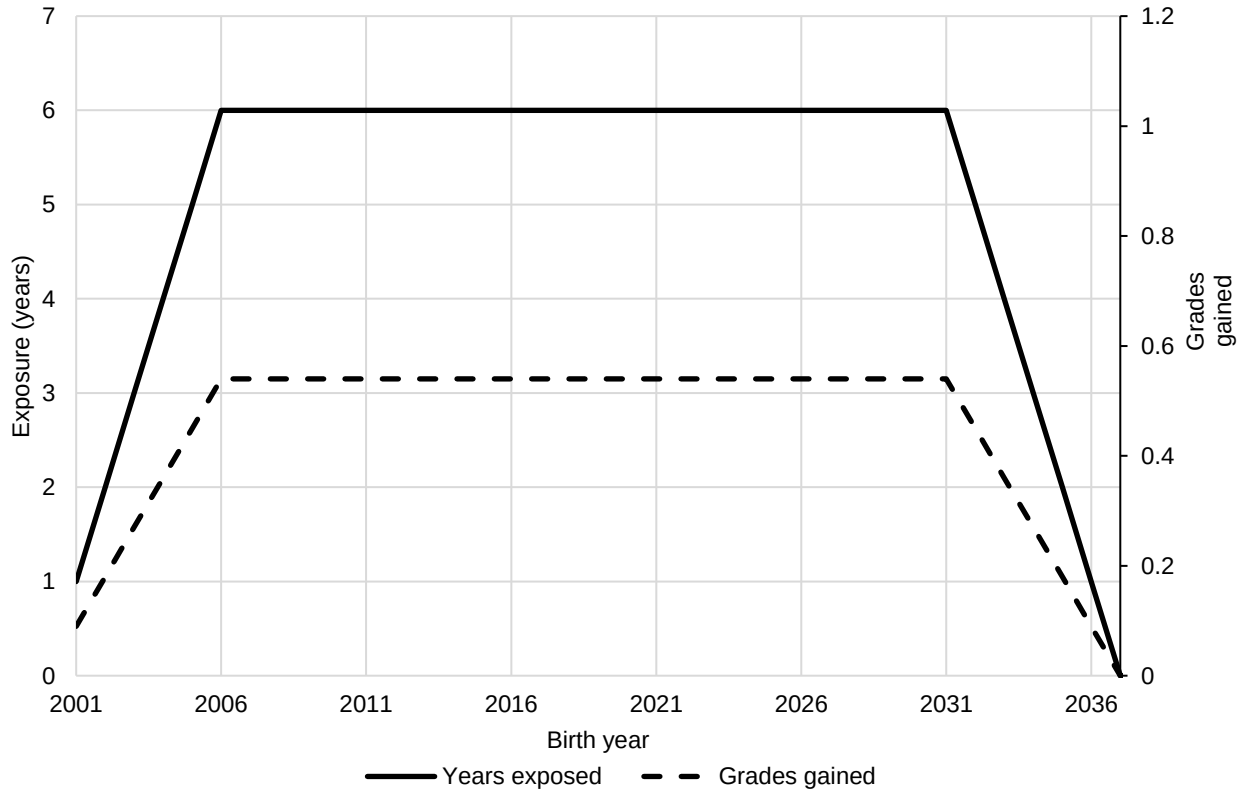


Figure G.2. Exposure by birth cohort to the NECS-only project and resulting additional grades gained



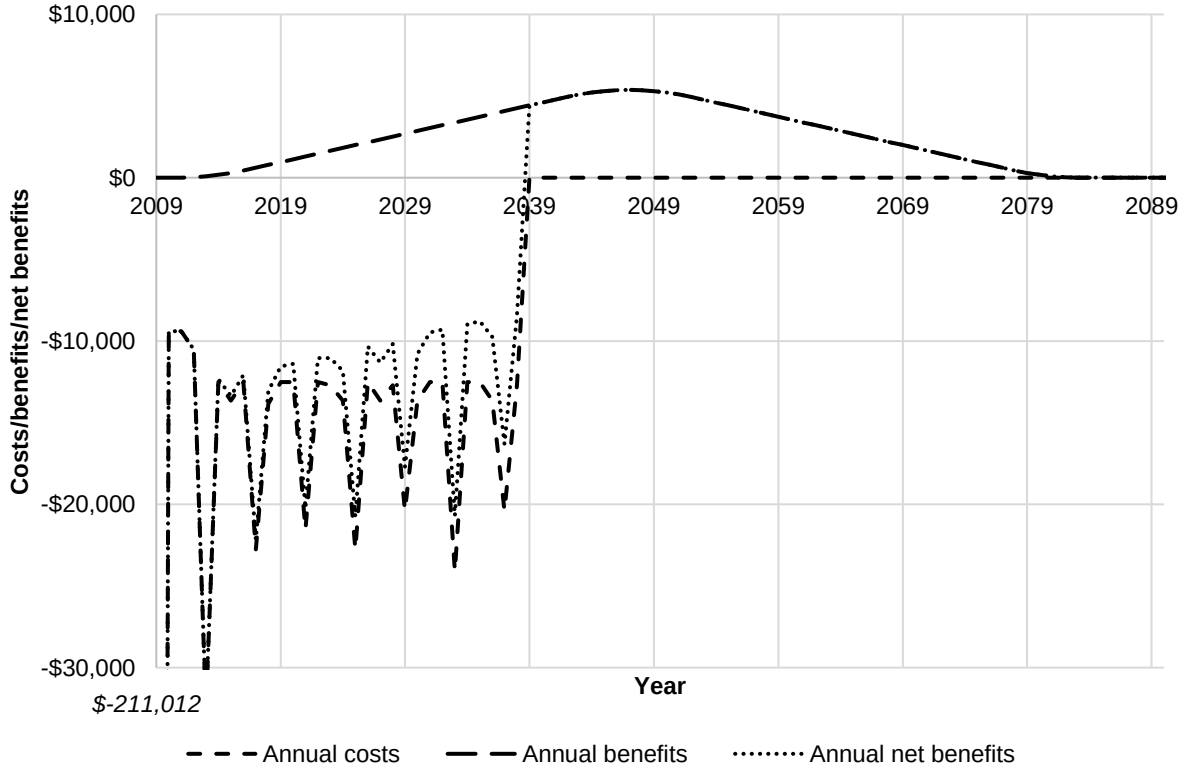
Second, we convert the years of exposure to additional grades gained. Based on the Wave 2 data, we estimate that on average children gained 0.08 additional years of schooling for each year of exposure to NECS & IMAGINE and 0.09 additional years of schooling for each year of exposure to NECS-only (see Table V.5). Children with more years of exposure benefit more from the intervention. Children exposed to all 6 years of the intervention are estimated to gain 0.48 additional grades and 0.54 additional grades for the NECS & IMAGINE and NECS-only projects, respectively. The dashed line in Figures G.1 and G.2 depicts the additional grades gained for the children in each birth cohort for NECS & IMAGINE and NECS-only, respectively.

Third, we calculate the annual marginal benefits for each birth cohort in relation to the assumed average annual earnings of $308 for the working-age population in Niger who are not exposed to the interventions. The calculations of the annual marginal benefits are not shown, but we present examples of the calculations in Table VI.6. For example, the annual marginal benefits for a child in the 1997 NECS & IMAGINE birth cohort, which received one year of exposure to the intervention and attained 0.08 years of schooling as result of exposure to the intervention, are $0.85 of additional earnings per year. We then multiply the child-level benefits by the average birth cohort size per village in the sample, 34, to estimate the annual marginal benefits for the village birth cohort. Thus, the 1997 NECS & IMAGINE birth cohort has a total marginal benefit per village of $0.85 times 34, or $28.90 per year. We assume that these yearly marginal benefits

are realized by the children in the 1997 birth cohort for each of the years they are in the labor market until they exit after 2047, at age 50. Table VI.6 also shows similar estimates for the 2002 NECS & IMAGINE birth cohort, who are exposed to the intervention for 6 years, as well as the 1997 and 2002 birth cohorts in NECS-only villages, who experience an increase of 0.09 years of schooling for every year of exposure to the intervention.

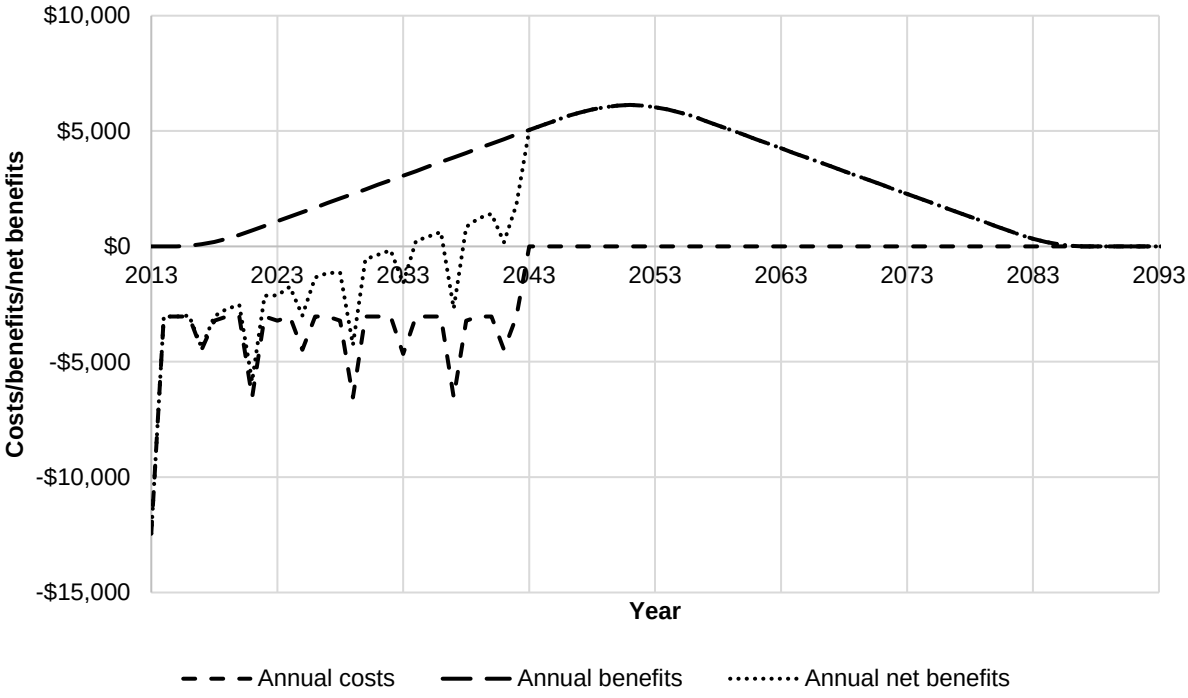
Finally, using the estimates of the marginal benefits for each birth cohort exposed to the 30-year operation of the interventions, we estimate the annual marginal benefits of the intervention for each year the benefits are realized for each intervention, as plotted by the wide dashed line in Figures G.3 and G.4. In each year, the total marginal benefits are the sum of benefits for each birth cohort earning additional earnings in the labor market. So, for example, in 2012, only the 1997 birth cohort experiences an increase in earnings from exposure to the NECS & IMAGINE project, so the marginal benefits of the project in that year are just the marginal benefits earned by that birth cohort. However in 2013, both the 1997 and 1998 birth cohorts are earning more, so the marginal benefits of the project in that year are the sum of the marginal benefits earned by these two birth cohorts. The costs of the programs, as plotted by the narrower dashed line, are high in the first year as a result of fixed costs, fluctuate with periodic costs, and finally reach zero after the 30 year assumed life span of the projects (2039 for NECS & IMAGINE and 2043 for NECS-only).

Figure G.3. Yearly distribution of costs and benefits of NECS & IMAGINE project



Note: Costs and benefits are in 2009 USD.

Figure G.4. Yearly distribution of costs and benefits of NECS-only project



Note: Costs and benefits are in 2009 USD.

3. NPV, cost-benefit ratio, and ERR calculation

To calculate the NPV and cost-benefit ratios for the interventions, the marginal costs and benefits schedules presented in Figures G.3 and G.4 need to be expressed in values in the same period so that they are comparable. We do this by expressing the value of the marginal costs and the benefits at the start of implementation in 2009 for NECS & IMAGINE and 2013 for NECS-only, discounting future costs and benefits in Table VI.7. We use a discount rate of 10 percent, as specified by MCC[1], to calculate the present value of costs and benefits. The NPV is then the present value of the benefits minus the present value of the costs. The cost-benefit ratio is calculated as the NPV of the benefits divided by the NPV of the costs.

The ERR is defined as the discount rate at which the NPV of an intervention is zero. To calculate the ERR of the NECS & IMAGINE and NECS-only projects, we first calculate the NPV of the interventions for all the years in which costs are incurred and benefits are realized. To estimate ERR, we solve for the discount rate that makes the NPV equal to zero. As in the cost-benefit ratio calculations, we calculate ERR for different combinations of benefit and cost scenarios.

[1] "Chapter 5: Guidelines for Economic and Beneficiary Analysis", in Compact Development Guidance. Available at http://www.mcc.gov/pages/docs/doc/guidelines-for-economic-and-beneficiary-analysis#heading3.

4. Robustness checks

The main analysis presented in this report is based on several critical assumptions. To check the robustness of our results, we conduct a sensitivity analysis by varying four of our assumptions—the life span of the schools, the estimated years in the workforce, the returns to an additional year of schooling, and the average income—to examine how sensitive our cost-benefit measures are to these assumptions.

First, we estimate the cost-benefit measures assuming a life span of 40 (the life span assumed in the BRIGHT evaluation) and 50 years for IMAGINE schools.[2] The results are presented in Tables G.9 and G.10, respectively, and are similar to those found using the 30 year life span presented in Table VI.7.

Table G.9. Cost-benefit estimates of the NECS & IMAGINE and NECS-only projects, 40-year life span

	NECS & IMAGINE	NECS-only
Total benefits	$11,912	$13,571
Total costs	$355,701	$32,136
NPV[a]	-$343,789	-$18,565
Cost-benefit ratio[b]	0.03	0.42
ERR[c]	-4%	2%

Note: Costs and benefits are in 2009 USD.

[a]Calculated by subtracting the present value of total costs from the present values of total benefits.

[b]Calculated by dividing the present values of total benefits by the present values of total costs.

[c]This is the discount rate at which the NPV is equal to zero.

Table G.10. Cost-benefit estimates of the NECS & IMAGINE and NECS-only projects, 50-year life span

	NECS & IMAGINE	NECS only
Total benefits	$12,062	$13,742
Total costs	$358,075	$43,314
NPV[a]	-$346,013	-$29,572
Cost-benefit ratio[b]	0.03	0.32
ERR[c]	-4%	2%

Note: Costs and benefits are in 2009 USD.

[a]Calculated by subtracting the present values of total costs from the present values of total benefits.

[b]Calculated by dividing the present values of total benefits by the present values of total costs.

[c]This is the discount rate at which the NPV is equal to zero.

[2] All periodic costs are assumed to continue throughout the full life span of the projects and are assumed to remain constant.

We next test our assumption regarding the number of years that the average person participates in the workforce in Niger. In Table G.11, we check the sensitivity of our cost-benefit results to this assumption by expanding the years of active labor force participation from 35 (age 15-50) to 40 (age 15-55) years. Like with our tests of the life span of the IMAGINE schools, the results are similar to our original findings.

Table G.11. Cost-benefit estimates of the NECS & IMAGINE and NECS-only project, 40 years work lifetime

	NECS & IMAGINE	NECS-only
Total benefits	$11,684	$13,311
Total costs	$355,701	$32,136
NPV[a]	-$344,017	-$18,825
Cost-benefit ratio[b]	0.03	0.41
ERR[c]	-3%	3%

Note: Costs and benefits are in 2009 USD.

[a]Calculated by subtracting the present values of total costs from the present values of total benefits.

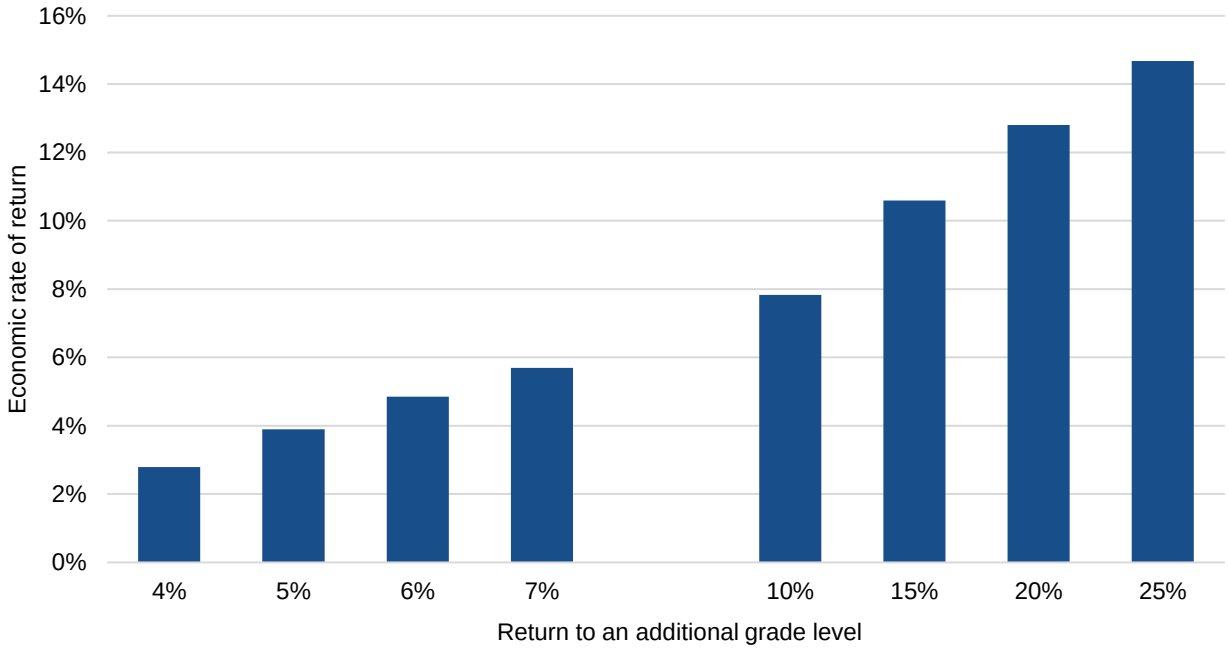
[b]Calculated by dividing the present values of total benefits by the present values of total costs.

[c]This is the discount rate at which the NPV is equal to zero.

Third, we check the sensitivity of our results to our assumption of the average rate of return to an additional year of schooling. In Figures G.5 and G.6, we present the estimated ERR using increasing values of returns to an additional year of schooling for NECS & IMAGINE and NECS-only, respectively. In order for the ERR of the NECS-only project to reach the MCC benchmark rate of 10 percent, the rate of return to an additional year of schooling would need to be over 15 percent, nearly 5 times the assumed rate of 3.5 percent for an additional year of primary education. The average return across all years of schooling from the "MCC Niger Threshold Program Design: Constraints Analysis Final Report" of 7 percent would only result in an ERR for NECS-only of around 5 percent. However the return for each year of schooling at the secondary level is 13.5 percent, which is closer to the returns needed to reach the 10 percent ERR threshold, and suggests that evaluating whether the increases in primary years of schooling persist into secondary school will be important to determining the long-run benefits of the NECS-only project. On the other hand, the estimated ERR of the NECS & IMAGINE project remains below 2 percent with up to a 25 percent rate of return to an additional year of schooling, which suggests that our conclusions regarding the cost-benefit viability of the project are not sensitive to our assumption regarding the returns to education.

Figure G.5. Economic rate of return of NECS & IMAGINE for differing returns to an additional year of schooling

Figure G.6. Economic rate of return of NECS-only for differing returns to an additional year of schooling



Finally, we test the sensitivity of our cost-benefit results to our assumption regarding the annual earnings of the working population in Niger who are not exposed to the interventions. Figures G.7 and G.8 present the ERR of the NECS & IMAGINE and NECS-only interventions for increasing income levels. Similar to our sensitivity checks of the rates of return to education, the ERR estimates for NECS & IMAGINE project remain well below 2 percent for annual income levels up to $1750 (an over five-fold increase over our assumed value of $308). The ERR estimates for the NECS-only project pass the 10 percent ERR threshold with an annual income around $1500 (roughly a five-fold increase). However we do not have any reason to believe that the estimated income that we adopted is 80 percent smaller than the true value of annual income, especially in poorer villages targeted by the IMAGINE and NECS projects.

Figure G.7. Economic rate of return of NECS & IMAGINE for differing average income

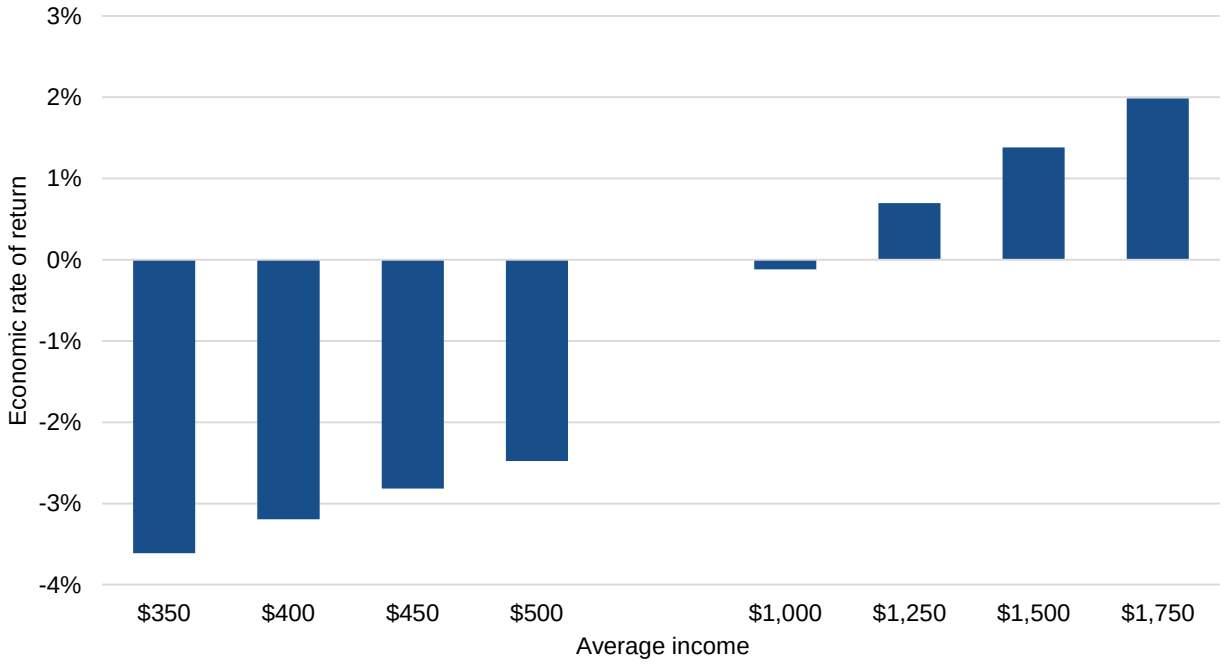
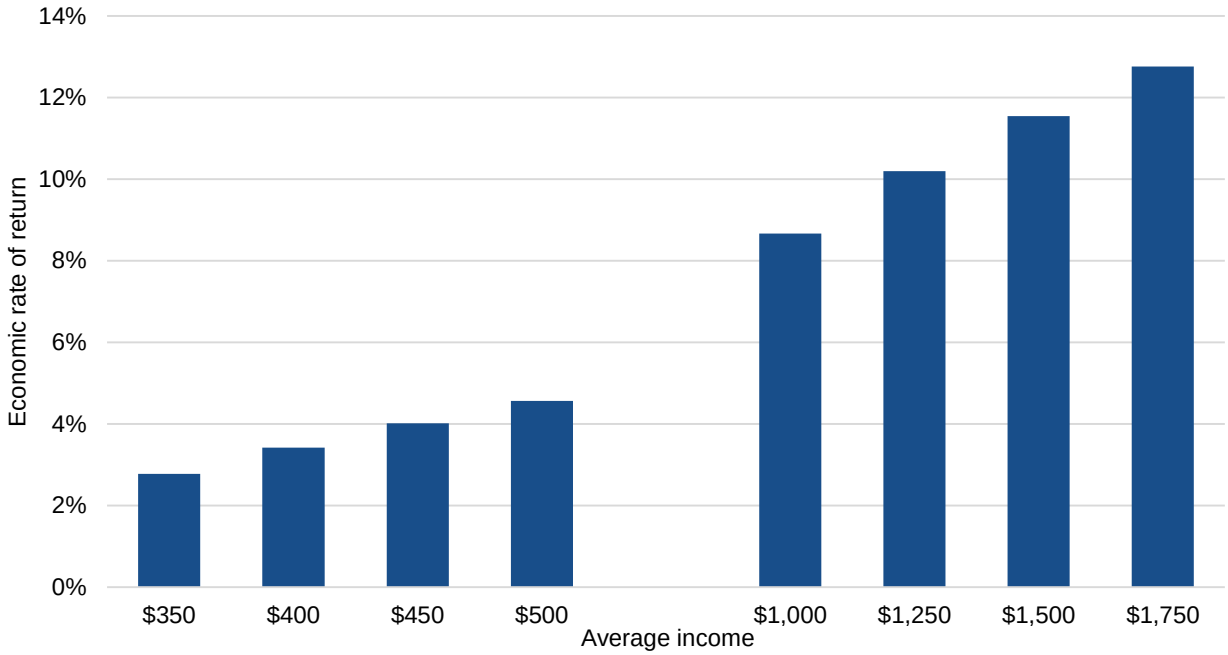


Figure G.8. Economic rate of return of NECS-only for differing average income



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APPENDIX H

STAKEHOLDER STATEMENT OF SUPPORT

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June 14, 2017

Dear Colleagues at Mathematica Policy and Research,

We have received the revised version of the «Niger Education Community Strengthening» (NECS) Impact Evaluation report. After review, we find that our observations and feedback have been taken into account, and we are satisfied with the answers that are given.

Also, we hereby attest that the content of this report on the NECS project's achievements and results is consistent with the reality of the NECS project tin the field.

Furthermore, we testify that the approach adopted for this field evaluation was participatory. Indeed, we participated in all the steps of this evaluation from Niamey, in particular:

- Data collection preparation
- Training of enumerators
- Observation of data collection in a small sample of schools
- Workshop for sharing results.

All the stakeholders were represented satisfactorily in the process, especially the Ministry of Education. We would like to thank Mr. Matt Sloan and Ms. Emilie Bagby who have worked closely with our team on the field.

Sincerely,

Amadou ALI
Chief of Party, NECS

Sarah Havekost
Senior Program Manager, Plan USA

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