



Impact of pre-primary education on school readiness, literacy and numeracy

Progress Report

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1. Introduction

Less than 20% of children in Lao are enrolled in early childhood education, mainly in urban areas. This project aims to analyze the impact of a program developed by the NGO Aide et Action (AEA) on children outcomes and on the quality of preschool environment project. We will use a quasi-experimental research design with selected schools related to AEA intervention in three regions (Vientiane, Bolikhamxay, and Houaphan), and comparison schools in each region. In both the AEA related schools and the comparison schools, a baseline assessment will be made and then a follow-up assessment one year later. This instrument assesses the level of schools readiness in different dimensions: Pre-number Concept, Space concept, Sequential Thinking Skills, Classification of Fruits and Vegetables, Following Instructions, Number/Object Matching, Reading Readiness (Identifies beginning sounds), Pattern Making, Sentence Meaning, Relative comparison (number - greater/lesser). Analyses will test compare students' scores on school type (AEA/non-AEA), region, and gender.

2. Research Design and Method

In this section we provide a brief description of the research design and method. More information on the instruments and interview and focus group questions will be provided upon request. This research program includes the following four studies: (1) understanding organizational processes, (2) examining the quality and products of school-community partnerships, and (4) (3) assessing children's learning outcomes.

(1) Understanding the organizational process of the Preprimary Education Project involves documenting the "process" that can help explain "outcomes". For example, if no difference is found on the outcomes of children we can examine the "process" to see if we have "implementation fidelity". If there were problems in implementation, for example where the implementation was weak or not carried out (because of challenges) we can make recommendations to direct future resources for correcting issues of implementation fidelity. This study would involve individual interviews and a focus group with PMT members, as well as research observations and an examination of archival AEA and Ministry of Education documents.

(2) Examining the quality and products of school-community partnerships addresses a different level of analysis in the organization of the Preprimary Education Project (see Appendix A: the project organizational chart). This study will document engagement strategies and tangible, objective outcomes addressing questions such as (a) how well have schools engaged their community partners? and (b) what have community partners (women's union, village authorities, monks, parent association, and youth organization) contributed to the school (e.g., direction, material resources, human hours of labour, cultural knowledge). The quality of the relationships between schools and the five community partner groups will be assessed using surveys, individual interviews, and researcher observations using a definition of relationship quality that is well established in the research literature on community partnerships.

The primary product of the school-community partnership is the educational environment that will be assessed with the Early Childhood Environment Rating Scale-Revised (ECERS-R). The ECERS-R provides an informative framework concerning the quality of the settings including relationships in that setting. It is a well-developed assessment tool with established reliability and validity and is used internationally study, including modifying questions to be culturally relevant without losing the scale structure. It has been in existence for a long time and kept current with important revisions to reflect relatively recent changes in understanding how "quality" environments are defined. The tool assesses the following seven areas (1) space and furnishings; (2) personal care routines; (3) language reasoning; (4) activities; (5) interactions; (6) program structure; and (7) parents and staff. This study will use quasi-experimental methods to compare early childhood learning environments affected by AEA in three regions with those that are not involved with AEA. Ultimately this study addresses the question whether preschools supported by Aid and Action are better (i.e., of higher quality) than other schools in Laos.

(3) Assessing Child Outcomes. This study will be similar (and comparable) to research we are conducting in Madagascar. We will use a quasi-experimental research design with selected schools related to AEA intervention in three regions (Vientiane province, Bolikhamxay Province, and a Houphan Province) and one comparison school in each region. In both the AEA related schools and the comparison schools, a baseline assessment will be made and then a follow-up assessment one year later. We will sample approximately 50 children at each school; with two schools (one experimental and the other comparison) in three regions approximately 300 children will be assessed twice. Children will be assessed on school readiness, literacy, and numeracy, using the same instrument we are using currently in Madagascar that was adapted from the World Bank. This instrument assesses the level of schools readiness in different dimensions: Pre-number Concept, Space

concept, Sequential Thinking Skills, Classification of Fruits and Vegetables, Following Instructions, Number/Object Matching, Reading Readiness (Identifies beginning sounds), Pattern Making, Sentence Meaning, Relative comparison (number - greater/lesser). Analyses will test compare students' scores on school type (AEA/non-AEA), region, and gender.

3. Instruments for assessment

Students were assessed in their home language on school readiness, numeracy and literacy. In testing for school readiness, students were tested based on 10 concepts listed below that include numeracy and literacy. This measure is representative of a global assessment. Scores range from 0 to 40 with higher scores reflecting greater school readiness.

- Pre-number Concept
- Space concept
- Sequential Thinking Skills
- Classification of Fruits and Vegetables
- Following Instructions
- Number/Object Matching
- Reading Readiness (Identifies beginning sounds)
- Pattern Making
- Sentence Meaning
- Relative comparison (number - greater/lesser)

To explore literacy exclusively, items from two concepts of the School Readiness Instrument were used: reading readiness and sentence meaning. Reading readiness was assessed by a child's ability to identify beginning sounds and to indicate pictures with a similar beginning sound. Children's knowledge in speaking meaningful sentences was tested by asking a child to describe two pictures, and scores reflected the correctness and completeness of a sentence that was also a test of active vocabulary. Scores on this tests range from 0 to 12.

For the purpose of this study a separate assessment of numeracy was conducted. This test is based on a student's ability to count from 1 to 10 and 1 to 20, combined with performance on seven addition tests of magnitude comparison. Students had to distinguish between two piles of physical objects separated by different magnitude (e.g., showing a pile of 3 objects and a second pile of 8 objects and asking students which pile has a greater number of objects

in it). Students received a score of 1 for correctly counting from 1 to 10 and 1 to 20 respectively, and one point was scored for each correct response on the seven items of magnitude comparison for a maximum numeracy score of 9 with a possible score range of 0 to 9.

4. Results

This document reports on levels of school readiness, literacy and numeracy for children in Laos. So far this year, 445 children have been tested in the following five districts: Paksun district, Bolikun district, Thaphabath district, Xummeua district and Viengxay district.

The following numbers of children were assessed:

445 children were tested

277 children in pre-school with school project

153 children in pre-school without a school project

15 children were not in school

196 children were four years old

249 children were five years old

All children assessed were assessed once and combined into one sample. Outcomes and results will be presented as follows:

Part A will focus on the academic skills of children as measured by the "school readiness test" and the "numeracy test." The analysis will answer the following research questions:

1. Is the academic knowledge of children ages 4 and 5 enrolled in preschools with project greater than the academic knowledge of children ages 4 and 5 enrolled in preschools without a project?
2. Is the academic knowledge of children ages 4 and 5 enrolled in preschools with project greater than the academic knowledge of children ages 4 and 5 who are not registered and do not attend a preschool?
 - 2.1 Is the academic knowledge of children ages 4 and 5 who are not registered and do not attend a preschool less than the academic knowledge of children ages 4 and 5 enrolled in preschools without a project?

Part B, will take care of the third and final research question by analyzing the data obtained from the environment test.

- Do preschools that include a project have better conditions than preschools that do not (pertaining to the quality of their furniture, equipment, service, activities, interactions, etc.)?

Part C, will display whether there is an existing correlation between Part A and B, more precisely between the level of school children's knowledge and the conditions of the pre-schools where they are respectively enrolled.

Part A: Comparison between school children's knowledge

The following tables show a summary of all data collected by two academic knowledge assessments in which children were tested. Before presenting them on this table, the data collected was analyzed with the statistical analysis software SPSS.

Table 1 illustrates the exact number of children tested according to gender, age group (pre-school with project, pre-school without project or no pre-school) and their corresponding district.

Table 1

Gender		Age		Group			District				
Girls	Boys	4	5	pre-school with project	pre-school without project	No pre-school	Paksun	Bolikun	Thaphabath	Xummeua	Viengxay
				277 (62.2%)	153 (34.4%)	15 (3.4%)	Total 79 (17.8%)	Total 120 (27.0%)	Total 61 (13.7%)	Total 125 (28.1%)	Total 60 (3.5%)
236 (53.0%)	209 (47.0%)	196 (44.0%)	249 (56.0%)	124 students age 4 (44.76%)	66 students age 4 (43.13%)	6 students age 4 (40%)	Saunsavunh school 14 (3.1%)	Meuangkao school 48 (10.8%) Nakoun school 20 (4.5%)	Hauylerk school 19 (4.3%)	Phanxay school 53 (11.9%) Nanongbua school 34 (7.6%) Nasakang school 13 (2.9%)	Nakai school 36 (8.1%)
				153 students age 5 (55.23%)	87 students age 5 (56.86%)	9 students age 5 (60%)	Eakkaphab school 65 (14.6%)	Not enrolled 52 (11.7%)	Thabok school 42 (9.4%)	Not enrolled 25 (5.7%) Huakang school 10 (2.2%)	Nakao school 24 (5.4%)

Table 2 displays a detailed summary of the averages obtained for each group of children, either in the "school readiness test" or in the "numeracy test." Averages obtained were then changed into percentages to compare the results of both tests (which were represented on two different scales) among children age groups 4 and 5 together; as well as age groups 4 and 5 separately.

The analysis was executed this way because each group has a different number of children ages 4 and 5 and therefore comparing a group's average that holds a higher number of 4 year olds (which are assumed to have less knowledge than 5 year olds), would probably be a disadvantage. This is why the analysis gives more importance to comparisons among the same age group, even though we keep the comparison of children ages 4 and 5 together in order to get an overall view of the results.

Table 2

Means obtained by all children (%) throughout the province					ANOVA		
Age range	Test	pre-school with project	pre-school without project	No pre-school	Pre-school with project = Pap Pre-school without project = Psp No pre-school = PP		
4 and 5 years old (445 students in total)	School readiness	33.85 (SD=11.39)	31.99 (SD=11.03)	29.18 (SD=9.14)	Pap+Psp: F(1,376)=1.11, p=.292	Pap+PP: F(1,290)=2.42, p=.120	Psp+PP: F(1,166)=905, p=.343
	Numeracy	79.54 (SD=21.43)	77.26 (SD=15.15)	78.51 (SD=6.59)	Pap+Psp: F(1,376)=0.02, p=.964	Pap+PP: F(1,290)=0.03, p=.854	Psp+PP: F(1,166)=100, p=.753
4 years old (196 students in total)	School readiness	31.99 (SD=10.92)	29.81 (SD=10.18)	29.27 (SD=6.92)	Pap+Psp: F(1,153)=2.64, p=.106	Pap+PP: F(1,128)=36, p=.548	Psp+PP: F(1,70)=0.01, p=.901
	Numeracy	79.39 (SD=19.20)	72.89 (SD=15.36)	83.33 (SD=6.08)	Pap+Psp: F(1,153)=2.10, p=.149	Pap+PP: F(1,128)=25, p=.618	Psp+PP: F(1,70)=2.70, p=.105
5 years old (249 students in total)	School readiness	35.36 (SD=11.57)	33.64 (SD=11.41)	29.12 (SD=10.79)	Pap+Psp: F(1,221)=4.7, p=.03	Pap+PP: F(1,160)=2.48, p=.117	Psp+PP: F(1,94)=1.28, p=.259
	Numeracy	79.66 (SD=23.14)	80.58 (SD=14.19)	75.30 (SD=4.89)	Pap+Psp: F(1,221)=72, p=.000	Pap+PP: F(1,160)=31, p=.000	Psp+PP: F(1,94)=1.21, p=.272
Means obtained by children (%) in pre-school in each district					ANOVA		
District 1 Paksun district							
Age range	Test	pre-school with project	pre-school without project	Pre-school with project = Pap Pre-school without project = Psp			
4 and 5 years old (79 students in total)	School readiness	33.63 (SD=12.43)	26.83 (SD=10.73)	Pap+Psp: F(1,77)=3.60, p=.061			
	Numeracy	81.02 (SD=13.98)	72.22 (SD=19.36)	Pap+Psp: F(1,77)=3.95, p=.050			
4 years old (53 students in total)	School readiness	32.04 (SD=12.24)	23.58 (SD=8.38)	Pap+Psp: F(1,51)=4.64, p=.036			
	Numeracy	79.10 (SD=12.56)	73.73 (SD=20.04)	Pap+Psp: F(1,51)=1.21, p=.275			
5 years old (26 students in total)	School readiness	36.54 (SD=12.51)	38.73 (SD=11.25)	Pap+Psp: F(1,24)=.08, p=.776			
	Numeracy	84.54 (SD=15.97)	66.66 (SD=19.24)	Pap+Psp: F(1,24)=3.20, p=.086			
District 2 Bolikun district							
Age range	Test	pre-school with project	pre-school without project	Pre-school with project = Pap Pre-school without project = Psp			
4 and 5 years old (120 students in total)	School readiness	38.34 (SD=12.42)	32.20 (SD=10.85)	Pap+Psp: F(1,118)=8.19, p=.005			
	Numeracy	85.18 (SD=17.80)	76.54 (SD=13.77)	Pap+Psp: F(1,118)=8.94, p=.003			
4 years old (51 students in total)	School readiness	34.96 (SD=10.92)	30.96 (SD=10.65)	Pap+Psp: F(1,49)=1.52, p=.223			
	Numeracy	75.69 (SD=24.07)	72.06 (SD=12.16)	Pap+Psp: F(1,49)=.51, p=.476			
5 years old (69 students in total)	School readiness	40.03 (SD=12.94)	33.38 (SD=11.05)	Pap+Psp: F(1,67)=5.30, p=.024			
	Numeracy	89.93 (SD=11.41)	80.78 (SD=14.01)	Pap+Psp: F(1,67)=8.66, p=.004			

Table 2 (cont.)

District 3 Thaphabath district				
Age range	Test	pre-school with project	pre-school without project	Pre-school with project = Pap Pre-school without project = Psp
4 and 5 years old (61 students in total)	School readiness	42 students 31.85 (SD=11.64)	19 students 34.13 (SD=12.22)	Pap+Psp: F(1,59)=.48, p=.487
	Numeracy	46.56 (SD=22.92)	80.70 (SD=14.26)	Pap+Psp: F(1,59)=35.69, p=.000
4 years old (16 students in total)	School readiness	9 students 27.62 (SD=7.61)	7 students 32.43 (SD=9.36)	Pap+Psp: F(1,14)=1.28, p=.276
	Numeracy	46.91 (SD=24.70)	76.19 (SD=14.94)	Pap+Psp: F(1,14)=7.59, p=.015
5 years old (45 students in total)	School readiness	33 students 33.00 (SD=12.36)	12 students 35.13 (SD=13.92)	Pap+Psp: F(1,43)=.24, p=.624
	Numeracy	46.46 (SD=22.81)	83.33 (SD=13.81)	Pap+Psp: F(1,43)=27.42, p=.000
District 4 Xummeua district				
Age range	Test	pre-school with project	pre-school without project	Pre-school with project = Pap Pre-school without project = Psp
4 and 5 years old (110 students in total)	School readiness	87 students 33.33 (SD=9.99)	23 students 32.43 (SD=10.78)	Pap+Psp: F(1,108)=.143, p=.706
	Numeracy	88.25 (SD=14.00)	81.15 (SD=15.51)	Pap+Psp: F(1,108)=4.45, p=.037
4 years old (50 students in total)	School readiness	45 students 33.03 (SD=10.66)	5 students 27.02 (SD=8.10)	Pap+Psp: F(1,48)=1.47, p=.230
	Numeracy	87.65 (SD=15.02)	77.77 (SD=26.05)	Pap+Psp: F(1,48)=1.66, p=.203
5 years old (60 students in total)	School readiness	42 students 33.65 (SD=9.34)	18 students 33.93 (SD=11.13)	Pap+Psp: F(1,58)=.010, p=.921
	Numeracy	88.88 (SD=12.98)	82.09 (SD=12.13)	Pap+Psp: F(1,58)=3.57, p=.064
District 5 Viengxay district				
Age range	Test	pre-school with project	pre-school without project	Pre-school with project = Pap Pre-school without project = Psp
4 and 5 years old (60 students in total)	School readiness	35 students 31.81 (SD=9.74)	25 students 32.21 (SD=11.03)	Pap+Psp: F(1,58)=.022, p=.882
	Numeracy	86.98 (SD=12.19)	76.00 (SD=16.56)	Pap+Psp: F(1,58)=8.76, p=.004
4 years old (20 students in total)	School readiness	12 students 27.25 (SD=7.68)	8 students 32.77 (SD=10.46)	Pap+Psp: F(1,18)=1.85, p=.190
	Numeracy	78.70 (SD=15.32)	69.44 (SD=16.53)	Pap+Psp: F(1,18)=1.64, p=.216
5 years old (40 students in total)	School readiness	23 students 34.19 (SD=10.00)	17 students 31.95 (SD=11.59)	Pap+Psp: F(1,38)=.428, p=.517
	Numeracy	91.30 (SD=7.45)	79.08 (SD=16.14)	Pap+Psp: F(1,38)=10.28, p=.003

In the center part of each box of results on the table, we find once again the means (and relative standard errors) for all three age groups, but this time they are divided among each district in order to compare all three districts between them as well as each school with project and without. When testing among preschools with project and without project only, children who are not in pre-school are not present. To the right of the table you can see the other statistical values obtained with the ANOVA test and their significance.

As stated, the table above answers research questions one and two. These data will therefore be discussed in more depth below and will be represented by graphs.

Research Question 1: Is the academic knowledge of children ages 4 and 5 enrolled in preschools with project greater than the academic knowledge of children ages 4 and 5 enrolled in preschools without a project?

In order to determine whether academic knowledge of children attending preschool with a project have a higher knowledge level than children enrolled in a preschool without the project, we can start by comparing the results of two tests for all children ages 4 and 5.

Both, the "school readiness test" and the "numeracy test" display that students enrolled in preschools with the project obtained higher scores than students enrolled in preschool without a project by about 5%, a difference which are also statistically significant.

Even if we compare only the scores of children in the age group 5, the differences are statistically significant and about 6% higher for preschool children in a school with the support of the project. However, if we compare the results of children aged 4, the only difference is statistically significant for the "School readiness test" where school children in a preschool with project achieved higher scores reaching about 6% compared to pre-school children without the project. Indeed, in gray, the table shows that the difference for the "numeracy test" was not statistically significant. We can assume that students who attend schools without the project can attain good knowledge with respect to numbers; on the contrary we will see later that four children who are not enrolled in pre-school have roughly the same scores.

In conclusion, it may be stated that school knowledge of older 4 and 5 children enrolled in preschools with the project tend to be significantly higher than those of children aged 4 and 5 who are enrolled in preschools without the project.

Research Question 2.1: Is the academic skills of children aged 4 and 5 enrolled in preschools with the project greater than the academic skills of children aged 4 and 5 who are not registered and do not attend preschool?

If we compare scores for children aged 4 and 5, we see that for both tests, children enrolled in a preschool with the project scored higher than those who are not enrolled in pre-school. Indeed there is a statistically significant difference greater than 10%.

Even if we compare the averages of pre-school children aged 5 only with pre-school project and those without the project, we see that for both tests, children enrolled in pre-school have higher scores by about 13% and are statistically significant. On the contrary, if

we take the scores of children aged 4, only those of "School readiness test" are statistically significant, with 8.6% more for children aged 4 who are pre-schooled.

One can therefore ask whether knowledge measured with the "numeracy test" among children of the three groups, has no significant difference since knowledge should be acquired in any case, regardless of the conditions in which they are enrolled or regardless of whether they are educated or not. On the contrary, we must acknowledge that between the scores of children aged 5 there are differences. An explanation could be that in the "numeracy test" children aged 4 got most of the scores in activities where they had to compare quantities (concept of "big / small" or "more / less" that can also learn by not attending preschool), so the most difficult activities were those that asked to count to 10 and 20, activities indeed are ambitious for children aged 4, but according to the conditions in which they are enrolled and depending on whether they are educated or not, can make a difference for children aged 5.

In any case it can be concluded that school knowledge of older 4 and 5 children enrolled in preschools with the project are superior to those of children who do not attend preschool. In addition, unlike the comparison between school knowledge of children with and without the project, this difference is highly visible and even stronger statistical significance.

Research Question 2.2: Is the academic skills of children aged 4 and 5 who are not registered and do not attend preschool less than the academic skills of children aged 4 and 5 enrolled in preschools without a project?

Here you can see if the knowledge of pre-school children who are in school without a project are in any case higher than those not pre-school children and to what extent.

Among children aged 4 and 5 those school scored significantly higher (5%) the "school readiness test" against by the difference was not significant for the scores of "numeracy test."

If we look only scores of children aged 5 are the two differences to be significant, with 6.7% more for the "school readiness test" and 9.2% more for "numeracy test," always in favor of school children.

However in comparing the scores of four children is not obtained differences material in each test.

We can conclude that the scores of children who are enrolled in a preschool without project exceed those of non-pre-school children only for children under 5. Indeed we can also see that in the comparison between non-pre-school children and those with school project, if we look only ages 5 and 4 separately, 3 graphics were 4 to be significant (2

children aged 5 and 1 for children aged 4), and all with a statistical significance of .000. By cons, if not pre-school children with pupils in schools without this project are only half of the graphics to be statistically significant (only 2 to age 5), more statistical significance compared are never of .000.

Part B: comparison of the conditions of preschools

(Research question 3)

In this table we find this both a summary of the results obtained with the test environment passed within 6 schools. In the first part of the table there are the averages of scores from schools with and without the project in each of the seven categories of the rating scale for the preschool environment. Here we also find the final average of schools with the project and without which, by cons is the average of all items noted and it is not the average of the averages in each category. Indeed, the instrument come to harvest given suggests, one must consider that some categories are worth more because they are composed of a major number of items. To the right of this section there are also other statistical values such meaning. In the lower parts of the table are the averages of schools with and without project for each district, where we could compare school with and without the project in each district and the district between them.

Research Question 3: Are preschools who support the project better conditions preschools who did not (relative to the quality of the furniture and furnishings, equipment, service , activities, interactions, ...)?

If the results obtained with the test environment by the project and preschools with those obtained by the schools without comparing, we see that each item in preschools with project achieved higher scores. Indeed, comparing the final averages, we find that schools with project significantly better schools without conditions ($p = 0.014$), with a higher average of 0.77, so almost 1 point on we could get up to 6 . We can consider that this comparison is valid for all schools with the project and all schools without because for both groups was low standard Deviation ($SD = 0.29$ between the average school project with ET = 0.12 between those of free schools) and therefore the final average scores of the two groups really represent the situation of all schools who belong.

Categories where there is a statistically significant difference between schools with and without project "furniture and furnishings", "language and reasoning", "service structure" and "parents and staff."

If we analyze more depth each category where there is a statistically significant difference by looking at the differences in the averages for each item, the category "furniture and

furnishings" has achieved superior results especially in the item "material shown to children." Indeed schools project with more images, teaching and not, displayed on the walls. By cons with respect to this category, all the schools, or with and without the project, have not proved adequate in relation to the development of local mainly because it is no corners or specific areas where children can play . Indeed we can see that, although this category with a statistically significant difference between the results of schools with and without the project, the items

"Planning for the local game" and "space for privacy" received the same average. In the "language and reasoning" is the item "" books and pictures "which got a score difference. Indeed one of the biggest differences I have observed is that in schools with the support of the project there is more material of every kind, including books, against which by some schools without the project were not all present. In the category "service structure" the major difference between the two averages is given of the item "time"; Indeed I have observed that schools with project more structured and full days, and because they seem to follow a schedule that some have

also displayed. By cons in this category items "free play" and "bundling" got almost the same average and effectively in both situations there really very few toys available for children (and even if their children cannot almost never "make free play") and children tend to have a larger group stay together for the entire day. Versus

"Parents and staff" last category where there are significantly higher for preschools with project results, items with more difference are "supervision and evaluation of staff" and "professional development opportunities". Indeed school teachers with project have more opportunities to attend training courses, for example during the summer, and longer receive feedback in relation to their teaching abilities. By cons items relative to professional and personal needs of teachers have got almost the same scores in both situations because in fact they work in almost the same conditions (eg no places for their belongings, and a break toilet divided the children).

Categories that are not a statistically significant difference between schools with and without project "personal care", "activities" And " interactions ".

Versus "personal care" situation observed is almost the same in all schools, especially in relation to the items' toilet and changing diapers ", " rest and nap "and" meals and snacks "where conditions were the same (eg, as in some schools with the project, the children eat and sleep on the ground, urinate in the garden all together in little toilets available, have no soap available and general sanitary conditions are not appropriate). Even compared to the category "activities", where there is no statistically significant difference between

schools with and without project situation actually seems the same: no school has equipment for fine motor skills and symbolic play, by against schools with project once again have some material in addition to that given their superiors in the items "arts", "music and body language" and "TV, video and computers' scores. Even compared to the category "interactions" there are no great differences, especially with respect to the item "discipline"; Indeed example I saw that teachers used a ruler to threaten the children in both schools.

In conclusion, although there is still a lot of toiling laboriously to do because in general the scores are in any case very low and there are categories where the project does not lead to significant differences, since in four categories on 7 project with schools scored significantly higher in those schools without scores, it can be concluded that the conditions of preschools with the project are better.

Part C: relationship between the level of school children's knowledge and conditions preschools

As we saw in Part A of the AeA and MoE project, according to the results obtained by the "school readiness test" and "numeracy test" has beneficial effects on school children's knowledge. More in Part B it was found that, according to the pre-test environment, schools with this project have actually improved with various initiatives put in place conditions. Can we see the links between these two results?

If con compares, for all children aged 4 and 5 enrolled in schools with and without the project, the results of tests of academic knowledge and test environment there is a positive correlation between the two variables, ie that when the test scores of the environment increase, even scores of "numeracy test", the "school readiness test" (and even those of "school knowledge" which is an average of the average of the two tests) increase . This correlation is particularly strong for the "school readiness test" ($r = .24$).

Indeed we can see these links between the conditions of the Early Childhood Environment and children's learning even if you look at the scores of school knowledge of children 5 and 4 schools with the project: we see that the district has received scores best is the first, and even for the test environment, with the best school project was one of the first district. A second, compared to test the environment, there is the third district and then the second: this order is also the same for the scores of academic skills of children aged 5.

Even if the test results of the school environment free schools project we see the results of academic skills of children aged 5 once again follow the same order is taken. Again children aged 5 seem to be more representative of those aged 4 may also be because the tests are more adapted to this age, against children by age 4 tended to have more similar

scores regardless of the conditions (with or without the project). Indeed, if we compare the deviations between the mean of three groups of school knowledge (with pre-school project, and not without pre-school) we see that children aged 5 (SD = 6.84) have a standard deviation that is almost double that of the age group 4 (SD = 3.52).

You can see the links between environmental conditions and school children's knowledge even if we compare for each district, scores of school children's knowledge and test scores of the school environment with project from that without. As can be seen in Part A of the analysis, the first district is the only to have statistically significant differences for either the "school readiness test" for the

"Numeracy test" and in both age groups. Indeed, even here one can observe that the first district is the district where there is no difference between the school and the school with the project without or with respect to academic skills of children aged 4 and 5, but also in relation to test environment, where indeed with school project received 1.1 points more.

In conclusion it may be stated that schools that have the best conditions resulting from the test environment also tend to have better academic skills by schools against which the test environment obtained lower scores are those also tend to have children who, according to the "school readiness test" and "numeracy test", have lower academic knowledge.

5. Conclusion

Four key lessons were learned from the interim analysis of research data.

1. Children who attend pre-primary school in Laos and have higher cognitive skills than children who are not in pre-primary classes. This advantage is more significant in school readiness compared to numeracy.
2. The children attending pre-primary classes supported by an educational project of the NGO Aide et Action have higher cognitive and academic development compared to children attending classes in regular schools.
3. Schools supported by Aide et Action have a more favorable learning environment compared to regular public schools
4. The results of the research show the need to increase the quality of early childhood in Lao by increasing parent involvement and partnerships between stakeholders (Ministries of education, NGO, International organizations).