Conférence des ministres de l'Éducation
des États et gouvernements de la Francophonie

Ministry of Education,
Youth and Sport of Cambodia

School Performance and Factors of Public Primary Education Quality in the Kingdom of Cambodia

Diagnostic Evaluation Report Cambodia 2011/2012

PASEC

CONFEMEN Programme for the Analysis of Education Systems

School Performance and Factors of Public Primary Education Quality in the Kingdom of Cambodia

Diagnostic Evaluation Report 2011/2012

PASEC
CONFEMEN Programme for the Analysis of Education Systems

Please cite as follows:

PASEC (2014). *School Performance and Factors of Public Primary Education Quality in the Kingdom of Cambodia. Diagnostic Evaluation Report - Cambodia 2011/2012.* Dakar: CONFEMEN.

Published by PASEC
BP 3220, Dakar (Senegal)
ISBN: 92-91-33-157-0
Cover photo © Global Partnership for Education
Graphic design and layout:
Marie-Anne O'Reilly

ACKNOWLEDGEMENTS

This report is the result of collaboration between the CONFEMEN Programme for the Analysis of Education Systems team and the national PASEC team of the Ministry of Education, Youth and Sport of Cambodia.

PASEC Team:

- Mr. Jacques MALPEL, Coordinator;
- Mrs. Aurore DU ROY, Technical Advisor;
- Mr. René ESSIANE, Technical Advisor;
- Mr. Hilaire HOUNKPODOTE, Technical Advisor;
- M. Oswald KOUSSIHOUEDE, Technical Advisor, Head of the Data and Statistical Analysis Management division;
- Mr. Antoine MARIVIN, Technical Advisor;
- Mr. Moussa HAMANI OUNTENI, Technical Advisor;
- Mrs. Vanessa Aye SY, Technical Advisor, Head of the Instruments and Data Collection Processes division; and
- Mr. Bassile Zavier TANKEU, Technical Advisor.

National Team:

- Mr. Sam Or ANGKEAROAT, national CONFEMEN correspondent;
- Mr. Feu S.E.M. Neang MUTH, Advisor to the Minister;
- Mrs. Neary KAN, member of the national team;
- Mrs. Kimha SENG, member of the national team;
- Mr. Vannea CHOU, member of the national team;
- Mr. Sar NAK, member of the national team; and
- Mr. Khlok VIRA, member of the national team.

The authors wish to thank the following people for their involvement in the elaboration of this report:

- Mr. Jean-Claude EMIN and Mr. Christian MONSEUR, members of the PASEC Scientific Committee;
- Mr. Boureima Jacques KI, CONFEMEN Secretary General, as well as all the members of the CONFEMEN Permanent Technical Secretariat;
- The Ministry of Education, Youth and Sport of Cambodia; and
- The directors, teachers and pupils of the schools targeted by the survey.

Table of Content

List of Acronyms and Abbreviations

CONFEMEN	Conférence des ministres de l'Éducation des États et gouvernements de la Francophonie (Conference of the Ministers of Education of French-Speaking Countries)
EFA	Education for All
GDP	Gross domestic product
HLM	Hierarchical Linear Model
IRT	Item Response Theory
MCA	Multiple Correspondence Analysis
MDG	Millennium Development Goals
MOEYS	Ministry of Education, Youth and Sport
NGO	Nongovernmental organization
OCDE	Organization for Economic Cooperation and Development
PASEC	CONFEMEN Programme for the Analysis of Education Systems
PISA	Program for International Student Assessment
SEG	Socioeconomic group
TIMSS	Trends in International Mathematics and Science Study
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund

List of Tables

List of Figures and Boxes

List of Annexes

Summary

A diagnostic evaluation was carried out in Cambodia by the CONFEMEN Programme for the Analysis of Education Systems (PASEC) during the 2011/2012 academic year. This evaluation consisted in data collection (undertaken in December 2011) from Grade 2, Grade 3, Grade 5 and Grade 6 classes. Data was collected on pupils and school directors, as well as the school and extracurricular learning environments. The study evaluated competencies in the language of instruction (Khmer) and mathematics. This summary presents the main findings of the evaluation.

1. Pupils' Progress at the Beginning and End of the Primary Cycle

The Cambodian education system enables pupils to progress significantly during an academic year, both at the beginning and end of the primary cycle. Progress observed between Grade 2 and Grade 3 is more pronounced than between Grade 5 and Grade 6 [1]: 48.2 points in Khmer and 31.6 points in mathematics at the beginning of the primary cycle, versus 27.8 and 25 points respectively at the end of the primary cycle.

Photo © Global Partnership for Education

2. Pupils' Knowledge and Know-How at Primary School in Cambodia

Khmer tests enable a general appraisal of pupils' competencies. At the beginning of the primary cycle (Grades 2 and 3), these tests evaluate the ease with which young learners perform deciphering, decoding, listening comprehension and reading comprehension exercises. At the end of the cycle (Grades 5 and 6), the tests evaluate writing skills as well as listening and reading comprehension. In the mathematics test, pupils at the beginning of the cycle are required to calculate, trace shapes, measure and solve problems. At the end of the cycle, these tests assess pupils' ability to perform a simple operation, recognize the properties of a geometric shape, trace a simple geometric shape, compare and complete data tables, solve a problem requiring several operations and so on.

[1] Evaluations were carried out at the beginning of the academic year.

The following table presents the results obtained from the December 2011 evaluations:

Table 1: Pupils' Knowledge and Know-How in Grades 2 and 5

	Pupils' Competencies after 2 Years of Schooling	Pupils' Competencies after 5 Years of Schooling
Khmer	**Strengths** • 67% of pupils acquire the core competencies expected at the beginning of the primary cycle[2]	**Strengths** • 24% of pupils master the competencies expected of them at the end of primary school; they can understand texts in-depth and write pertinent answers with appropriate syntax • 61% have an intermediate level: they can usually grasp the main idea of a text and interpret a long text (20 lines or more), write using every day or more advanced vocabulary and produce pertinent written answers but make some mistakes in terms of syntax
	Aspects to Improve • 12% of pupils face great difficulties: they can hardly decipher and understand a text to retrieve explicit information • 21% have an intermediate level: they can read a short text and find information but cannot analyze or interpret it	**Aspects to Improve** • 15% of pupils have insufficient knowledge of the language: comprehension of medium-length or long texts remains limited, their written answers contain a small range of vocabulary and many mistakes in terms of syntax
Mathematics	**Strengths** • 53% of pupils acquire the core competencies expected, and can solve problems requiring several simple operations and with numbers greater than 20 • 36% have an intermediate level and acquire most of the core competencies even though they have difficulties solving certain problems	**Strengths** • 43% of pupils acquire the majority of core competencies expected of them at the end of primary • 39% have an intermediate level: they can solve concrete problems although they have difficulties with abstract problems requiring several operations
	Aspects to Improve • 6% of pupils face great difficulties: they can hardly count up to 20 • Another 6% acquire a low level of competency: they can count up to 20 (sometimes even 100), add and subtract but cannot solve a simple problem or multiply	**Aspects to Improve** • 19% of pupils do not master the competencies expected of them at the end of primary, be it in arithmetic, reasoning or problem solving

3. Factors of Education Quality in Public Primary Schools in Cambodia

The diagnostic evaluation investigated several factors which influence education quality. The results presented here are obtained from analyses in which the influence of other factors (linked to the school and extracurricular contexts in particular) is taken into account.

[2] Meaning the minimum basic competencies, recognized by psychopedagogy experts, that are expected in the first grades of primary school, namely: recognizing letters, being able to decipher and understand a short sentence or text and performing simple interpretations and analyses, such as finding who the main character in a text is for example.

– *Socioeconomic Status of Households and Pupils*

Pupils from the wealthier households perform better than those from the more vulnerable households. It appears that schools are unable to bridge the gap between the performance levels of pupils with different socioeconomic status, since the same inequalities prevail at the beginning and end of the primary cycle.

Schools which are attended on average by pupils from the wealthier households perform better than schools attended by pupils with a low socioeconomic status. Schools which are better provided for in terms of teaching resources and infrastructure (which are also usually the schools attended by pupils from the wealthiest households) also achieve better results. Furthermore, the correlation between socioeconomic status and learning outcomes seems to be stronger at the school level than at the pupil level.

Area of residence does not strengthen the relationship which is observed between socioeconomic status and a pupil's performance. However, 70 percent of pupils living in rural areas have low socioeconomic status and attend schools which are less well provided for in terms of infrastructure than those in urban areas, which explains why pupils from rural areas seem to achieve poorer results in the evaluation tests.

– *Pupils' Gender*

Girls perform better than boys in both Khmer and mathematics at the end of the primary cycle. Girls also display higher promotion rates as well as lower repetition and dropout rates.

– *Parental Involvement in Homework*

Parental supervision at home contributes to learning outcomes and this influence is more pronounced at the beginning of the primary cycle than at the end, and especially in mathematics (approximately 55 percent of pupils at the beginning of the primary cycle get some help from their parents and these pupils achieve better results than their classmates).

– *Repetition*

Repetition rates vary according to whether pupils live in rural or urban areas and on their socioeconomic status. It affects pupils living outside urban areas to a greater extent. The higher frequency of repetition can be explained in part by the lower performance of pupils in these areas.

It is also noted that boys repeat slightly more than girls, irrespective of grade, and that the frequency of repetition is higher (especially at the end of the primary cycle) among pupils from the most vulnerable households than among those from the wealthier households.

Furthermore, pupils at the end of the primary cycle who have repeated several times perform significantly less well than those who have repeated less or those who have progressed through the grades normally.

– *Relationship between Competency in the Language of Instruction and Competency in Mathematics*

Pupils who perform best in Khmer are also those who perform best in mathematics, irrespective of grade. A sound grounding in the language of instruction is required for pupils to achieve good results in mathematics (understanding the exercise instructions).

– *Partnerships*

The involvement of various partners in primary school activities contributes to setting up conditions which are favorable for learning outcomes. Some primary schools have established several different partnerships which either provide support with day-to-day schooling or ad-hoc assistance of another kind. It would seem that support provided to the schools in the sample has come mainly in the form of equipment (42 percent) and infrastructure (25 percent).

– *Parental Involvement in School Activities*

The involvement of parents in school activities proves beneficial for pupils. Analyses have demonstrated that the existence of an active parent-teacher association in a school is associated with higher mathematics scores among pupils at the beginning of the primary cycle.

Chapter 1:

Cambodia's Education System

Cambodia is located in Southeast Asia and has a total landmass of 181,035 km^2. Eight years of civil war (1967-1975) were followed by Khmer Rouge rule before peace and then political stability were restored in 1991. This marked the beginning of the country's reconstruction and development efforts. With regard to education, Cambodia has committed to pursuing the Millennium Development Goals (MDG) adopted by the United Nations in September 2000, as well as the Education for All (EFA) goals adopted during the World Education Forum held in Dakar in the same year.

The country's numerous commitments continue to face several obstacles, many of which stem from the aftermath of war. Children living in the worst affected areas such as Khmer-Thai border areas still run the risk on a daily basis of stepping on an antipersonnel mine while collecting wood or taking their animals to pasture. The presence of these mines also means that many children are confronted with the loss of family members. Their access to school is thus not fully guaranteed as yet.

Photo © Global Partnership for Education

1. An Education System Marked by Geographic, Cultural and Linguistic Disparities

Cambodia had a population of 14.5 million inhabitants in 2012.[3] The growth rate evolved from 1.54 percent in 2008 to 1.32 percent in 2012. Since 2008, Cambodia is divided into 24 administrative divisions: the capital Phnom Penh and 23 provinces. The population and density of each administrative division is listed in the table below:

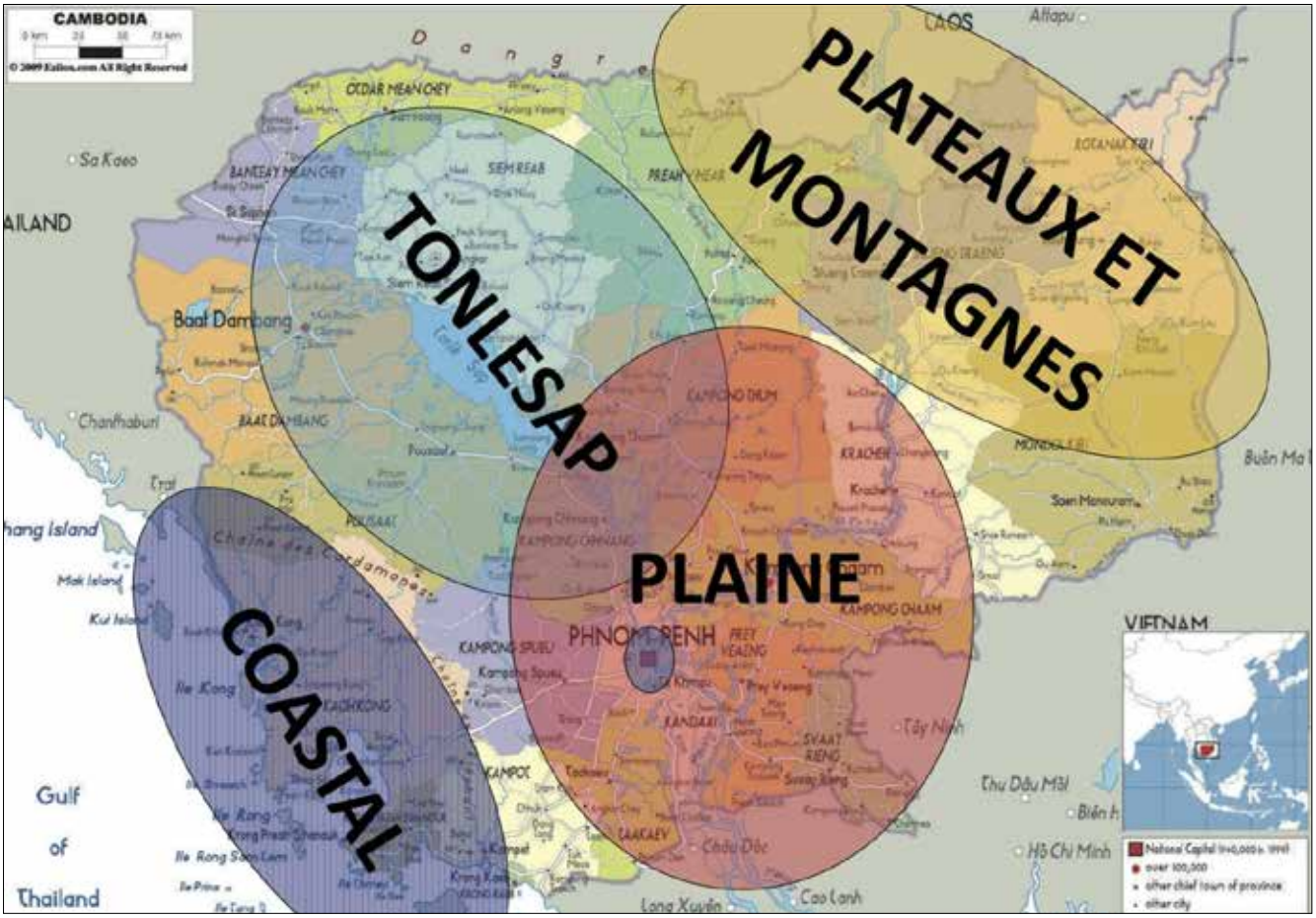
Table 2: Cambodian Administrative Divisions

Administrative Divisions	City	Population (2008)	Density (Inhabitants/km²)	% of Total Population
Banteay Mean Chey	Sisophon	678 033	101.5	4.82 %
Battambang	Battambang	1 024 663	87.6	7.29 %
Kampong Cham	Kampong Cham	1 680 694	171.5	11.95 %
Kampong Chhnang	Kampong Chhnang	471 616	85.4	3.35 %
Kampong Speu	Chhbar Mon	716 517	102.1	5.10 %
Kampong Thom	Kampong Thom	630 803	45.7	4.50 %
Kampot	Kampot	585 110	120.1	4.16 %
Kandal	Ta Khmaou	1 265 085	354.6	9.00 %
Kep	Kep	35 753	106.4	0.25 %
Koh Kong	Krong Koh Kong	139 722	12.5	0.99 %
Kratie	Kratie	318 523	28.7	2.27 %
Mondulkiri	Senmonorom	60 811	4.3	0.43 %
Oddar Mean Chey	Phum Samrong	185 443	30.1	1.32 %
Païlin	Païlin	70 482	87.8	0.50 %
Phnom Penh		2 000 064	6 896.8	14.22 %
Preah Vihear	Tbeng Mean Chey	170 852	12.4	1.21 %
Prey Veng	Prey Veng	947 357	194.0	6.74 %
Pursat	Pursat	397 107	31.3	2.82 %
Rottanakiri	Ban Lung	149 997	13.9	1.07 %
Siem Reap	Siem Reap	896 309	87.0	6.37 %
Sihanoukville	Kampong Som	199 902	230.3	1.42 %
Stoeung Treng	Stoeung Treng	111 734	10.1	0.79 %
Svay Rieng	Svay Rieng	482 785	162.8	3.43 %
Takeo	Daun Keo	843 931	236.9	6.00 %
Total		**14 063 293**		**100.00 %**

[3] Ministry of Planning: National Strategic Development Plan, 2009-2013 Update.

The map below shows the main regions targeted by the survey.[4]

Map of the Layout of Priority Education Areas Targeted by the Survey



Source : http://www.ezilon.com/maps/asia/cambodia-maps.html

– *Urbanization*

The urban population represents 19.5 percent of an estimated total population of 14.5 million, according to the census carried out in March 2008.[5]

– *Ethnic Distribution*

Khmers represent 90 percent of the population. The minority ethnic groups are: Vietnamese (5 percent), Cham (2 percent), Chinese (1.9 percent), Kuy (0.2 percent), Mnong and Phnong (0.2 percent), Tampuan (0.2 percent), Laotian (0.2 percent), Jarai (0.1 percent), Kroeung (0.1 percent), Malay (0.1 percent), Thai (0.1 percent) and Chong (0.1 percent).

[4] The sixth level, representing urban areas such as the administrative centers of the administrative divisions, is not shown on the map.

[5] Ministry of Planning (2010): National Strategic Development Plan, 2009-2013 Update.

– *Other Sociodemographic Characteristics*

The Cambodian population is characterized as follows:

- Women represented 51.2 percent of the population in 2011.
- As is the case in many Asian countries, Cambodia has a young population: 33.6 percent of the population is under 15 years of age, 62.47 percent of the population is between 15 and 54 years of age and 3.88 percent of the population is older than 65 years.[6]
- In 2011, life expectancy at birth was estimated to be 62.04 years for men and 68.38 years for women.[7]
- In 2008, the crude birthrate was 25.7 percent and the crude death rate was 8.2 percent.
- At the national level, the total number of children per woman is estimated at 3.1.

– *Preprimary and Primary School-Aged Population*

The population of primary school-aged children fell from 2,062,547 in 2006 to 1,738,122 in 2012.

Table 3: Population of School-Aged Children from 2005 to 2011[8]

Year	Population of Official Primary School Access Age (6 Years Old)		Primary School-Aged Population (6-11 Years Old)	
	Total	Girls	Total	Girls
2005/2006	330 005	163 111	2 062 547	1 019 990
2006/2007	323 089	156 743	2 005 244	973 424
2007/2008	274 019	132 566	1 895 209	908 861
2008/2009	301 604	146 895	1 882 658	908 148
2009/2010	279 649	137 080	1 787 417	872 898
2010/2011	320 695	155 336	1 889 421	916 155
2011/2012	275 300	134 638	1 738 122	849 071

– *Languages Spoken and Languages Taught*

In accordance with Article 5 of the national constitution, Khmer is the official language and is spoken by over 90 percent of the population. The remaining 10 percent are isolated ethnic minorities and immigrants from neighboring countries. Khmer is the language of instruction. However, the Ministry of Education, Youth and Sport has established a bilingual system to encourage school access for all ethnic groups. This bilingual education is provided during the first three years of primary school. As from Grade 4, education is provided exclusively in Khmer.

[6] Ministry of Planning: National Strategic Development Plan, 2009-2013 Update.

[7] Ministry of Planning: National Strategic Development Plan, 2009-2013 Update.

[8] Planning Department, Ministry of Education, Youth and Sport.

2. Economic Context

Agriculture remains the mainstay of the economy and employs 57.6 percent of the work force.[9] In addition to the agricultural and natural resources sectors, the country's economy is also driven by the garment, tourism and construction industries which are all major sources of national income.

In 2008, Cambodia's economy suffered the impact of the global financial crisis. In response to this crisis, significant efforts by the government culminated in a reduction of poverty levels. The gross national product per inhabitant is approximately US$ 1,024 according to 2012 indicators. The gross domestic product (GDP) is an estimated US$ 30.2 billion.

According to the United Nations Development Programme, Cambodia ranked 138 out of 187 countries in terms of the 2012 human development index.[10] The percentage of the population living under the poverty threshold (under US$ 70 per month) dropped significantly over the 2007 to 2010 period, from 30.1 percent to 25 percent of the population.[11]

Public primary unit costs did not exceed seven percent of GDP per capita in 2010.[12] Government expenditure on education relative to total public expenditure rose from 8.7 percent in 1999 to 12.4 percent in 2007.

Table 4: Public Education Expenditure

Public Education Expenditure[13]	
Percentage of GDP	2.6
Percentage of total public expenditure (2007)	12.4
Distribution of Public Education Expenditure, by Level (%) – 2001	
Preprimary	1
Primary	73
Secondary	21
Higher education	5

3. Education System

Offrir The government of Cambodia has made education opportunities for all one of its priorities to reduce poverty and promote the socioeconomic development of the country. The national constitution stipulates that all children have a right to access education without discrimination on grounds of gender, race or social status.[14] They are entitled to a free basic education of at least nine years, including six years of primary education and three years of lower secondary education.

The overarching aim is to develop a global strategy and a highly qualitative service which is easily accessible to all, irrespective of social status, gender, ethnic background, or physical and mental ability. The main goal of the Cambodian education system is to help young people develop the mental and physical qualities that will enhance their employability. To achieve this goal, schools must bolster self-confidence, autonomy, responsibility, solidarity, national unity and patriotism among students. Schools should also inculcate a respect for the rule of law and human rights.

Implementation of the 2009-2013 Education Strategic Plan is closely correlated with the promotion of a culture of peace, non-violence, human rights and dignity. A commitment to the principles of freedom, democracy and justice, as well as the battle against drugs, the trafficking of children and women and social discrimination also lie at the very core of Cambodian education.

9 Ministry of Planning: National Strategic Development Plan, 2009-2013 Update.

10 http://hdr.undp.org/fr/statistiques/10

11 Ministry of Planning: National Strategic Development Plan, 2009-2013 Update.

12 http://donnees.banquemondiale.org/indicateur/SE.XPD.PRIM.PC.ZS

13 http://donnees.banquemondiale.org/indicateur/SE.XPD.PRIM.PC.ZS

14 See articles 65, 66 and 68 of the constitution of the Kingdom of Cambodia (http://www.refworld.org/docid/3ae6b5640.html).

– *General Education*[15]

General education in the Kingdom of Cambodia is organized in four levels:

- Preprimary education consists in a three-year cycle. It is not mandatory. Preprimary education is mainly provided by private schools for children from three to five years of age. All children aged six are admitted to the first year of primary school;
- Primary education consists in a six-year cycle. No national exam conditions the promotion from Grade 6 to Grade 7, Grade 7 being the first class of lower secondary;
- Lower secondary education lasts three years and is the last mandatory cycle. All pupils with an average of at least 5 out of 10 in primary Grade 6 are promoted to the first year of this cycle. Upon completion of this three-year cycle, pupils sit a national exam to gain access to upper secondary;
- Upper secondary, lasting three years, is the fourth and last level of general education. At the end of this cycle and having specialized in either social sciences or exact sciences, pupils sit the national baccalaureate exam, which entitles them to university admission.

– *Higher Education*[16]

The baccalaureate is usually a prerequisite for access to higher and university education. Those who fail the baccalaureate exams can pursue their education in view of obtaining a graduate diploma.[17] Higher education institutions include universities as well as pedagogical and technical institutes. The structure of university courses depends on the subject. A university degree usually takes four years and a graduate diploma, two years. Students who have been awarded a degree can then study for a master's degree (two years), before continuing with a doctorate degree, awarded after at least another three years.

In 2011, Cambodia totaled 97 higher education institutions (of which 38 were public). Fifty seven of these institutions were administered by the Ministry of Education, Youth and Sport (MOEYS), of which eight were public. The number of private institutions with their own premises rose from 7 in 2010/2011 to 11 in 2011/2012.

For academic year 2011/2012, 207,666 students including 83,463 women were registered in higher education. Student grants were awarded to 27,357 of these students, including 10,072 women. Compared to academic year 2010/2011, 21,748 more students were enrolled in higher education, including 9,638 women.

– *Nonformal Education*[18]

Nonformal education also falls under the authority of the MOEYS, often in partnership with nongovernmental and international organizations. A rise has been reported in the number of people enrolled in nonformal education which can be explained by the fact that children and adults outside the formal educational system are increasingly recognized by the government. In 2010/2011, 66 nonformal education classes of a level equivalent to that of primary were opened, attended by 4,827 pupils, including 1,788 girls.

Libraries and reading centers have been opened to promote nonformal education in the outskirts of Phnom Penh and in 21 other provinces, by government bodies and development partners. In total, 64 libraries have attracted over 45,691 readers, including 23,983 girls, and 256 reading centers have attracted over 51,920 readers, including 28,780 girls.

15 Ministry of Education, Youth and Sport Congress, March 18-20, 2013.

16 Ministry of Education, Youth and Sport of Cambodia (2013). *Report on the Education, Youth and Sport Congress*, March 18-20, 2013.

17 A graduate diploma is awarded upon completion of a two-year course which can be attended by all students who have undergone twelve years of primary and secondary education but have not passed the baccalaureate, conditional on fulfilling all entry requirements.

18 Ministry of Education, Youth and Sport of Cambodia (2013). *Report on the Education, Youth and Sport Congress*, March 18-20, 2013.

In addition, the policies in terms of nonformal education specifically focus on:

- Capacity building of staff working in nonformal education at the level of towns/districts/khan and communes/sangkat;
- Broader access to education programmes that focus on reading skills and life skills;
- Development and improvement of the program to mainstream pupils back into formal education; and
- Supervision and evaluation of the content of nonformal education technical training.

– *Education Policies and Current Reforms*

Primary school curricula (or teaching programs) are established by the School Programme Development Department. Teaching staff are monitored and programmes are implemented by the Primary Education Department, the Internal Auditing Department and the School Programme Development Department of MOEYS.

Current reforms to school curricula plan to include the following:

- Transition to 30 hours of lessons per week (meaning an increase of one hour per day in primary schools);
- Reintroduction of mandatory foreign language lessons from primary Grade 5;
- Increase in the number of hours devoted to "object lessons" at all levels of basic education: these lessons will take up five hours per week instead of two hours; and
- In-depth restructuring of upper secondary: students in Grades 11 and 12 (the last two classes of the secondary cycle) will follow the core curriculum (math, Khmer literature, choice of English or French, sport and health), and will be able to choose up to four of the following optional science (physics, chemistry, biology, earth science, environment), social studies (history, geography, economics, ethics) or professional education (technology, computer science, accounting, tourism) subjects.

The reform, which was conditioned by budgetary issues and the number of teachers available, took effect at the beginning of the 2005/2006 academic year and concerned 3.4 million pupils. It was tested for a five-year period until the end of academic year 2009/2010 and was then extended to cover the 2010-2015 period. Extensive tests have been set up to assess the efficacy of the reform and quantify the competencies of students at each level of the education system. By the end of Grade 3 for instance, a pupil should be able to read, write, count up to 10,000, perform calculations up to 1,000, know their language, and should have assimilated knowledge of their history, region and village. The government's aim is to achieve a primary enrolment rate of 75 percent by 2015, ensuring that all children who enroll attend the entire basic education program, from Grade 1 to Grade 9.

The reform also aims to improve the status and training of teaching staff. Approximately 10,000 teachers are on fixed-term contracts and many cannot be made permanent, not having undergone appropriate teacher training. The MOEYS totals over 110,000 administrative officers, supervisory staff and teachers. Despite this large body of civil servants, the Royal Government of Cambodia authorizes MOEYS to recruit approximately 5,000 new teachers a year so they can be trained in the 27 teacher training centers (one national education institute, one physical education training institute, six regional teacher training centers, 18 provincial teacher training centers and one preprimary teacher training center) to make up for the lack of teachers in the education system. However, although 5,000 new teachers complete the initial training annually, the need for new teachers has yet to be met.

Photo © Global Partnership for Education

Furthermore, in the context of the priority policy of the Royal Government of Cambodia's fourth legislative mandate, MOEYS continues to apply the 2006-2010 Education Strategic Plan.[19] It is currently reviewing and optimizing the 2009-2013 Education Strategic Plan with the aim of harmonizing the Education Strategic Plan with the mandate of the national assembly as well as the education policy of the Royal Government of Cambodia. Numerous achievements (the increase in the number of schools, enrolment even reaching 97 percent, annual teacher salary pay rises based on the country's growth, allocation of school equipment, and so on) bear witness to the Royal Government's concern for education issues.

Thus, the Ministry of Education, Youth and Sport aims to:

- Reinforce its education system through the construction of schools, in particular in remote areas; reduce the number of incomplete schools, by increasing school operating budgets; ensure teachers are well distributed among educational institutions; and finally build boarding schools for female teaching staff and students;
- Strengthen the quality and efficiency of its education system by equipping schools with libraries and laboratories, carrying out in-depth reform of curricula, increasing hours of effective teaching time as well as the number of grants for pupils and students from disadvantaged backgrounds; enhance teachers' pedagogic and teaching skills as well as the quality of school management;
- Reinforce ethical standards and professionalism among teaching staff; improve the school environment (availability of drinking water and toilets); extend the scope of professional and technical advisory services; carry out evaluations and inspections focusing on administrative and financial management, to improve the quality of education; and
- Improve working conditions and reinforce the skills and competence of staff in the education sector by reviewing organization and regulations on the one hand, and training staff at all levels in the art of pedagogical engineering on the other.

Photo © Global Partnership for Education

[19] The priority policy outlines four strategic "rectangles of growth", each of which has four axes:

1. Promotion of the agricultural sector, which includes: (i) boosting productivity and diversification of crops; (ii) land reform and demining; (iii) reform of the fisheries sector; and (iv) reform of the forestry sector;
2. Rehabilitation and construction of new infrastructure: (i) continuation of the transport infrastructure rehabilitation and construction program (land, sea, air); (ii) management of water resources and irrigation, (iii) expansion of the energy and electricity grid; and (iv) development of information and communication technology;
3. Private sector and job market growth: (i) strengthening the private sector and promoting investments; (ii) promoting small and medium sized-enterprises; (iii) job creation and improving working conditions; and (iv) providing social security to civil servants, employees and workers; and
4. Reinforcement and development of human resources: (i) strengthening the quality of the education system, (ii) improving healthcare services; (iii) promoting equity; and (iv) implementing the population policy.

4. Primary Education

– *Types of Schools and Classes*[20]

There are three main types of school in the Cambodian system: standard schools[21], child-friendly schools[22] and cluster schools[23]. Standard schools are in turn divided into two categories, namely complete schools with all classes from Grade 1 to Grade 6 and incomplete schools with only some of the first primary classes.

Table 5: Overview of Public Primary Education[24]

	2010/2011	2011/2012	Variation	Percent Variation
Number of schools	6 767	6 849	+82	+1.21
Number of cluster schools	1 148	1 165	+17	+1.48
Number of incomplete schools	1 152	1 041	−111	−9.64
Number of child-friendly schools	3 891	4 505	+614	+15.78
Number of classes	57 697	58 594	+897	+1.55
Number of classrooms	40 787	41 840	+1 053	+2.58
Total number of pupils	2 191 202	2 142 464	−48 738	−2.22
Total number of girls	1 043 382	1 021 591	−21 791	−2.09
Total number of male teachers	56 339	56 344	+5	+0.01
Total number of female teachers	24 022	24 628	+606	+2.52
Total number of male teachers who do not teach	10 931	11 048	+117	+1.07
Total number of female teachers who do not teach	2 678	2 856	+178	+6.65

There are also three types of classes: double shift, multigrade and single session classes. The number of double shift classes has diminished considerably thanks to the construction of new classrooms but there are still a few in isolated areas where the lack of teachers is a recurring issue. Multigrade classes are used for children's schooling in remote areas.

20 Ministry of Education, Youth and Sport (2013). *Report on the Education, Youth and Sport Congress*, March 18-20, 2013.

21 This is a standard primary school which accepts all primary school-aged children (usually from the age of six) and is not a child-friendly or cluster school.

22 The aim of the child-friendly school model is to gradually align schools and education systems with assigned quality standards by addressing all aspects which impact the wellbeing and rights of children as learners and main beneficiaries of education, while also improving other aspects of schooling. Quality standards must enable all children to access school, to be promoted from one class to the next and to complete their studies within the standard timeframe; they must also enrich the schooling provided to children by helping them succeed, develop and reach their full potential (see the UNICEF child-friendly school manual: http://www.unicef.org/french/publications/files/Child_Friendly_Schools_Manual_FR_05282009.pdf).

23 Cluster school is the name given to schools that stand out in terms of their administrative, financial and pupil management. Cluster schools were created to instill excellence and foster a competitive spirit in terms of school management.

24 Ministry of Education, Youth and Sport (2013). *Report on the Ministry, Education and Sport Congress*, March 18-20, 2013.

– *Enrolment in Primary Education*[25]

The government of Cambodia has made boosting enrolment a priority and education policies have had significant results. Since 2000, the situation has gradually improved:

- In four years, from 2008 to 2012, the enrolment rate increased by approximately three percent. The increase appears to be greater in remote areas where the number of children enrolled in school rose from 90.3 percent to 97.5 percent, due to schools reopening, the (relative) improvement of teacher status and enhanced awareness by villagers.
- There are currently more than 56,344 primary school teachers, including 24,628 women. Teachers' net salary (not taking into account bonuses for superiority, area of assignment or pedagogical approach) has been increased to approximately US$ 40 per month, which remains insufficient as an incentive to settle in rural areas. Decrees adopted in 2001 aiming to improve teacher income and put an end to the levy of "taxes" have not yet been implemented everywhere. Teachers in remote areas are supposed to be awarded a monthly bonus varying from 40,000 to 60,000 riels (US$ 10 to US$ 15) depending on where they are posted.
- The enrolment rate of girls has improved: 96.1 percent of primary school-aged girls attended primary school in 2012.

These figures show that even though the situation has started to improve in the cities and mainly in the capital, much remains to be done in rural areas.

Table 6a: Key Primary Education Figures, 2005 to 2012[26]

Year	Schools	Pupils		Classes	Gross Intake Rate	Net Intake Rate	Gross Enrolment Rate	Net Enrolment Rate	Completion Rate
		Total	Girls						
2005/2006	6 277	2 558 467	1 209 282	61 901	130.4	82.6	124.0	91.3	90.3
2006/2007	6 365	2 461 135	1 161 704	61 249	136.9	85.7	122.7	92.1	90.1
2007/2008	6 476	2 311 107	1 094 577	60 384	141.3	89.5	121.9	93.3	86.2
2008/2009	6 565	2 262 834	1 073 292	60 227	136.3	91.9	120.2	94.4	85.6
2009/2010	6 665	2 240 651	1 070 083	58 062	145.9	92.4	125.4	94.8	83.2
2010/2011	6 767	2 191 192	1 043 382	57 697	121.1	92.9	116.0	95.2	85.3
2011/2012	6 849	2 142 464	1 021 591	58 594	137.3	94.1	123.3	96.4	89.7

Table 6b: Intake, Enrolment and Completion rates

	2010/2011		2011/2012		Variation	
	Total	Girls	Total	Girls	Total	Girls
Net intake rate	92.9	93.1	94.1	94.0	+1.2	+0.9
Gross intake rate	121.1	119.4	137.3	133.7	+16.2	+14.3
Net enrolment rate	95.2	94.6	96.4	96.1	+1.2	+1.5
Gross enrolment rate	116.0	113.9	123.3	120.3	+7.3	+6.4
Completion rate	85.3	85.0	89.7	89.9	+4.4	+4.9

[25] Ministry of Education, Youth and Sport (2013). *Report on the Education, Youth and Sport Congress*, March 18-20, 2013.

[26] Planning Department, MOEYS.

Table 6c: Primary Education Internal Efficiency, 2009/2010 and 2010/2011[27]

	2009/2010		2010/2011		Variation	
	Total	Girls	Total	Girls	Total	Girls
Promotion rate	84,2	85.1	85.9	87.2	+1.7	+2.1
Repetition rate	7.1	6.2	5.8	5.0	−1.3	−1.2
Dropout rate	8.7	8.7	8.3	7.8	−0.4	−0.9

Table 6d: Internal Efficiency in Urban Areas

	2009/2010		2010/2011		Variation	
	Total	Girls	Total	Girls	Total	Girls
Promotion rate	88.5	89.7	89.7	90.8	+1.2	+1.1
Repetition rate	5.0	4.1	4.2	3.4	−0.8	−0.7
Dropout rate	6.5	6.2	6.1	5.9	−0.4	−0.3

Table 6e: Internal Efficiency in Rural Areas

	2009/2010		2010/2011		Variation	
	Total	Girls	Total	Girls	Total	Girls
Promotion rate	83.4	84.3	85.3	86.6	+1.9	+2.3
Repetition rate	7.4	6.6	6.1	5.3	−1.3	−1.3
Dropout rate	9.1	9.1	8.6	8.1	−0.5	−1.0

These tables show that net intake and net enrolment rates in primary education increased slightly (by 1.2 percent) between 2011 and 2012. The number of children who enrolled at the official age of entry rose considerably. According to a report from the Education Congress (March 2013), the number of pupils from ethnic minorities also increased by 24.48 percent in total and 23.43 percent for girls between 2011 and 2012. This report also mentions that 1,186 disabled children, including 312 girls, study in primary schools in 13 provinces. The completion rate increased by 1.7 percent in total and by 2.1 percent for girls, whereas the repetition rate diminished by 1.3 percent in total and by 2.1 percent for girls. The promotion rate in urban areas is 89.7 percent, which represents a 1.2 percent increase compared to 2009/2010. In these areas, the promotion rate is higher among girls and stands at almost 91.0 percent. In 2010/2011, the repetition rate was 4.2 percent for pupils in urban areas compared to 6.1 percent for pupils in rural areas. Girls repeat less often than boys, irrespective of the area. During this same period, a higher dropout rate is observed in rural areas than in urban areas but girls, once again, also drop out less than boys.

In 2011, the repetition rate was below 10 percent in 4,675 of the 5,808 complete primary schools. The completion rate was over 80 percent in 131 of the 194 cities/districts/khans.

Despite all the efforts deployed, certain challenges remain to be overcome concerning primary education:

- The official timetable as well as the directives concerning the number of hours dedicated to each subject must be fully implemented;
- Summative and diagnostic assessments have not been carried out in all schools;
- There is a shortage of teachers in remote areas;
- Some schools are not covered by community or sangkat investment projects; and
- Calling on librarians to make up for the lack of teachers restricts access to school libraries.

[27] Ministry of Education, Youth and Sport (2013). *Report on the Education, Youth and Sport Congress*, 18-20 March 2013.

Chapter 2:

Diagnostic Evaluation Methodology

This chapter provides an overview of the methodology used by PASEC for the diagnostic evaluation in Cambodia. The programme's new evaluation instruments, the method of student competencies' appraisal and the sampling process will be outlined. Further aspects relating to methodology and econometric modeling can be found in Chapter 5 (Box 2), and Annex 1 provides details of data processing and weighting.

PASEC measured learning outcomes by assessing pupil performance in a selection of main subjects at both the beginning and end of the school year, thus enabling an analysis of the added-value provided by school education over an academic year. PASEC usually measures this added-value in Grade 2 and Grade 5. However, as the Cambodian Ministry of Education did not wish to carry out field operations during 2012, the end of year tests (post-tests) could not be taken in the classes that were assessed at the beginning of the year. Hence, the Cambodia evaluation was only carried out at the beginning of the school year. Pre-tests were taken by Grade 2 and Grade 5 pupils and post-tests by Grade 3 and Grade 6 pupils.

The added-value for year 2011/2012 is measured in schools by the difference in the competencies of pupils at the beginning of both primary Grade 2 and Grade 3 on the one hand, and at the beginning of primary Grade 5 and Grade 6 on the other. Progress is thus measured over an academic year.[28] In this way, added-value is equivalent to the competencies acquired during Grade 2 (the beginning of Grade 3 being equivalent to the end of Grade 2) for children in the early stages of the primary cycle, and competencies acquired in Grade 5 (the beginning of Grade 6 being equivalent to the end of Grade 5), for pupils at the end of the primary cycle.[29]

Language and mathematics tests were taken by a sample of pupils in primary Grades 2, 3, 5 and 6 in 180 schools.[30] Contextual questionnaires were answered by both pupils and school directors. Teachers were not involved in the survey as the selected objective was to assess added-value at the school rather than at the pupil level. This chapter focuses on the parameters of the diagnostic evaluation carried out in Cambodia in school year 2011/2012.

1. PASEC Tests and Measurement of Learning Outcomes

PASEC tests have been administered in Cambodia, Laos, Mali and Vietnam. They assess core competencies in the language of instruction and mathematics.

The results of these language of instruction and mathematics tests enable the assessment of pupils' level in the following areas: listening comprehension, reading comprehension, writing, arithmetic, geometry and measurement. For each of these areas of learning, there are several competency levels that call on the cognitive processes which are necessary for pupils to process the information.

The conceptual framework of the tests encompasses the majority of situations that students confront on a regular basis, both at school and in their day-to-day lives. In this way, the texts used to evaluate listening or reading comprehension are both continuous (for instance narrative, descriptive, argumentative, and so on) and discontinuous (plans, tables, and so on) so that pupils are confronted with a variety of text formats. Most of the tests are based on multiple choice questions but pupils are also required to answer some open-ended questions in writing.

[28] Pupils beginning Grade 2 have had one year of education; those beginning Grade 3 have had two years of education; those beginning Grade 5 have had four years of education; and those beginning Grade 6 have had five years of education.

[29] Regarding the tests taken at the beginning of December 2011, the assumption made is that the competencies acquired by pupils have not fundamentally changed relative to the previous academic year. The beginning of Grade 3 thus corresponds to the end of Grade 2 and the beginning of Grade 6 to the end of Grade 5.

[30] The language tests are based on a Khmer translation of French language tests. PASEC used a double translation, meaning that simultaneous translations were carried out by two independent teams. These translations were then reconciled by CAPSTAN which produced the final test to be taken in schools. See the technical note on *Procédures techniques pour la traduction des instruments PASEC* (pasec@confemen.org).

The tests are designed to measure learning outcomes in the following domains:

Table 7: Areas of Competency Evaluated by the Tests

Beginning of Grades 2 and 3 – Khmer	Beginning of Grades 2 and 3 – Mathematics
Reading comprehension Listening comprehension	Operations and counting Measurement Geometry
Beginning of Grades 5 and 6 – Khmer	**Beginning of Grades 5 and 6 – Mathematics**
Reading comprehension Listening comprehension Writing	Operations and counting Measurement Geometry

In these domains, the following processes are usually measured:

Table 8: Processes Evaluated in these Domains

Beginning of Grades 2 and 3 – Khmer	Beginning of Grades 2 and 3 – Mathematics
Decipher and recognize Retrieve information Infer and interpret/analyze and appraise	Know and understand Apply Solve a problem
Beginning of Grades 5 and 6 – Khmer	**Beginning of Grades 5 and 6 – Mathematics**
Retrieve information Interpret and analyze	Know and understand Apply Solve a problem

After two years of primary education, either texts or phrases in the language of instruction are read out loud to the class (listening comprehension) or pupils read texts, words or phrases silently by themselves (reading comprehension). Texts are made up of at least four sentences and usually use vocabulary familiar to pupils, although more complex vocabulary is also sometimes used.[31] The texts are of moderate grammatical complexity. The more advanced pupils are able to use their knowledge and know-how to retrieve complex information that requires juggling with several pieces of information and display the ability to use knowledge which is external to the text to interpret and distinguish finer nuances of meaning. Pupils may also be required to copy out an answer they find in the text to answer an open-ended question and carry out a succession of tasks that require segmenting sounds and syllables of words.

In mathematics, having been at primary school for two years, the more advanced pupils are able to draw on their competencies to carry out multiplications with numbers up to 10, determine which operation should be used to solve a simple problem and find the simple multiplication whose product is a number under 10.

In geometry, pupils are able to recognize properties that various simple geometric shapes have in common and to correctly name elementary geometric shapes. In measurement, pupils can calculate the time span between two moments in time and distinguish between various units of measurement.

After five years of primary education, the more advanced pupils have developed good writing skills in the language of instruction. They are able to write short texts using appropriate and pertinent syntax. They are able to express themselves clearly in writing and can convey their opinion and back it up with arguments. By then, they have developed very good reading comprehension skills: inferences and underlying meanings, analysis, critical appraisal of long documents or texts containing moderately difficult vocabulary. They are able to understand texts or documents whose context they are not very familiar with and then deduce the meaning of complex words. These pupils are able to understand a text or document in depth, and to grasp nuance and subtle inferences. They can compare several parts of long documents or texts so as to deduce the right information while grasping the general meaning and message of a text.

[31] Complex vocabulary is considered to be vocabulary which they do not come across on a regular basis.

In mathematics, after five years of primary school, pupils are able to solve problems which require performing several operations with decimal numbers or fractions, converting units of measurement and doing calculations which call upon knowledge of geometry (areas, circumferences, and so on). They can work with fractions and can perform multiplications, sums and subtractions requiring regrouping. Finally, they are able to analyze data tables with double entries.

PASEC has defined four competency levels for pupils having respectively attended two and five years of primary education (pupils take both a pre-test and a post-test in both cases). Chapter 3 presents a detailed description of all competency levels, from the lowest to the highest.

So as to simplify the interpretation of pupil performance, scores are presented using a competency scale divided into several levels, based on a psychometric model (item response theory, IRT). Hence, pupils' competencies are presented on a continuum, per discipline and per grade evaluated, so as to take a general view of the level of learning. For each level, the proportion of pupils who are able to draw on their knowledge and competencies to answer questions pertaining to specific academic subjects or real-life situations can thus be determined.

The competency level scales were established *a posteriori* by the PASEC teams, based on Sub-Saharan African education programs, but also at an international level, on the range of minimal competencies defined by psychopedagogy specialists for pupils at the beginning and end of the primary cycle (competencies pupils require to apply their knowledge to real life situations). The tests used for the Cambodia evaluation were translated and adapted in collaboration with the national team. The tests thus correspond to the domains and processes evaluated by PASEC while respecting the structure of the Cambodian language on the one hand and the sociocultural context on the other. Furthermore, all items were verified to ascertain compatibility with Cambodian curriculums.

2. Design of the Tests

In order to integrate the large number of items (320 items), and ensure consistency between the two tests (pre-test and post-test), a protocol was drawn up to determine the distribution of items within the booklets handed out to pupils, between booklets and between the two tests. A rotating booklet process was selected for the new PASEC tests to meet these requirements.

This approach means that numerous items can be tested, thus offering greater scope to interpret the results while avoiding saturating pupils (due to tiredness) during the test itself.

Table 9: Test Design for Grade 2 and Grade 3 Pupils

	Grade 2 (Pre-test)			Grade 3 (Post-test)		
Subjects	**Booklets**	**Sections of Items**		**Booklets**	**Sections of Items**	
Mathematics	1	A	B	3	D	C
	2	A	C	4	D	B
Khmer	1	A	B	3	D	C
	2	A	C	4	D	B

Table 10: Test Design for Grade 5 and Grade 6 Pupils

	Grade 5 (Pre-test)			Grade 6 (Post-test)		
Subjects	**Booklets**	**Sections of Items**		**Booklets**	**Sections of Items**	
Mathematics	1	A	B	3	D	C
	2	A	C	4	D	B
Khmer	1	A	B	3	D	C
	2	A	C	4	D	B

The pre-test and post-test are comprised of two booklets (one booklet for each subject), and each booklet contains two sections. Each section includes 15 items for pupils having completed two years of primary education, and 25 items for pupils having completed five years of primary education. Each pupil answers one booklet only.

3. Testing Procedure

Each booklet (language of instruction and mathematics) for Grade 2 and Grade 3 pupils contains approximately 30 items and lasts 90 minutes (two 45-minute sessions with a 15-minute break in between). The language of instruction and mathematics booklets that make up each test are scheduled on two different mornings under the supervision of a test administrator.

Each booklet (language of instruction and mathematics) for Grade 5 and Grade 6 pupils contains approximately 50 items and lasts three hours at most (two 90-minute sessions with a 15-minute break). The teaching language and mathematics booklets that make up each test are scheduled on two different mornings. Pupils take the test autonomously, with the exception of listening comprehension items.

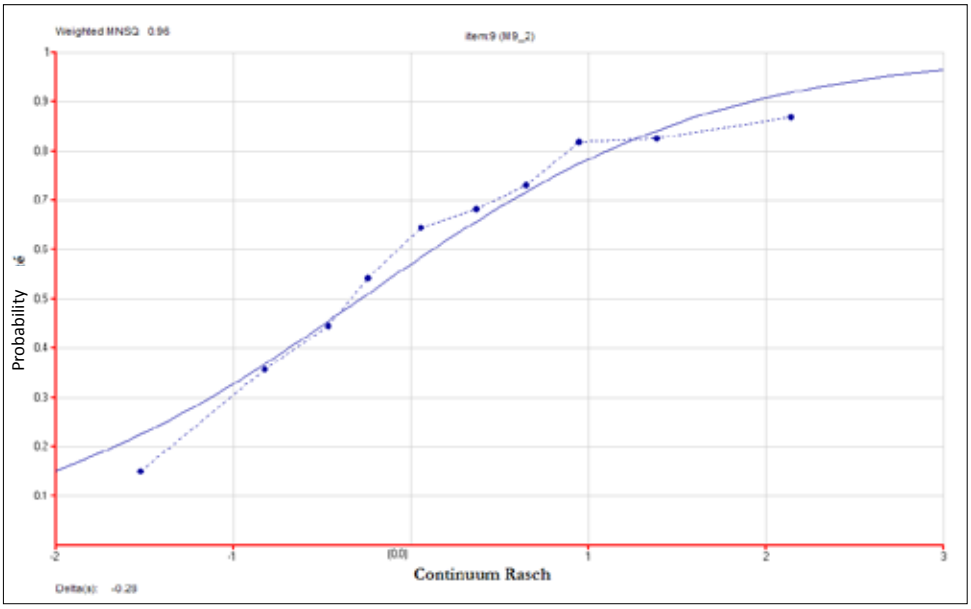
4. Psychometric Analysis of Tests

When applying the true score classical test theory, two item characteristics are frequently taken into consideration:[32]

1. Average level of item difficulty; and
2. Item discrimination, estimated by point-biserial correlation.

These results were completed by the use of a one parameter item response theory (IRT) model, commonly called the "Rasch Model."[33] The one-parameter IRT model is based on the assumption that the item's characteristic curve is shaped by: (i) pupil competencies (the more competent a pupil is, the higher the probability of success in the exam, and vice versa); and (ii) the difficulty of the item itself (the easier an item is, the higher the probability of success). Item response models, and in particular the Rasch model, produce a continuum displaying both the performance of the pupil and the difficulty of the item, linked by a probabilistic function.

Figure 1: A PASEC Test Dichotomic Item's Characteristic Curve[34]



[32] Lord, F. M. and Novick, M. R. (1968). *Statistical Theories of Mental Test Scores*. Reading: Addison-Wesley.

[33] Bond, T. G. and Fox, C. M. (2007). *Applying the Rasch Model: Fundamental Measurement in the Human Sciences* (2nd edition). Mahwah: Lawrence Erlbaum Associates.

[34] Item 9 of Grade 5 and Grade 6 mathematics test.

The previous figure presents the functioning of an item in one of the PASEC countries. This item requires pupils to arrange decimal numbers in ascending order. The item has a level of difficulty of -0.28 and a fit index of 0.96. The value of the fit index is included between 0.75 and 1.25, which indicates that the item fits well into the Rasch model. The two curves show that there is no major difference between the theoretical distribution (full line) and the observed distribution (dotted line). Item discrimination of 0.48 means that the selected standards are respected (it must be higher than 0.25). Thus, the item does indeed discriminate between pupils' different competency levels.

A pupil whose competence is "low," for example with a level of competency of -2 on the Rasch continuum, has a probability of 0.15 of getting this item right. On the other hand, a pupil whose competence is "high," for example estimated at 2, has a probability of about 0.91 of arranging the decimal numbers in the correct order.

The design of the tests was taken into account in the appraisal of pupil competence. It is worth taking into consideration that analyses were carried out booklet by booklet so as to detect any changes in the parameters of items contained in the various booklets.

5. The Sample Evaluated by PASEC in Cambodia

The sampling frame from which the sample of schools is drawn was provided by the Ministry of Education, Youth and Sport for 2010/2011, the school year prior to the survey. However, this sampling frame only includes public schools. **Hence, private schools were excluded from this survey.**

PASEC implemented a stratified three-stage sampling method: (i) schools; (ii) classes; and (iii) pupils. The sampling frame is first of all divided into strata which aim to be as representative as possible of the diversity of the Cambodian educational context. The number of schools selected for each of these strata is proportional to the total number of Grade 2, 3, 5 and 6 pupils. The initial selection included 180 schools. The probability of a specific school being drawn is proportional to the number of target pupils enrolled in it.

Next, a class was selected for each of the Grades 2, 3, 5, and 6 in all 180 schools using a simple random procedure. Finally, pupils were randomly selected from within their class (15 pupils for each of the four levels surveyed in each school).

Three stratification variables are used to describe the Cambodian system: geographic location (plain, coastal area, plateau and mountains), the provinces located in these geographic zones (24 provinces) and urbanization (the capital, other urban areas, rural areas).

These criteria were used to define six strata. The resulting sample is thus representative of Cambodian public schools. The total number of Grade 2, 3, 5 and 6 pupils enrolled in each school was used to calculate the weighting of schools and strata.

Table 11: Sample Evaluated by PASEC in Cambodia

Area Number	Name of the Area	Number of Grade 2, 3, 5 and 6 Pupils	Weight of Each Area (in %)	Target Number of Schools (Weighted)	Number of Schools Replaced	Number of Schools Surveyed	Number of Classes (Grades 2, 3, 5 and 6) Surveyed
1	PLAIN	522 075	38.8 %	69	3	69	276
2	TONLE SAP	391 354	29.1 %	53	0	53	212
3	COASTAL	85 920	6.4 %	11	0	11	44
4	PLATEAU AND MOUNTAINS	147 891	11.0 %	20	1	20	80
5	PHNOM PENH	70 787	5.3 %	10	0	10	40
6	OTHER URBAN AREAS	128 336	9.5 %	17	0	17	68
Total		**1 346 363**	**100.0 %**	**180**	**4**	**180**	**720**

School Response Rate

Four schools were replaced because they were rendered inaccessible by floods which occurred during the third quarter of 2011, immediately prior to the data collection campaign. Hence, a total of 180 schools were surveyed, equivalent to 100 percent of the provisional sample.

Class Response Rate

All classes initially earmarked for Grade 2, 3, 5 and 6 levels in the 180 schools were surveyed, resulting in a 100 percent response rate.

School Director Response Rate

The school directors in all 180 schools answered their questionnaire; hence the response rate was 100 percent.

Pupil Response Rate

All the pupils targeted in the sample took their PASEC tests, but some did not answer the contextual questionnaire. Pupil response rates in the different classes were as follows: 99.1 percent in Grade 2, 99 percent in Grade 3, 99.4 percent in Grade 5 and 98.2 percent in Grade 6.

All the response rates are deemed acceptable in terms of the standards set by PASEC.

The following table summarizes the data collected:

Table 12: Data Collected – PASEC Evaluation in Cambodia 2011/2012

		Grade 2	Grade 3	Grade 5	Grade 6
"Class" and "School" Levels					
Number of Classes	**Planned**	180	180	180	180
	Surveyed	180	180	180	180
Number of Schools	**Planned**	180			
	Surveyed	180			
Response Rate		100 %	100 %	100 %	100 %
"Pupil" Level					
Response Rate		98.2 %	99.4 %	99.0 %	99.1 %

Moreover, the pupil questionnaire non-response rate is approximately 2.3 percent, on average.

Chapter 3:

Pupil Competencies in Cambodian Primary Schools

This chapter focuses on pupils' overall scores as well as their knowledge and know-how at the beginning and end of primary education in Cambodia.

The assessment of learning outcomes is based on PASEC tests which measure core competencies in the language of instruction and mathematics at the beginning and end of the primary cycle. Core competencies are defined as the minimum competencies expected of pupils at the beginning and end of the primary cycle for them to be able to pursue quality education. Core competencies are based on the curriculums of the countries traditionally evaluated by PASEC (Sub-Saharan Africa) as well as international benchmarks,[35] and not on Cambodian curriculums.[36]

In Cambodia, PASEC pre-tests were taken at the beginning of Grade 2 and Grade 5 and post-tests by pupils at the beginning of Grades 3 and 6. In education systems with a six-year primary cycle, the first year is often considered to be an adaptation year, either because the country's preprimary system is unable to cater for all children (as is the case in Cambodia) or because the language of instruction is not the mother tongue spoken by all pupils.

The overall PASEC test scores are presented for all the surveyed pupils: Grades 2, 3, 5 and 6. A description of competencies is only provided for pupils at the beginning of Grades 3 and 6, namely those who have completed two or five full years of primary education.

1. PASEC Test Scores and Pupils' Progress

Pupils' PASEC test scores have been standardized (average of 500 points and standard deviation of 100 points).

In Khmer, the diagnostic evaluation reveals that the performance of pupils at the beginning of Grade 2 stands at an average of 476.7 points whereas the average at the beginning of Grade 3 is 524.9 points. The average progress in the performance of pupils who have had one more year at school is 48.2 points,[37] which is normal. In mathematics, the difference in performance is less pronounced (32 points) but progress is nevertheless considerable.

At the end of the primary cycle, progress is also observed between the beginning of Grade 5 and the beginning of Grade 6 in both evaluated subjects. However, gains in performance acquired thanks to one further year of schooling are less important than those observed in the earlier stages of primary education. The difference is estimated to be 28 points in Khmer and 25 points in mathematics.

Progress throughout academic year 2011/2012 is more pronounced at the beginning (difference between one and two years of schooling) than at the end of the primary cycle (difference between four and five years of schooling). This is almost certainly due to the fact that pupils in the first grades of primary learn the basics of mathematics and reading and begin with a very low level, as they have only just entered the cycle, whereas pupils at the end of the primary cycle build on knowledge acquired in previous classes. In this way, marginal gains gradually become less pronounced as children work their way through the primary system. However, these gains may increase when they start learning new subjects. Hence, these differences are not due to the fact that pupils learn more things earlier on in the primary cycle but to the fact that subjects gradually become more specialized. These results are in keeping with scientific findings which highlight the fact that the difference between two grades, expressed in terms of effect size, is generally higher in the early stages of education.

Photo © Global Partnership for Education

35 Learning Metrics Task Force (2013). *Toward Universal Learning: Recommendations from the Learning Metrics Task Force*. Montreal and Washington: UNESCO Institute for Statistics and Center for Universal Education at the Brookings Institution.

36 However, the national team ascertained that these competencies are compatible with the Cambodian curriculums.

37 Hence the equivalent of one-half of one standard deviation.

The following table summarizes the mean performance of Cambodian pupils in the PASEC tests and the standard deviation for each grade and subject.

Table 13: Mean Performance of Pupils for each Grade of Primary Education

	Grade 2	Grade 3	Grade 5	Grade 6
Pupils Performance in Khmer	476.7 (92.7)	524.9 (101.5)	485.8 (102.7)	513.6 (95.4)
Added-value	**48.2**		**27.8**	
Pupils Performance in Mathematics	484.8 (104.3)	516.3 (92.5)	487.2 (101.6)	512.3 (96.9)
Added-value	**31.6**		**25.0**	

Note : Standard deviation in brackets.

Findings Regarding the Scores:

After two years of primary education, the mean score is 524.9 points in language of instruction and 516.3 points in mathematics. After five years of primary education, the mean score is 513.6 points in Khmer and 512.3 points in mathematics. This shows that pupils have progressed both at the beginning and at the end of the primary cycle.

2. Construction of the Pupil Competency Scales

Pupils in each grade are positioned on a competency scale for each subject evaluated in the tests. Each level of the scale is established according to the nature of the task to be completed in the various exercises (items). Level 1 is the lowest on each scale and includes the easiest items. The levels on the scale gradually increase according to the difficulty of the items and on the competencies that need to be drawn upon to successfully complete the exercises.

The competency scales developed by PASEC are based on a psychometric analysis of the tests which enables to establish a relationship between pupil performance and the difficulty of the various items. Thus, the pupils' level, which is represented by their score, corresponds to the level of competency they have acquired and a given probability of success.

IRT analysis enables to determine the probability that each pupil or group of pupils will successfully answer each item. Pupils of any given level are thus theoretically likely to be able to answer the majority of questions corresponding to this level, which equates to a probability of 50 percent or more of providing a correct answer to the items for this level.

Pupils of a specific level do not all have the same probability of successfully completing the task at hand. Items at one level may resemble each other and call upon similar competencies, but some may prove to be more difficult than others. Certain items at each level may use vocabulary that pupils are less familiar with or more in-depth analysis might be required to tell two answer options apart.

Thus, pupils who find themselves near the lower or upper thresholds of each level have a probability of answering the items at this level which is below 0.50 or above 0.50. Pupils near the upper threshold of a level usually have a significant probability (approximately 30 percent) of providing correct answers to the simpler items from the level above. The dividing line between two competency levels is permeable and some pupils find themselves straddling two levels.

Competency scales are therefore associated with pupils' probability of successfully answering a selection of items that are representative of the various degrees of difficulty of the test,[38] in order to pinpoint the probability that each group of pupils may answer different kinds of items correctly.

[38] See Annex 2.

3. Overview of Pupils' Level of Competency in Khmer after Two Years of Primary Education[39]

Analysis of pupils' Khmer test results at the beginning of Grade 3 provides general insight into young Cambodian pupils' competency level by evaluating their deciphering, reading comprehension and listening comprehension skills. Table 14 shows the distribution of Grade 3 pupils according to the Khmer PASEC competency scale.

It is apparent that Cambodian pupils in the early stages of their education have greater difficulty with their language's script (decomposing words, syntax and so on) than with reading or listening comprehension. The Khmer alphabet is more complex to assimilate than the Latin alphabet (more vowels and consonants, with signs indicating pronunciation, and so on). Syntax is also complex due to the fact that words are not separated by spaces. The function and meaning of words are not conveyed by their morphology but by their respective position in the sentence and how they tie in with other parts of the sentence. Grammar on the other hand seems simpler as there are no cases and no verb conjugation is required.

Box 1: Reading Tables 14, 15, 16 and 17 on Competency Scales

Each competency level in the PASEC scales is established in the following way:

- Items which call upon similar knowledge and know-how and with similar degrees of difficulty are grouped together.
- Pupils are distributed among the various levels according to their probability of providing a correct answer to items grouped into a specific level of difficulty. On average, pupils at any given level should have a 0.50 probability of providing correct answers to the items in that level.

Note: None of the pupils are below Level 1, irrespective of the subject and primary school grade. There are therefore no pupils in Cambodia who display none of the competencies evaluated by the test.

One can assume that many of the pupils at the higher levels of the competency scale have acquired competencies which are higher than those evaluated by the PASEC tests (except the Grade 5 mathematics test which seems to cover more complex aptitudes relatively well). Nonetheless, these higher competencies cannot be outlined as they are not evaluated by these tests.

Photo © Global Partnership for Education

[39] Reminder: this analysis was carried out on pupils at the beginning of Grade 3, which does however correspond to pupils with two years of primary education.

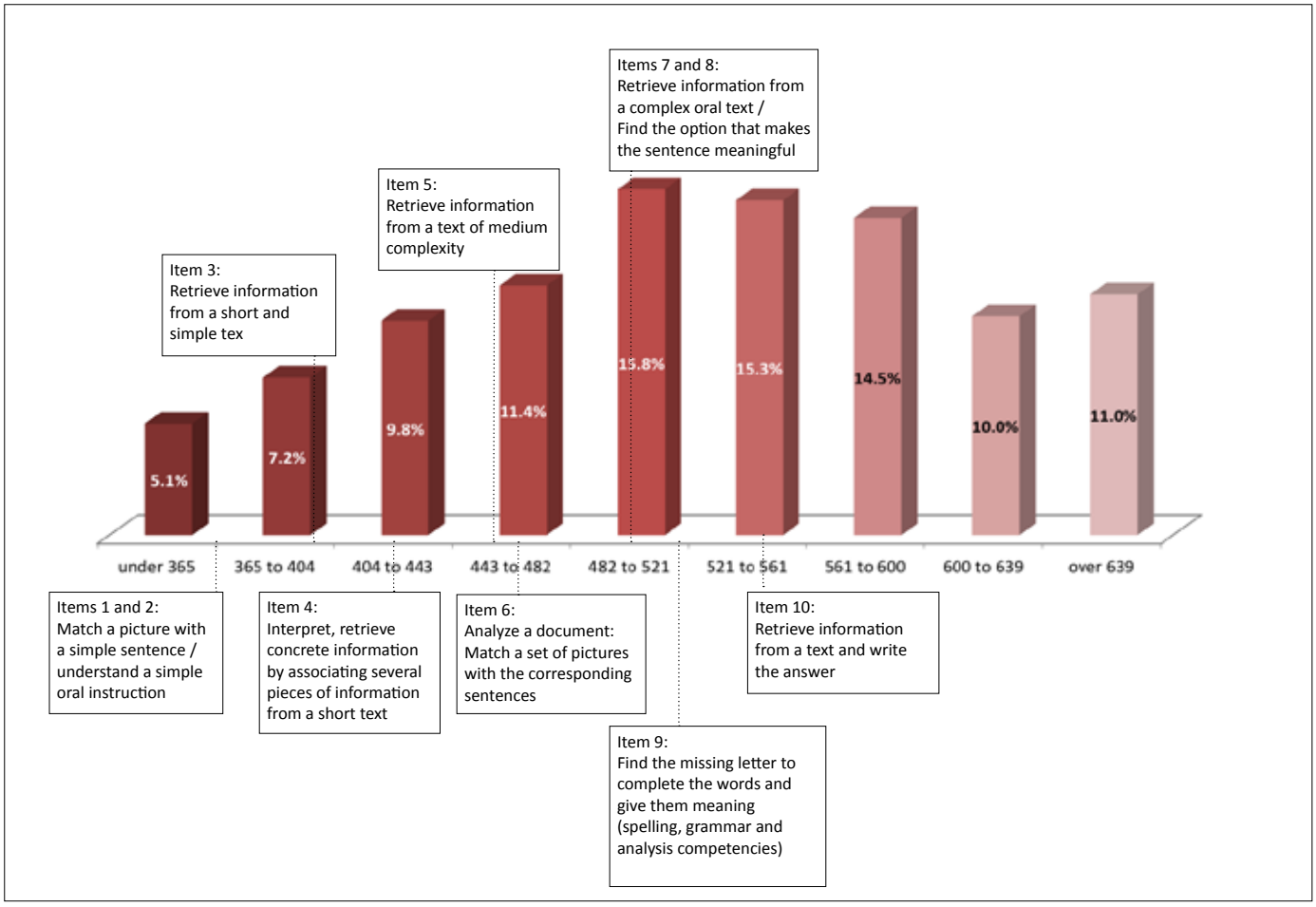
Table 14: Competency Scale in Khmer after Two Years of Primary Education

Level	% Pupils	Types of Items	General Competencies	Types of Tasks	Types of Materials
1	**12.3 %**	1, 2, 3	• Read a text or listen to a message to decipher and recognize information	• Match a word or a sentence with a picture • Find the meaning of a word or sentence • Execute a concrete action	• 1 or 2 sentences • Everyday vocabulary • Low syntax complexity • School or family situation • Multiple-choice questions
2	**21.1 %**	4, 5	• Read a text or listen to a message to retrieve explicit information, and know how to combine information	• Associate several ideas in one sentence • Find specific information in several short sentences • Retrieve information to produce a very short written answer	• Narrative text of 2-3 lines • Everyday vocabulary • Low syntax complexity • School or family situation • Multiple-choice questions • Open-ended questions
3	**15.8 %**	6, 7, 8	• Read a text or listen to a message to combine, interpret or analyze explicit information • Know grammar and syntax rules to produce simple sentences	• Associate several ideas to produce a very short written answer • Associate and combine several pieces of information with knowledge from outside the text • Interpret the meaning of a text and analyze a situation	• Narrative or informative text and documents of 2-3 lines • Everyday vocabulary and new words • Medium complexity syntax • Daily-life or school situations • Multiple-choice questions
4	**50.8 %**	9, 10	• Read a text or listen to a message to combine, interpret or analyze explicit information • Know grammar and syntax rules • Know tones of the language, be able to separate words into syllables and associate graphemes with phonemes • Write a simple sentence to answer a question	• Associate several ideas to produce a very short written answer • Associate and combine several pieces of information with knowledge from outside the text • Interpret the meaning of a text and analyze a situation • Separate words into syllables and phonemes • Transcribe information and write a simple sentence	• Narrative or informative texts and documents of 2-10 lines (long texts) • Everyday vocabulary and new words • Medium complexity syntax • Daily-life or school situations • Multiple-choice questions • Open-ended questions

The following figure provides further insight into the analysis presented in the competency scales. The competencies of pupils in any single level are not homogeneous. The probability of correctly answering a same item differs for pupils who are close to the lower or upper thresholds of a level. Figure 2 shows the distribution of pupils on a single continuum according to their test scores and the positioning of a selection of items (see Annex 3) according to their degree of difficulty. The variation in the competencies of pupils grouped into a same level thus stands out more clearly.

The selected items are representative of the competencies required to answer the majority of the exercises in the Khmer test correctly.

Figure 2: Distribution of Pupils According to their Khmer Test Scores after Two Years of Primary Education



The higher a pupil's score, the greater their probability of answering the items correctly.
These results reveal the following trends:

- Some pupils (5.1 percent) are in great difficulty. These pupils have a low probability of correctly answering items requiring low level competencies: matching a picture with a word or understanding a simple oral instruction.[40]
- Approximately seven percent of pupils have insufficient knowledge of the basics of the Khmer language: they can decipher a simple text, but their understanding is too limited to retrieve explicit information (on average, the likelihood of correctly answering Item 3 is only 47 percent). Deciphering and comprehension proves difficult for them.
- Almost 50 percent of pupils systematically answer medium difficulty items correctly (Items 7 and 8). They are able to understand a text, analyze it, retrieve information and make inferences. These pupils have partial knowledge of the rules and structure of the language.
- Over one fifth of pupils have a probability of 50 percent or more of correctly answering the most difficult item of the test. They have better understanding of written scripts than the average.
- Finally, 67 percent of pupils who took the test have the core competencies expected of them in the early stages of primary education.[41]

40 The probability that these pupils will answer Item 1 correctly is below 50 percent (see the probability tables in Annex 2).

41 These are the minimum core competencies pinpointed by psychopedagogy experts and which are expected in the early stages of primary education, namely: recognizing letters, being able to decipher and understand a short sentence or text and performing simple interpretation and analysis tasks, such as identifying the main character in a text.

4. Overview of Pupils' Competency Levels in Mathematics after Two Years of Primary Education

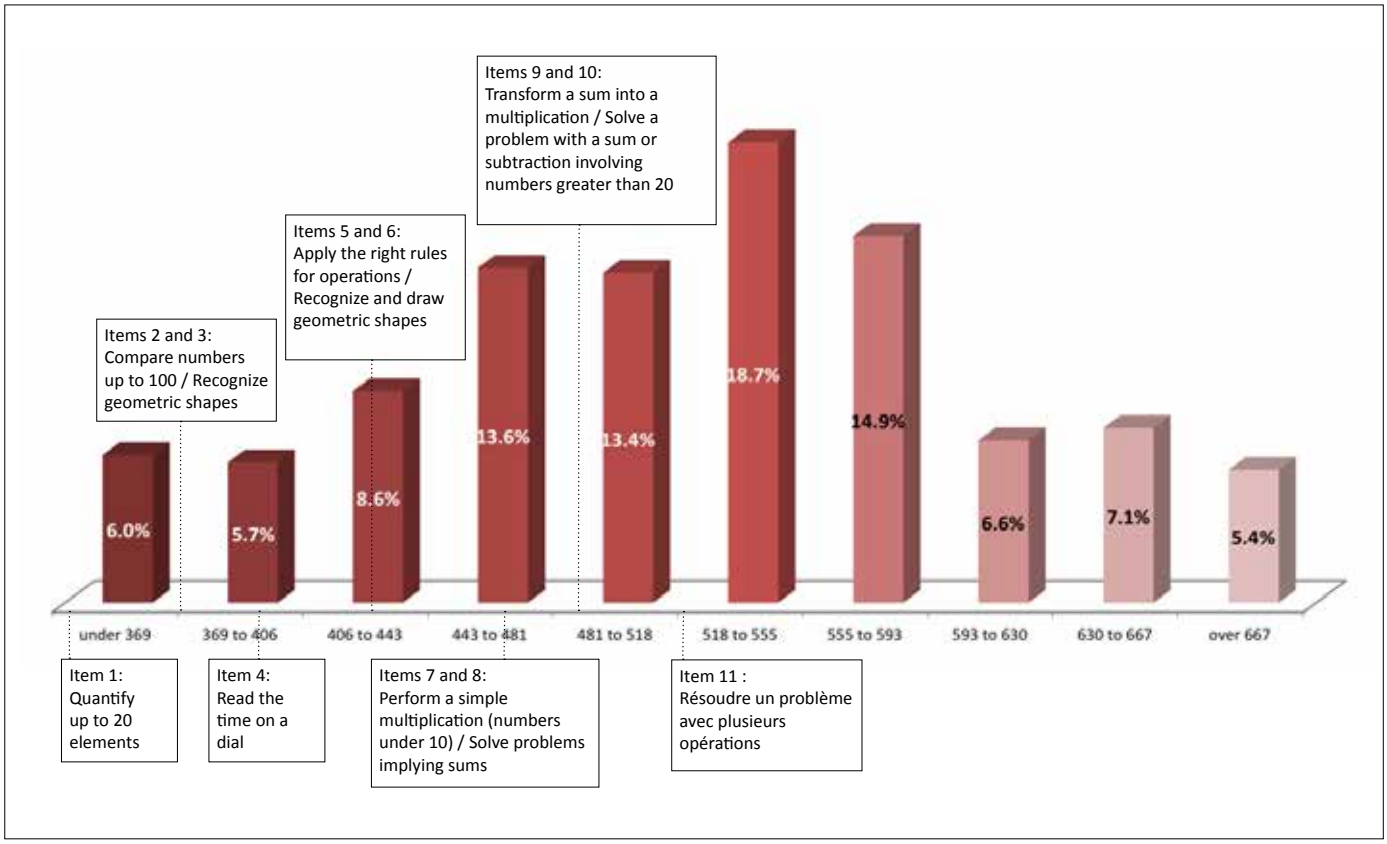
The analysis of pupils' mathematics test results at the beginning of Grade 3 provides a general overview of the level of competency of young Cambodian pupils by testing their counting, geometry and measurement skills. The following table shows the distribution of pupils on the PASEC mathematics competency scale after two years of primary education.

Table 15: Competency Scale in Mathematics after Two Years of Primary Education

Level	% Pupils	Types of Items	General Competencies	Types of Tasks
1	**11.7 %**	1, 2, 3	• Know basic mathematical concepts of arithmetic, geometry and measurement: counting, quantifying, comparing and identifying shapes	**For the weakest pupils at this level:** • Quantify and compare numbers of objects (up to 20) • Identify a simple geometric shape **For the strongest pupils at this level:** • Perform a sum with numbers lower than 10 • Compare, count and quantify up to 100
2	**22.2 %**	4, 5, 6	• Know intermediate mathematical concepts and apply them: calculate, identify shapes, appraise and measure size	**For the weakest pupils at this level:** • Use operation signs • Perform an operation (subtract and sum with numbers under 100) • Compare numbers under 100 • Complete a simple series • Recognize and compare the length of objects using a common unit of measurement • Tell the time • Identify and draw simple geometric shapes **For the strongest pupils at this level:** • Perform simple multiplications (numbers under 10) • Solve a simple and concrete problem with numbers under 20
3	**13.4 %**	7, 8	• Know intermediate mathematical concepts and apply them: calculate, identify shapes, measure • Apply the logic of rational approach	• Perform a multiplication with numbers under 10 • Determine which operation should be performed to solve a simple problem that requires only one operation (sum or subtraction) with numbers under 20 • Identify the properties of simple geometric shapes • Measure a period of time • Identify dates and read a calendar
4	**52.7 %**	9, 10, 11	• Know intermediate mathematical concepts • Reason	• Solve a problem with several operations involving numbers greater than 20 • Reformulate a problem • Transform a sum into a multiplication

The mathematics test was initially devised for French-speaking African countries and was adapted to the Cambodian context. More in-depth analysis of the competencies of the more advanced Cambodian pupils would seem to require including a greater number of higher level items.

Figure 3: Distribution of Pupils According to their Mathematics Test Scores after Two Years of Primary Education



The higher a pupil's score, the greater their probability of answering the items correctly.

These results reveal the following trends:

- The probability that pupils with a score above 518 (hence 52.4 percent of pupils) will correctly answer the most difficult item (Item 11) is well over 50 percent.[42]
- Some pupils (six percent) do not have the core competencies expected of them at the end of Grade 2.[43] These pupils are however able to quantify up to 20 elements.
- Approximately six percent of pupils have a relatively low level. They are able to quantify up to 20 elements (up to 100 for the most advanced among them), and can perform sums and subtractions with numbers under 10, but have difficulties performing calculations with numbers above 10. They are not able to draw on the competencies required to solve a simple problem and cannot do multiplications.

42 See the probability tables in Annex 2.

43 The minimum competencies expected at the international level.

5. Overview of Pupils' Competency Levels in Khmer after Five Years of Primary Education

Table 16: Competency Scale in Khmer after Five Years of Primary Education

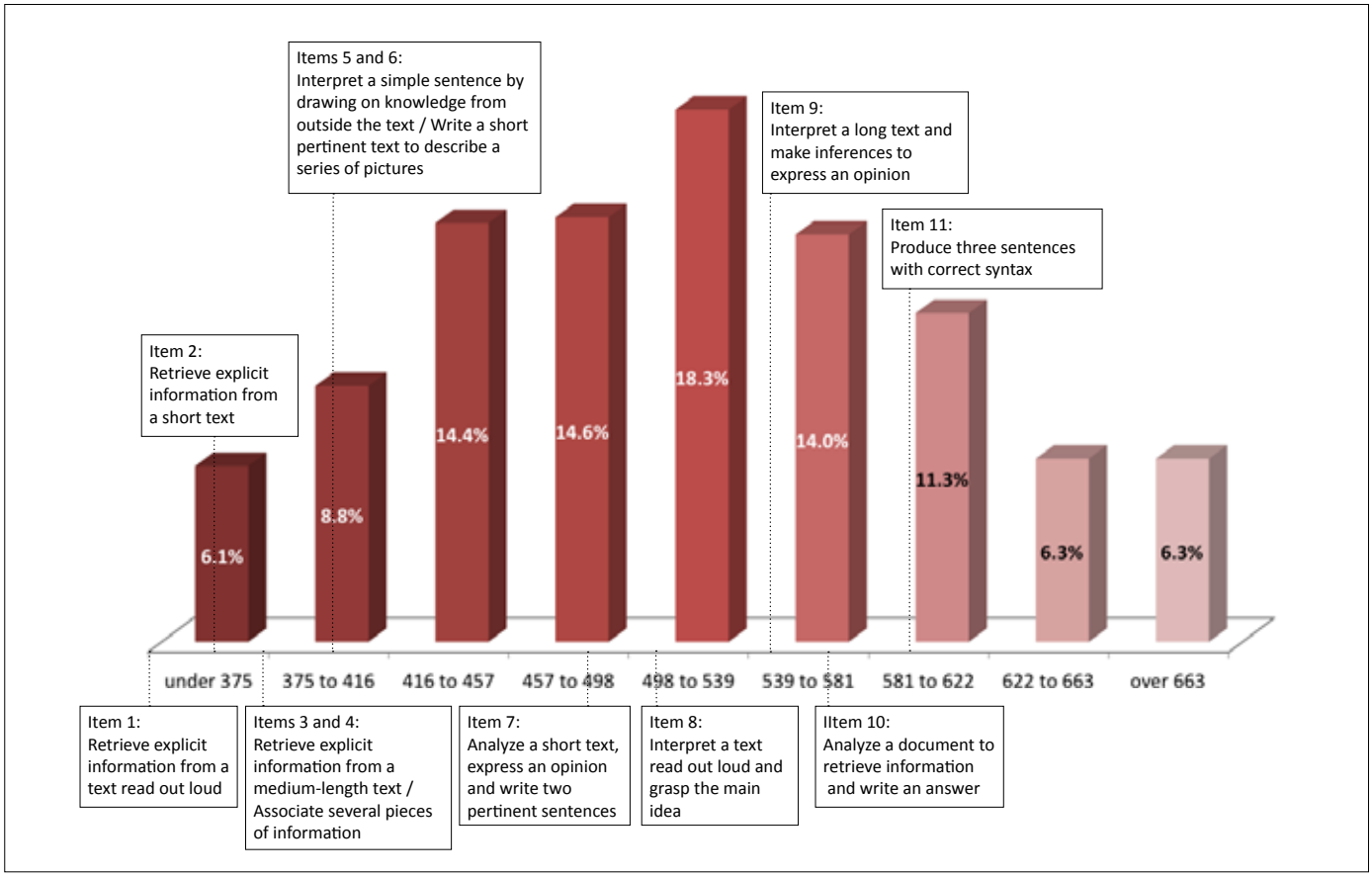
Level	% Pupils	Types of Items	General Competencies	Types of Tasks	Types of Materials
1	**6.0 %**	1, 2	• Read a text or listen to a message to retrieve explicit information	• Retrieve specific information from several short sentences • Retrieve information then produce a very short written answer	• Narrative or informative texts or documents of 5-10 lines • Everyday vocabulary • Syntax: short sentences, one piece of information per sentence • Tense: present • School or daily-life situation
2	**8.8 %**	3, 4, 5	• Read a text or listen to a message to retrieve explicit information and associate information or interpret a sentence	• Retrieve the right information, then associate and combine several ideas • Interpret a sentence	• Narrative or informative texts and documents of medium length (20 lines maximum) • Everyday vocabulary from daily life • Syntax: short sentences, one piece of information per sentence • Tense: present, simple past • School or daily-life situation
3	**29 %**	6, 7	• Read a text or listen to a message to interpret information and produce a pertinent written answer	• Perform simple deductions and inferences • Associate and combine several pieces of information with knowledge from outside the text • Associate and combine several pieces of information located in different parts of the text • Produce written arguments	• Narrative or informative texts and documents of medium length (20 lines maximum) • Every day vocabulary and new words • Syntax: several pieces of information, transition words, punctuation • Tenses: present, simple past, future • School or daily-life situations
4	**32.3 %**	8, 9, 10	• Read a text or listen to a message to analyze information and produce a pertinent written answer with partial knowledge of written script	• Perform subtle deductions and inferences and understand a medium-difficulty text • Analyze a text to grasp the main idea • Compare several texts to retrieve the right information • Produce written arguments (2 sentences) with correct syntax	• Narrative and informative text of 10-20 lines • Everyday vocabulary and new words • Syntax: several pieces of information, transition words, punctuation • Tenses: present, simple past, future • School or daily-life situation
5	**23.9 %**	11	• Read a text or listen to a message to analyze information and produce a grammatically correct answer • Know written syntax	• Perform subtle deductions and inferences, and understand the nuances in a long text • Analyze a text to grasp the main idea • Produce written arguments (4 sentences) with correct syntax	• Narrative and informative texts of 20 lines or more (long texts) • Everyday vocabulary and new words • Syntax: several pieces of information, transition words, punctuation • Tenses: present, simple past, future • School or daily-life situation

The analysis of pupils' Khmer test results after five years of primary education provides a general overview of Cambodian pupils' level of competency by evaluating reading comprehension, listening comprehension and writing skills. The distribution of pupils on the Khmer competency scale after five years of primary education is as follows:

- As for Grade 2 pupils, mastering the written script proves to be most difficult for a majority of Grade 5 pupils. Most pupils are able to produce a short pertinent written answer, although their answers contain errors of syntax.
- Approximately 15 percent of Grade 5 pupils find it difficult to produce a pertinent written answer and to interpret and analyze a written text. Their knowledge of the language remains limited and does not correspond to the competencies that are expected of them at the end of primary school. These pupils are unable to produce a written answer and find it difficult to understand a medium or long text. Their vocabulary is limited.
- Over 61 percent of pupils are at the intermediate levels of the scale and thus display various competencies: interpretation of a relatively long texts containing everyday and more advanced vocabulary, the ability to write a pertinent answer or to analyze a text to grasp the main idea.
- Almost one quarter of pupils (23.9 percent) display the full range of language competencies expected of them at the end of the primary cycle. These pupils have a 50 percent probability of successfully answering the most difficult item (Item 11).[44]

The distribution of pupils among the various levels is shown in the figure below:

Figure 4: Distribution of Pupils According to their Khmer Test Scores after Five Years of Primary Education



The higher a pupil's score, the greater their probability of answering the items correctly.

[44] See the probability tables in Annex 2.

6. Overview of Pupils' Level of Competency in Mathematics after Five Years of Primary Education

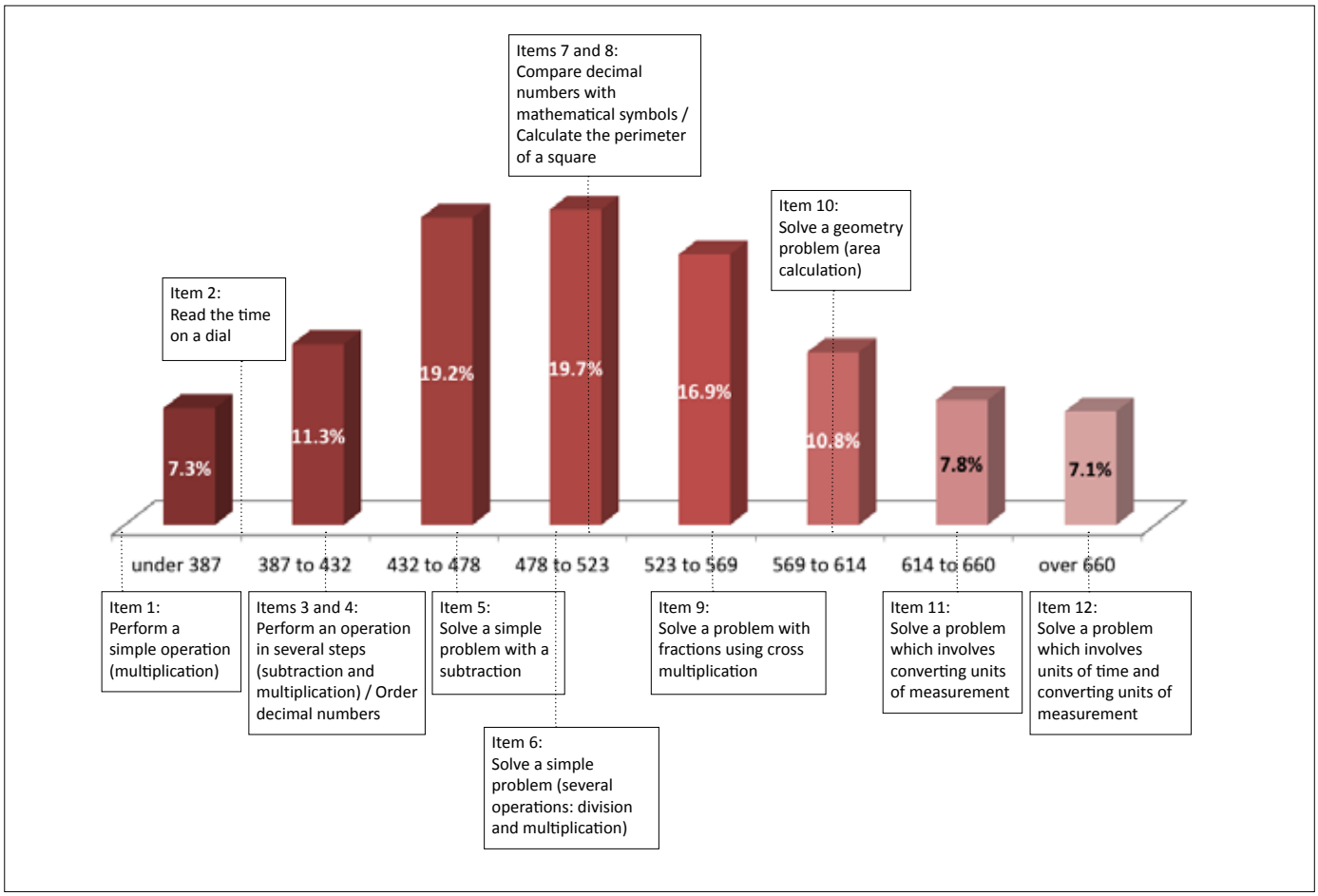
The mathematics test requires pupils to draw on the same types of skills as in the early stages of primary education (counting, measurement, geometry). Pupils in the later stages of the primary cycle are distributed as follows on the PASEC mathematics competency scale.

Table 17: Scale of Competencies in Mathematics after Five Years of Primary Education

Level	% Pupils	Types of Items	General Competencies	Types of Tasks
1	**7.2 %**	1, 2	• Know and apply basic mathematical concepts: counting, geometry and measurement	• Write numbers in full and vice versa • Compare quantities with whole numbers greater than 1,000 • Add and subtract without regrouping • Know the main units of measurement (liter/meter/kilogram/hour) and how to convert units with the use of a conversion table • Tell the time on a dial (exact hour without half-hours) • Know the various types of basic lines and geometric shapes
2	**11.3 %**	3, 4	• Know and apply basic mathematical concepts: counting, geometry and measurement	• Know the basic properties of geometric shapes (square, rectangle, triangle), angles, perimeters and lines • Perform simple operations with whole numbers without regrouping (sum, subtraction, multiplication) • Know the rules to apply when performing operations (priority and order) • Order series of whole numbers larger than 1,000 and decimal numbers • Understand the notion of cardinality • Tell the time (exact hour and half-hours)
3	**38.9 %**	5, 6, 7, 8	• Know and apply intermediate mathematical concepts • Reason	**For the weakest pupils (19.2 percent):** • Know the properties of shapes and calculate the surface area of simple geometric shapes (with the formula indicated in the test) • Perform slightly more complex operations (sums and subtractions with regrouping, simple divisions, multiplication) • Analyze a simple situation to solve a concrete problem with a single operation • Measure common objects with the right unit of measurement • Convert measurements using conversion tables **For stronger pupils (19.7 percent):** • Interpret and analyze data in a double entry table • Calculate circumference and area without a reminder of formulas • Know the properties of solids • Convert units of time (day/hour/minute and so on)
4	**27.7 %**	9, 10	• Know and apply intermediate mathematical concepts • Reason	• Perform complex operations (multiplication of decimal numbers), cross-multiplication, calculations with percentages • Solve abstract problems in several steps (operations and conversions) • Draw on competencies in geometry to calculate diameters, circumferences and areas in problem-solving situations
5	**14.9 %**	11, 12	• Know and apply intermediate mathematical concepts • Reason	• Solve complex and abstract problems, with several operations and decimal numbers, percentages, conversion of units of measurement and calculations calling upon knowledge of geometry (areas and so on) • Reduce fractions so as to compare them and perform complex divisions • Draw on competencies in various domains to solve problems

Figure 5 shows the distribution of pupils according to their scores relative to the difficulty of certain items.

Figure 5: Distribution of Pupils According to their Mathematics Test Scores after Five Years of Primary Education



The higher a pupil's score, the greater their probability of answering the items correctly.

These results reveal the following trends:

- Almost one fifth of pupils (18.5 percent) display relatively limited competency in mathematics, their level being below the threshold of competencies that are expected of them at the end of the primary cycle. These pupils are not able to draw on their knowledge to reason and solve mathematical problems.
- Approximately two in five pupils (38.9 percent) have an average level: they can solve concrete problems but encounter difficulties with abstract problems.
- A relatively large proportion of pupils (42.6 percent) has a high level of competency and has acquired the majority of competencies that are expected of them at the end of the primary cycle.

These combined results reveal that 80 percent of pupils seem to have acquired the minimum competencies required to continue their education. However, 15 to 20 percent of pupils (depending on their grade and the subject) face considerable difficulties.

PASEC tests were designed for Sub-Saharan Africa and the test papers were originally intended to be in French. These tests were adapted for Cambodia with the help of the national team. Nonetheless, the level of difficulty of the tests proves to be too low, which means that the level of competency of the stronger pupils cannot be analyzed in depth. This phenomenon is more pronounced at the beginning than at the end of the primary cycle. It is thus recommended that the level of PASEC tests be raised for future evaluations.

Chapter 4:

Education Disparities in Cambodia

The aim of this chapter is to highlight the main disparities in pupil performance brought to light by the diagnostic evaluation of the Cambodian education system.

The scores for the Cambodia evaluation were standardized separately for Grade 2 and Grade 3 cohorts and Grade 5 and Grade 6 cohorts. The mean score at the national level is 500 points and the standard deviation is 100 points.

1. Gender Disparities

The PASEC evaluation sample comprises as many girls as boys in all the grades evaluated in the survey (Grades 2, 3, 5 and 6).

The diagnostic evaluation reveals that girls achieve better results than boys in Khmer, irrespective of their education level.[45]

However, girls and boys obtain similar results in mathematics at the beginning of Grades 2 and 3. In other words, the analyses do not highlight any significant differences between boys and girls at the beginning of Grades 2 and 3. In the other grades evaluated by the survey, girls perform better than boys and the difference in performance is estimated to be almost 10 points at the beginning of Grade 5 and more than 7 points at the beginning of Grade 6.[46]

These observations confirm the results of several international studies which show that girls' performance in mathematics at primary school is at least equal to that of boys, although girls are under-represented in scientific streams at a later stage. Girls also perform better than boys in language tests, which raises questions concerning teaching practices in this subject.[47]

The table below shows the pupils' performance according to gender and grade.

Table 18: Pupils' Mean Performance, by Gender

	Grade 2	Grade 3	Grade 5	Grade 6
Khmer				
Girls	481.1	530.3	495.5	524.1
Boys	472.0	519.0	474.9	501.3
Difference in favor of girls	+9.1	+11.3	+20.6	+22.7
Mathematics				
Girls	486.8	517.9	491.8	515.8
Boys	482.6	514.6	482.1	508.2
Difference in favor of girls	+4.2	+3.3	+9.7	+7.6

45 Significance level of 0.05 for Grade 2 and 0.01 for the other grades.

46 Significance level of 0.05 for Grade 5 and 0.10 for Grade 6.

47 Borgonovi, F. and Kakubowski, M. (2011). *Que peut nous apprendre PISA sur l'écart entre les garçons et les filles?* Policy Forum of the UNESCO International Institute for Education Planning.

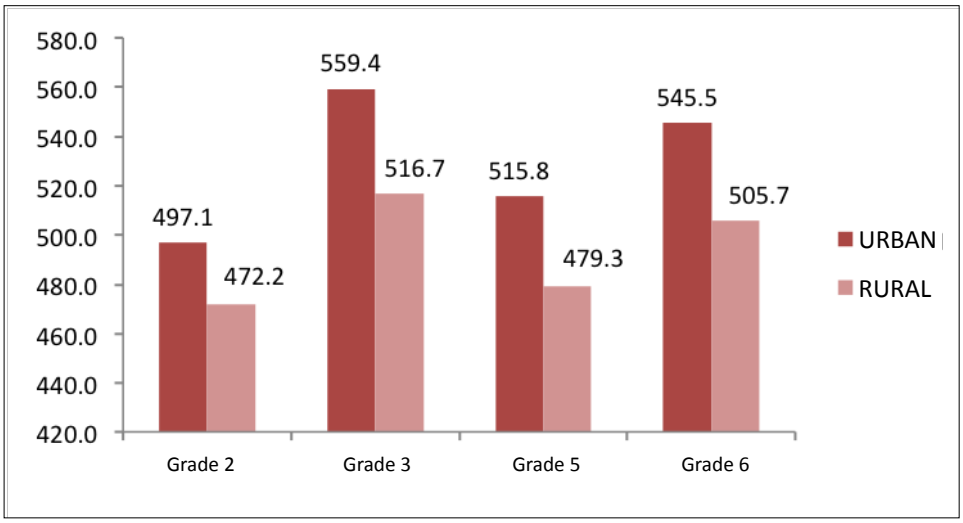
2. Analysis by Area of Residence

Urban areas are the economic hubs and decision-making centers of the country. Analyses undertaken by PASEC over more than two decades point to the fact that pupils in urban areas usually achieve better results than pupils in rural areas. This situation is also observed in Cambodia.

In the language of instruction (Khmer), pupils in Grades 3, 5 and 6 in urban areas perform far better than those in rural areas.

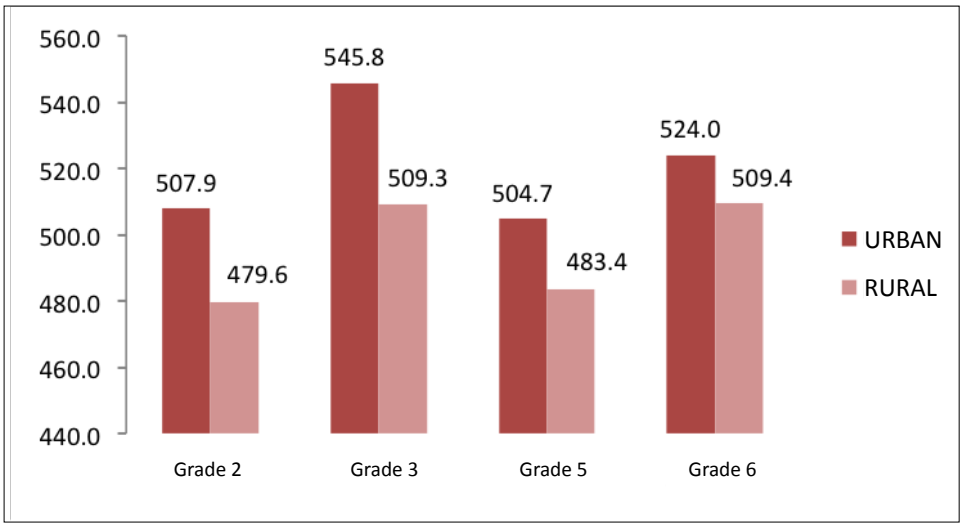
It was not possible to statistically measure the differences of performance between Grade 2 pupils in urban and rural areas, even though the graphs tend to show a considerable difference in the performance of pupils in these respective areas. The differences in performance which are observed are therefore linked to sample fluctuations.

Figure 6: Pupils' Mean Khmer Scores, by Area of Residence



In mathematics, Grade 2 pupils in urban areas appear to perform better than those in rural areas. There is a difference between the scores of 28.4 points, which is statistically significant. This difference appears to increase in Grade 3, where it stands at 36.5 points, and is significant. The difference in the performances of pupils in urban and rural areas in mathematics in Grades 5 and 6 is not statistically significant.

Figure 7: Pupils' Mean Mathematics Scores, by Area of Residence



Irrespective of the subject evaluated, pupils in urban areas achieve better results than those in rural areas in all grades, with the exception of the Khmer test taken by Grade 2 pupils.

3. Regional Disparities

For the purpose of the survey, Cambodia was divided into six main areas which constitute the strata of the sample. These strata are either single regions or a grouping of regions. Chapter 2 of this report specified that almost 40 percent of the schools are located in the area referred to as the PLAIN, 30 percent in TONLE SAP and 11 percent in the PLATEAU AND MOUNTAINS. The remaining schools are located in other urban areas (9.5 percent), the COASTAL area (6.4 percent) and PHNOM PENH (5.3 percent), to a lesser extent. The performances of the various areas were compared to those in the PLAIN to conduct significance testing.

Pupils at the beginning of Grade 2 in the PHNOM PENH area have a mean score of 587.7 points. This score is significantly higher than that of pupils in the PLAIN area (474.6). The same trend is observed with pupils at the beginning of Grades 3, 5 and 6, with mean scores of 635.9, 558.3 and 587.1 points respectively. However, with a margin of error of 0.1, the analyses reveal that the mean scores of pupils at the beginning of Grades 2 and 6 in the COASTAL area are inferior to those of pupils in the PLAIN area. With a margin of error of 0.01 on the other hand, the mean score of pupils at the beginning of Grade 5 in the COASTAL area (440.4 points) is significantly inferior to that of pupils in the PLAIN area (482.5 points). On the whole, it appears that mean performance is lowest among pupils in the COASTAL stratum, whereas it is highest among pupils in the PHNOM PENH stratum. The following table summarizes the mean performance of pupils in each grade and region.

Table 19: Pupils' Mean Performance in Khmer, by Strata

	Grade 2	Grade 3	Grade 5	Grade 6
PLAIN (REFERENCE)	474.6	518.6	482.5	507.8
TONLE SAP	454.0	512.1	479.8	507.4
COASTAL	444.0	511.5	440.4	481.4
PLATEAU AND MOUNTAINS	497.4	521.7	489.6	517.8
PHNOM PENH	587.7	635.9	558.3	587.1
OTHER URBAN AREAS	486.4	536.4	499.0	531.6

In mathematics, the scores of Grade 2 pupils in the COASTAL and PHNOM PENH areas are significantly different from those in the PLAIN area.[48] Pupils in the COASTAL area have a mean score of 431.2 points, which is significantly lower (at the 0.01 level of significance), whereas those in PHNOM PENH achieve a mean score of 594.5 points which is significantly higher (at the 0.01 level of significance).[49] The mean score of pupils in the reference area (PLAIN) is 490 points.

The scores of pupils in TONLE SAP, PLATEAU AND MOUNTAINS and the other urban areas are not significantly different from the scores in the PLAIN area.

With regard to the higher grades (Grades 3, 5 and 6), only the pupils in PHNOM PENH significantly stand out from those in the PLAIN. The performance of pupils in the other areas is statistically equivalent to that of pupils in the PLAIN area.

Table 20: Pupils' Mean Performance in Mathematics, by Strata

	Grade 2	Grade 3	Grade 5	Grade 6
PLAIN (REFERENCE)	490.0	514.3	492.5	518.6
TONLE SAP	464.4	498.8	469.6	499.1
COASTAL	431.2	499.6	465.7	496.8
PLATEAU AND MOUNTAINS	503.0	517.8	488.3	503.1
PHNOM PENH	594.5	602.4	547.3	572.2
OTHER URBAN AREAS	474.6	536.0	491.1	512.3

[48] In the remainder of the report, the terms "Grade 2, 3, 5 and 6 pupils" will be used to refer to "pupils at the beginning of Grades 2, 3, 5 and 6." As mentioned earlier, we consider that pupils at the beginning of Grade 3 have completed two full years of primary education and that pupils at the beginning of Grade 6 have completed five full years of primary education.

[49] In the remainder of this report, the term "significant difference" or other equivalent expression will be used when statistical significance reaches the 0.1 level

4. Analysis by Pupils' Household Socioeconomic Status

The socioeconomic status of the households where pupils live is determined on the basis of multiple correspondence analysis (MCA),[50] undertaken on variables representing parents' possessions: home, appliances, information and communication technology, means of transport, as well as educational and cultural items. These possessions are described in more detail in the following chapter.

MCA produces a living standards indicator which is at its lowest in the case of households with the least good living standards and at its highest in that of the wealthiest households of the sample. This indicator differentiates between the wealthiest households – for example those who own a car, live in a permanent home, have toilets with running water, own electrical appliances such as refrigerators, cookers, and so on – from the less well-off households – who usually live in semi-permanent homes at best, have neither running water nor electrical appliances, use mopeds or bicycles for transport, or have no means of transport at all. The indicator does not establish whether a household is rich or poor but it enables a ranking of the pupils in the survey according to their living standards. Having calculated this indicator, pupils were then grouped into four categories using a hierarchical linear model. These groups were defined in such a way as to ensure low variance within a group, but high variance from one group to another.

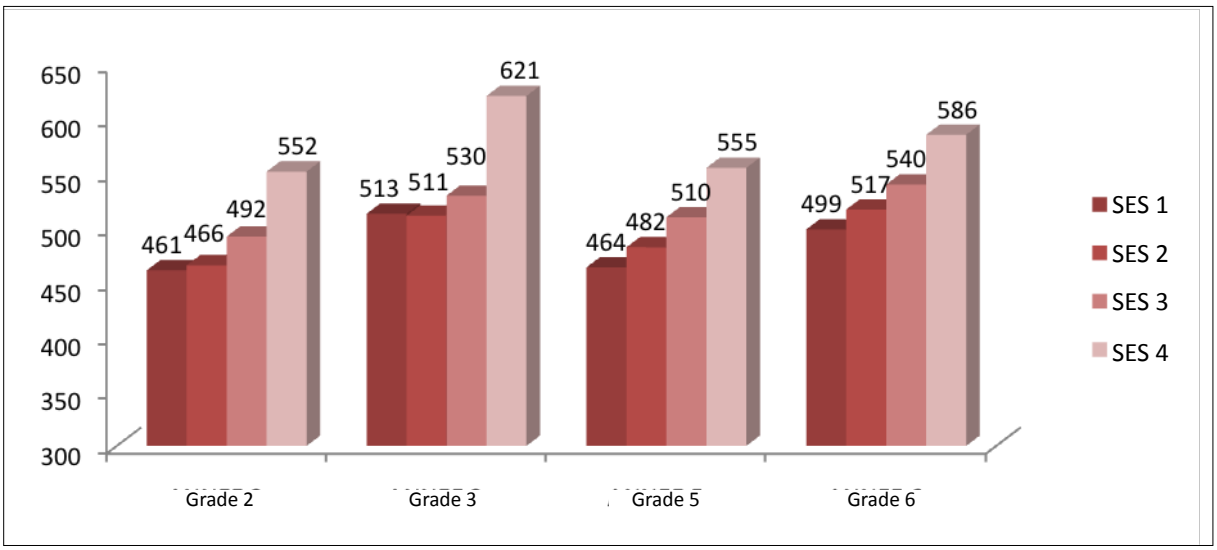
Irrespective of the primary grade and the subject evaluated, a comparative analysis reveals a positive correlation between pupils' performance at school and their socioeconomic status. In this analysis, the reference category comprises pupils whose households are ranked at the lowest point of the scale (SES 1). The mean scores of pupils with higher socioeconomic status are thus compared to the mean score of this reference category.

With regard to language of instruction in Grade 2, there is no significant difference between the mean scores of pupils from households belonging to the two most vulnerable socioeconomic groups (SES 1 and SES 2). On the other hand, significant differences can be observed between the two wealthiest groups (SES 3 and SES 4) and the most vulnerable group.

In Grade 3, it is notable that pupils of SES 1 and those of SES 2 and SES 3 have the same results in language of instruction on average, according to the statistical tests carried out. However, pupils from SES 4 clearly stand out from those of SES 1, with a (significant) difference in performance, of more than 100 points.

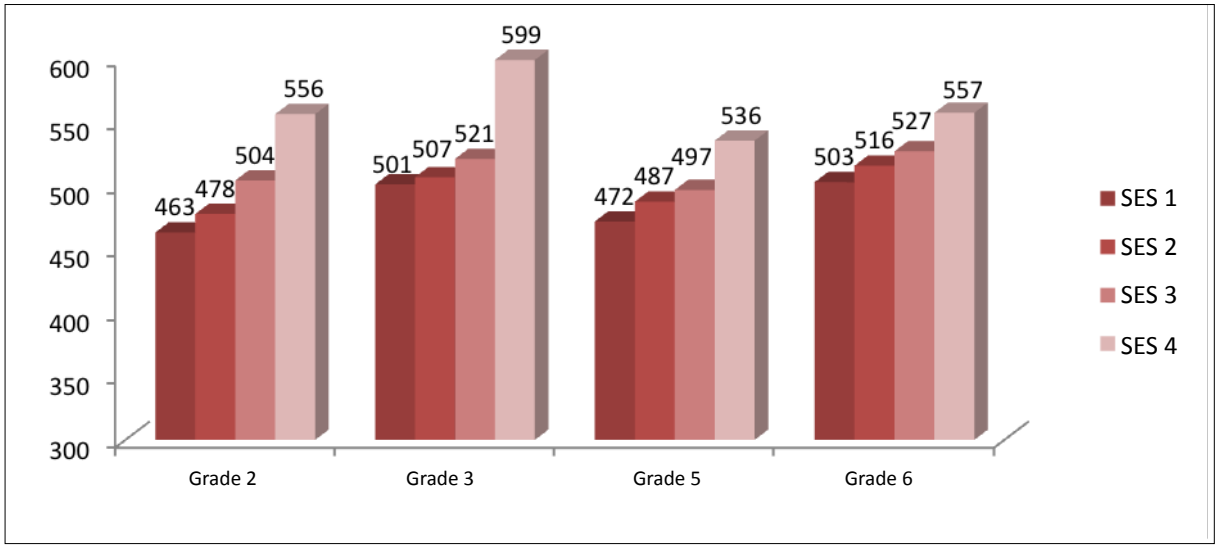
The following figures show the scores of pupils in the language of instruction and mathematics tests, according to the socioeconomic status (SES) of their household.

Figure 8: Pupils' Mean Khmer Scores, by Socioeconomic Status



[50] Multiple correspondence analysis is a statistical method which enables to synthesize a set of variables into one indicator. The indicator calculated here is obtained via a linear combination of possessions whose weight is determined by the model.

Figure 9: Pupils' Mean Mathematics Scores, by Socioeconomic Status



In Grades 5 and 6, a positive correlation can be observed between school results and living standards: pupils whose households fall into the wealthiest categories perform best.

Mathematics results follow the same trend, especially in the later stages of primary school.

In Grade 3, pupils from the SES 1 and SES 2 categories achieve the same results on average, according to the statistical tests. However, in this same grade, pupils from the SES 3 and SES 4 categories obtain much higher scores than those from the more vulnerable households (SES 1).

In Grades 2, 5 and 6, a positive and significant correlation can be observed between pupils' level of performance and the living standards of their households.

By the beginning of Grade 3, a gap appears between the performances of pupils from the most vulnerable households (SES 1) and of those from the wealthiest ones (SES 4) in both Khmer and mathematics. However, the primary cycle does not succeed in bridging this divide.

Photo © Global Partnership for Education

Chapter 5 :

Factors of Quality in the Cambodian Education System

The approach adopted by PASEC for the purpose of diagnostic evaluations is based mainly on the works of Lockheed and Verspoor (1990) and of Jarousse and Mingat (1993b), which have shown that schooling conditions and the characteristics of pupils' learning environments influence their performance at school. This approach consists in comparing the material and organizational school environments with learning outcomes, by identifying performance factors linked to the different characteristics of the various actors.

The previous chapter highlighted that pupils' performance is potentially correlated with variables such as school location, pupils' gender and so on. This chapter takes these analyses one step further and provides in-depth insight into: (i) the way in which the factors are correlated with pupil performance; (ii) the extent of these correlations;[51] and (iii) the possible interaction between factors at various levels (pupil versus school).

The PASEC evaluation method consists in administering tests to primary school pupils to assess learning outcomes, by selecting an average of 15 pupils per level,[52] after one and two years of schooling (beginning of Grade 2 and of Grade 3) and after four and five years of schooling (beginning of Grade 5 and of Grade 6), in each of the 180 schools selected.[53] This method thus brings to light a hierarchical structure in the data collected on pupils and schools. Relationships can be observed: (i) between the individual characteristics of pupils and their competencies in mathematics or reading comprehension; and (ii) between school-related factors (characteristics of the school) and performance.

Several analyses have shown that the study of data presenting a hierarchical structure in social sciences, and in particular in the education sector, highlights differences between first level units (pupils) as well as differences which can be attributed to higher level units (classes, schools and possibly countries).[54]

School-related factors constitute variables upon which political, administrative and education (in particular inspectorate services) decision-makers can take concrete action.[55] However, certain non-school factors should also be taken into consideration as they influence learning outcomes and can be targeted by other types of public policies (school grants, support for vulnerable families and so on).[56]

The impacts of these various factors are estimated using econometric modeling.[57] A summary of the results produced by this modeling is presented in this chapter.

Box 2: How to Read the Econometric Modeling Result Tables

Econometric modeling result tables present the coefficients of the regression of the variables with the measurement of pupil competency (score). Results should be read in the following way:

The coefficient of a given variable represents the expected increase of a pupil's score associated with a one-unit increase or change in the state of this variable.

Non-significant coefficients are not mentioned in the results and are replaced by "NS" (non-significant). With regard to significant coefficients, asterisks are juxtaposed on the following basis: *** for 0.01 (margin of error of 1 percent); ** for 0.05 (margin of error of 5 percent) and * for 0.1 (margin of error of 10 percent).

The standard errors associated with the estimation of the coefficients are indicated in brackets below each coefficient.

51 It should be kept in mind that taking the omitted variables into account, reflected in the percentage of unexplained variance, may substantially modify the magnitude of these correlations.

52 In Cambodia, given that pupils' progress was measured at the school level, the sample was constructed by drawing pupils from Grade 3 and Grade 6 (see Chapters 2 and 3).

53 The sampling method is presented in Chapter 2.

54 Bryk, A. S. and Raudenbush, S. W. (1998). *Hierarchical Linear Models: Application and Data Analysis Methods* (2nd edition). Thousand Oaks: Sage Publications. / OECD (2010). PISA 2009 Results: *What Makes a School Successful? Resources, Policies and Practices* (Volume IV), PISA, OECD Publishing. http://dx.doi.org/10.1787/9789264091559-en

55 Infrastructures, equipment, pedagogical supervision and so on.

56 Gender, age and so on.

57 Detailed results – *Outputs de l'analyse HLM des données de l'évaluation au Cambodge* – are available in electronic format and to the general public on request (pasec@confemen.org).

1. Differences in Performance between Pupils and Schools

Chapter 3 showed that differences exist between the performance of pupils, in particular when it comes to their ability to perform a specific task. The hierarchical structure of data collected in the context of the diagnostic evaluation in Cambodia suggests that these differences in performance can be broken down into three levels: differences between pupils in a same class, differences between classes in a same school and differences between schools.[58] In the scientific literature, education systems which display considerable differences in performance between schools are considered to be less equitable than systems which display a lower variance between schools.

Box 3: Determination of the Components of Variance in Learning Outcomes

From a theoretical standpoint, variance in learning outcomes may stem from three sources:

- The pupils within the classes;
- The classes within the schools, as there are usually several classes for any given primary grade; and
- The schools.

To analyze the variance of learning outcomes in the context of this study, PASEC used the methodology described by L. M. O'Dwyer (2002), which is based on the postulate that gains observed between two grades are identical from one school to another.

The advantage of this approach is that it breaks down variance between classes into two aspects: variance between schools and variance between classes within schools. However, in the context of the Cambodia evaluation, two grades were surveyed: Grade 2 and Grade 3 for the beginning of the primary cycle, and Grade 5 and Grade 6 for the end of the primary cycle. To compensate for the different grades of the surveyed classes, a constant was added to the scores of the lower grades. A three-level hierarchical linear model was then used to calculate the variance in learning outcomes: Level 1 corresponds to pupils, Level 2 to classes and Level 3 to schools.

Table 21: Breakdown of the Total Variance in Learning Outcomes

Disciplines and Grades	Level of Analysis	Variance Components (*)	Shares (%)
Grade 2 and Grade 3 – Khmer	Level 1: Pupils	2 698.3	32.1 %
	Level 2: Classes	1 875.0	22.3 %
	Level 3: Schools	3 831.8	45.6 %
	Total	8 405.1	100.0 %
Grade 2 and Grade 3 – Mathematics	Level 1: Pupils	3 433.6	37.3 %
	Level 2: Classes	1 342.2	14.6 %
	Level 3: Schools	4 433.3	48.1 %
	Total	9 209.1	100.0 %
Grade 5 and Grade 6 – Khmer	Level 1: Pupils	4 537.3	47.0 %
	Level 2: Classes	1 238.7	12.8 %
	Level 3: Schools	3 881.7	40.2 %
	Total	9 657.7	100.0 %
Grade 2 and Grade 3 – Mathematics	Level 1: Pupils	3 010.0	29.7 %
	Level 2: Classes	1 987.7	19.6 %
	Level 3: Schools	5 121.5	50.6 %
	Total	10119.1	100.0 %

Note : (*) The variance components at the school and class levels are significant at the 0.01 level.

58 O'Dwyer, L. M. (2002). "Extending the Application of Multilevel Modeling to Data from the Third International Mathematics and Science Study," in Robitaille, D. F. and Beaton, A.E. (dir.), *Secondary Analysis of the TIMSS Results: A Synthesis of Current Research*, Dordrecht: Kluwer Academic Publishers, 359-373.

The evaluation of learning outcomes in mathematics shows that 50.6 percent (Grade 5 and Grade 6) and 48.1 percent (Grade 2 and Grade 3) of the total variance in competencies are observed at the school level, whereas under 38 percent of this variance is observed at the pupil level. In the language of instruction (Khmer), 40.2 percent and 45.6 percent of the total variance in competencies are observed at the school level, for Grade 5 and Grade 6 on the one hand, and Grade 2 and Grade 3 on the other.

The design of the sample also highlights a variance between classes of two surveyed levels (beginning of Grade 2 and of Grade 3 on the one hand, and beginning of Grade 5 and of Grade 6 on the other), but within schools. The variances observed between classes are significant and reach proportions situated between 12.8 percent and 22.3 percent of the total variance in competencies.

These figures indicate that average performance varies considerably from one school to another, which may mirror the fact that some schools are more efficient than others, but more likely that some schools are attended by pupils from wealthier backgrounds and others by pupils from more vulnerable backgrounds.

Much of the variance observed in terms of learning outcomes may thus be explained by differences in the characteristics of schools, which is why a multi-level analysis[59] of the relationships between explanatory factors and the performance of pupils and schools is required.[60]

2. Relationship between Pupils' Socioeconomic Status and their Learning Outcomes

By applying longitudinal methods, researchers who have followed the development of children's vocabulary have observed that socioeconomic background impacts cognitive competencies and behavior from the moment they enroll in school (Willms, 2002). Furthermore, the performances of children whose parents have a low income, a low level of education, are unemployed or have low-skilled jobs are usually lower than those of their classmates from wealthier backgrounds. They are usually less likely to be involved in school or extracurricular activities than their peers from wealthier households (Datcher, 1982; Finn and Rock, 1997; Johnson, Crosnoe and Elder, 2001; Voelkl, 1995).

In the context of the evaluation of the Cambodian education system, PASEC assessed the socioeconomic status of pupils using an index which aggregates the possessions[61] owned by pupils' households. These possessions are divided into five categories: home (type of abode and degree of comfort), domestic appliances (air conditioning, refrigerator, cooker and so on), information and communication technology (telephones, televisions, radios and computers), means of transport (car, moped) and educational or cultural items (books).

Photo © Global Partnership for Education

59 Nezlek, J. B. (2008). "An Introduction to Multilevel Modeling for Social and Personality Psychology", *Social and Personality Psychology Compass*, vol. 2, 842-860.

60 See the presentation of hierarchical linear models in Annex 1.

61 Multiple correspondence analysis was used to aggregate all these factors into a synthetic socioeconomic status indicator, as outlined in Chapter 4.

Pupils from wealthier households achieve better scores than those from more vulnerable ones

Two separate multi-level regression analyses were carried out: the first on pupils at the beginning of Grade 2 and Grade 3 and the second on pupils at the beginning of Grade 5 and Grade 6.

Table 22: Relationship between Pupils' Socioeconomic Status and Performance, Using the Hierarchical Linear Model

Variables	Regression Coefficients	
	Grades 2 and 3	Grades 5 and 6
Khmer		
Pupil socioeconomic index	6.64*** (2.31)	5.29** (2.17)
The pupil is in Grade 3	46.37*** (6.02)	---
The pupil is in Grade 6	---	30.06*** (5.00)
Constant (of the model)	475.54*** (6.08)	480.60*** (6.43)
Mathematics		
Pupil socioeconomic index	7.78*** (2.16)	6.90*** (2.21)
The pupil is in Grade 3	31.76*** (5.20)	---
The pupil is in Grade 6	---	26.79*** (6.06)
Constant (of the model)	481.73*** (7.01)	482.20*** (7.43)

This table shows that pupils from the wealthiest households perform better than those from more vulnerable ones. This difference is statistically significant irrespective of grade and subject. It also appears that the correlation is slightly stronger in the earlier stages of primary school (Grades 2 and 3) as the regression coefficient which determines the slope (intensity) of the (linear) correlation is slightly higher for these grades: a one unit increase in the socioeconomic index would increase pupils' Khmer score by 6.64 points and their mathematics score by 7.78 points, on average and within schools, in Grades 2 and 3.[62]

In Grades 5 and 6, the same variation in the socioeconomic index would increase pupils' Khmer score by 5.29 points and their mathematics score by 6.9 points.

Schools are unable to bridge the gap between inequalities in pupil performance brought about by their socioeconomic background as the same inequalities in performance are observed at the beginning and at the end of the primary cycle.

The relationship between socioeconomic status and pupil performance varies from school to school

Some schools may be attended only by pupils from wealthy households (schools in the capital in particular) or pupils from vulnerable households (rural areas). These contextual differences between schools may be the source of different relationships between individual pupils' performance and their socioeconomic status.

[62] The socioeconomic index created is centered (average of 0) and reduced (standard deviation of 1) by design.

Box 4: How to Read Figures 10 and 11

The graphs in Figures 10 and 11 show the relationship between pupils' socioeconomic indexes and their performance, throughout the schools in the sample.

In each of these graphs:

- Pupils' competencies are shown on the y-axis.
- Pupils' socioeconomic indexes are shown on the x-axis.
- Each of the lines in the graph represents the linear regression line of the competency score as a function of the socioeconomic index, for the pupils of a given school. Each line therefore represents one school from the survey sample, hence a total of 180 lines in each graph.
- The steeper the slope of a regression line, the stronger the correlation between socioeconomic indexes and the performance of pupils in a school. This means that a small variation in the socioeconomic index would bring about a big increase in the competency score.

Figure 10: Correlation between Socioeconomic Status and the Performance of Grade 2 and Grade 3 Pupils in the Survey Schools

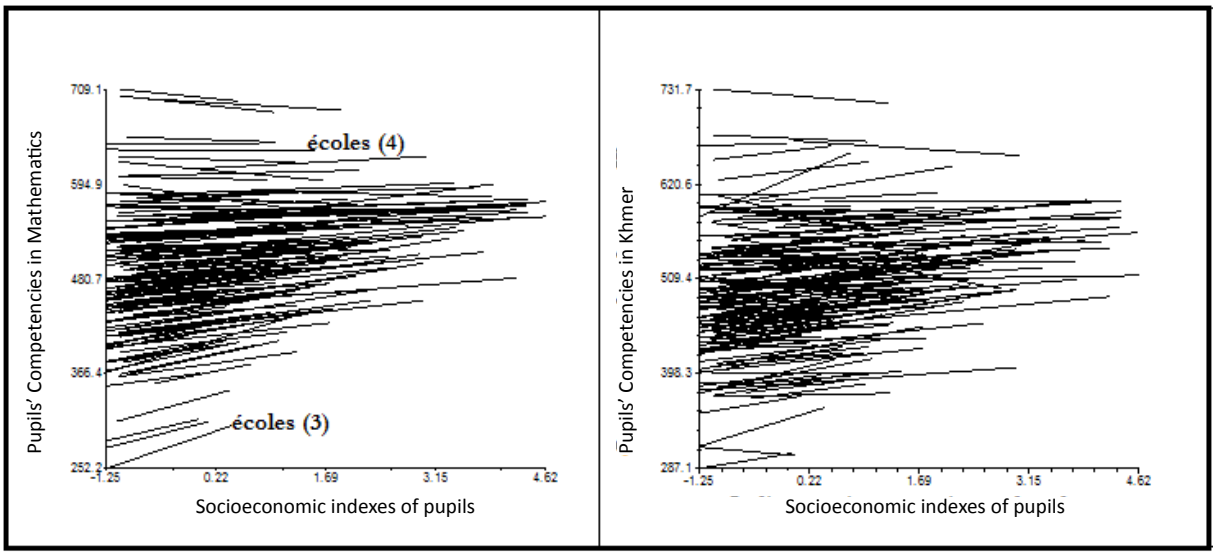
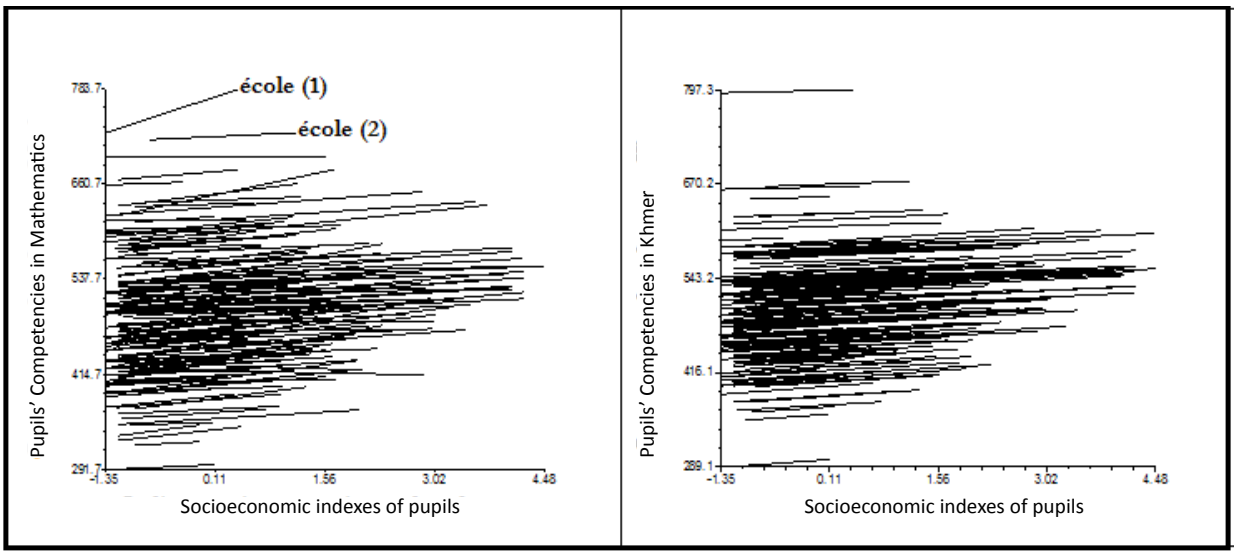


Figure 11: Correlation between Socioeconomic Status and the Performance of Grade 5 and Grade 6 Pupils in the Survey Schools



The previous figures show that the relationship between pupils' socioeconomic status and their performance varies to a greater or lesser extent, from one school to another. At the end of the primary cycle (Grades 5 and 6), the relationship between socioeconomic status and performance is relatively homogeneous (especially in Khmer), apart from a few slight differences (in mathematics) between certain schools. In School 1 for example, socioeconomic status has a slightly stronger influence on mathematics competencies than in School 2. At the beginning of the primary cycle (Grades 2 and 3), the relationship between socioeconomic status and performance is relatively heterogeneous in schools.[63,64] In mathematics for example, the relationship is positive for the pupils in School 3, whereas the relationship is almost inexistent for pupils in School 4. It can thus be observed that in the case of mathematics at the beginning of the primary cycle, the most efficient schools (lines located in the upper part of the graph) tend to be the most equitable in terms of pupils' competencies as related to socioeconomic status.[65] The intensity (slope of the lines) of the influence that socioeconomic status has on competencies is somewhat lower in these schools, whereas it is stronger in the least efficient schools (located in the lower part of the graph and which display weaker performances).

The PASEC survey proves that the school context has a greater influence on pupil performance than socioeconomic status. One way of erasing inequalities in the education system would thus be to invest in the educational environment at large.

Schools attended by pupils from the wealthiest households perform better than schools attended mainly by pupils from more vulnerable households

A socioeconomic index was calculated for schools as the average of the socioeconomic indexes of the pupils enrolled in each. The table below shows a positive correlation between the mean socioeconomic status of a school and the mean performance of its pupils, irrespective of the subject evaluated and of the primary school grade.

Table 23: Correlation between the Socioeconomic Status and Performance of Schools, Controlling for the Socioeconomic Status of Pupils, Using the Hierarchical Linear Model

Variables	Regression Coefficients	
	Grades 2 and 3	Grades 5 and 6
Khmer		
Pupil socioeconomic index	6.39*** (2.30)	5.22** (2.17)
Mean school socioeconomic index	21.67*** (6.13)	21.05*** (6.22)
The pupil is in Grade 6	---	30.02*** (5.00)
The pupil is in Grade 3	46.39*** (6.03)	---
Constant (of the model)	481.25*** (5.79)	486.13*** (6.11)
Mathematics		
Pupil socioeconomic index	6.89*** (2.14)	6.96*** (2.23)
Mean school socioeconomic index	27.08*** (6.49)	13.07* (6.68)
The pupil is in Grade 6	---	26.81*** (6.06)
The pupil is in Grade 3	31.81*** (5.20)	---
Constant (of the model)	488.84*** (6.72)	485.61*** (7.23)

63 The statistical tests indicate that the variations in the regression coefficients for pupil performance as a function of socioeconomic status are significant at the school level.

64 This can also be explained by the selection process which gradually occurs as pupils progress through the primary cycle. The weaker pupils gradually drop out leaving only the stronger pupils behind, so the relationship between performance and socioeconomic status is less pronounced in the later stages of the cycle.

65 Hierarchical linear models (HLM) highlight correlations between the mean performance of schools and the regression coefficients of pupils' socioeconomic status. The results of the analysis show that these trends are observed for pupils in Grade 2 and Grade 3 in mathematics. See the table in Annex 4.1.

Photo © Global Partnership for Education

These results indicate that the mean socioeconomic status of a school has a relatively important influence on the mean performance of its pupils: a one unit increase in the mean socioeconomic status of schools is correlated with a 27.1 point increase in the mean score of schools in mathematics and a 21.7 point increase in Khmer in Grades 2 and 3. In Grades 5 and 6, the relationship is similar in Khmer but appears to be less pronounced in mathematics compared to Grades 2 and 3. The relationship between socioeconomic status and performance seems to be more pronounced at the school level than at the pupil level, the intensity of the correlation (regression coefficient) being higher at the school level.

Furthermore, schools attended by pupils from wealthier backgrounds are also better endowed in terms of equipment and infrastructure, as shown in Table 24. As regards the 25 percent of schools with the lowest socioeconomic status (according to the mean socioeconomic status of the pupils enrolled), none have a first aid kit (0 percent), very few have electricity (8.9 percent) or a paying/free canteen (4.4 percent; 6.7 percent). However, for the 25 percent of schools with the highest socioeconomic status, 17.8 percent have a first-aid kit or an infirmary, more than half have access to electricity and a water supply point (51.1 percent); and over two thirds (71.1 percent) have a library. The better material conditions in schools attended by children from wealthier backgrounds constitutes an additional factor that certainly has positive repercussions on learning outcomes.

Table 24: Availability of Equipment and Infrastructure in Schools, by Socioeconomic Status

Equipment and Infrastructure	Percentage of Schools Among the 25% of Schools with the Lowest Socioeconomic Status	Percentage of Schools Among the 25% of Schools with the Highest Socioeconomic Status
Schools with a water supply point	26.7 %	51.1 %
Schools with electricity	8.9 %	51.1 %
Schools with a sports field/ground	20.0 %	46.7 %
Schools with a paying canteen	4.4 %	24.4 %
Schools with a free canteen	6.7 %	6.7 %
Schools with latrines for pupils	68.9 %	73.3 %
Schools with a pharmacy/infirmary	0.0 %	17.8 %
Schools with a library	24.4 %	71.1 %

The difference in performance between pupils from the wealthiest households and those from the most vulnerable ones is similar in urban and rural areas

The tests also enable to assess whether the difference in performance between pupils from wealthy households and those from vulnerable ones varies depending on whether pupils reside in rural or urban areas. Econometric modeling results indicate that the difference in performance in favor of pupils from wealthier backgrounds remains identical on average, irrespective of whether pupils attend school in rural or urban areas (Table 25).

Hence, the fact that pupils reside in urban or rural areas does not accentuate the relationship that is observed between socioeconomic status and pupil performance.

Table 25: Cross-Effect of Pupils' Socioeconomic Status and School Location in a Rural Area on Pupils' Performance, Controlling for the Mean Socioeconomic Status of the School

Variables	Regression Coefficients	
	Grades 2 and 3	Grades 5 and 6
Khmer		
Pupil Level		
Pupil Socioeconomic Index (Constant)	6.38*** (2.33)	5.20** (2.20)
Interaction of the socioeconomic index with location in a rural area	NS	NS
School Level		
Mean School Socioeconomic Index	22.27*** (6.57)	19.42** (7.54)
Location in rural area	NS	NS
The pupil is in Grade 6	---	30.04*** (5.00)
The pupil is in Grade 3	46.38*** (6.03)	---
Constant (of the model)	481.20*** (5.78)	486.07*** (6.12)
Mathematics		
Pupil Level		
Pupil Socioeconomic Index (Constant)	6.79*** (2.20)	6.96*** (2.22)
Interaction of the socioeconomic index with location in a rural area	NS	NS
School Level		
Mean School Socioeconomic Index	26.26*** (7.35)	14.16* (7.90)
Location in rural area	NS	NS
The pupil is in Grade 6	---	26.79*** (6.06)
The pupil is in Grade 3	31.79*** (5.20)	---
Constant (of the model)	488.71*** (6.69)	485.61*** (7.23)

The data collected during the PASEC evaluation reveals that pupils from the most vulnerable backgrounds live mainly in rural areas. Table 26 shows that over half of pupils residing in urban areas are in the wealthier groups (SES 3 and SES 4), whereas over 70 percent of pupils living in rural areas are in the two most vulnerable groups (SES 1 and SES 2).

Table 26: Distribution of Pupils in Urban and Rural Areas, by Socioeconomic Status

Area of Residence	SES 1	SES 2	SES 3	SES 4	Total
Grade 2 and 3					
Urban	12.0 %	20.7 %	44.2 %	23.1 %	100.0 %
Rural	31.2 %	39.3 %	26.6 %	2.9 %	100.0 %
Grade 5 and 6					
Urban	20.6 %	26.0 %	31.1 %	22.3 %	100.0 %
Rural	46.9 %	38.6 %	12.7 %	1.8 %	100.0 %

Note : The methodology used to define socioeconomic status (SES) was explained in Chapter 4.
Reminder: pupils are distributed according to their socioeconomic status, from the most vulnerable (SES 1) to the wealthiest (SES 4)

Thus, although differences in performance are not accentuated by the fact that pupils live in urban or rural areas, score differences reveal that rural areas are at a disadvantage as the majority of pupils from vulnerable households are located in these areas.

Learning conditions in rural areas are less conducive to learning outcomes

The comparison of mean performances (see Chapter 4) showed that pupils in urban schools achieve better scores than pupils in rural schools. However, the results of the modelization of effects (Table 27) no longer show a significant difference between pupils according to their area of residence, once key factors linked to social status, pupils' gender, repetition and parental involvement at home have been controlled for. However, it has already been pointed out in this chapter that these factors vary considerably depending on whether pupils reside in rural or urban areas. Pupils from vulnerable households mainly reside in rural areas, pupils in rural areas are more affected by repetition and the parents of pupils living in rural areas are less involved in their children's education at home. Paying special attention to the (rural) location of schools would almost certainly help to single out pupils who are facing difficulties at school so as to then set up remedial measures.

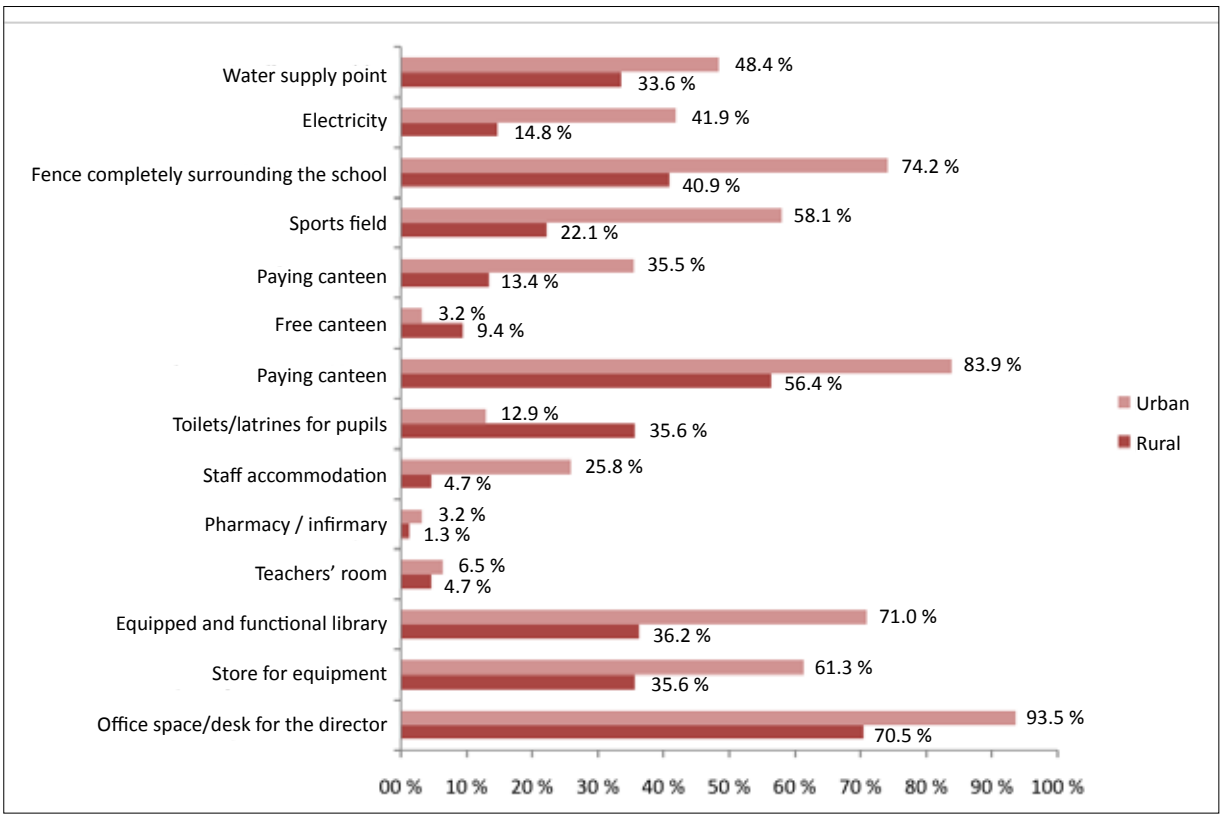
Table 27: School-Level Factors Associated with Learning Outcomes

School-Level Variables	Regression Coefficients	
	Grade 2 and 3	Grade 5 and 6
Khmer		
The school is located in a rural area	NS	NS
Mean school socioeconomic index	26.50*** (6.34)	15.39*** (7.16)
Constant (of the model)	462.98* (16.10)	484.54*** (14.49)
Mathematics		
The school is located in a rural area	NS	NS
Mean school socioeconomic index	24.60*** (7.42)	NS
Constant (of the model)	480.35*** (16.45)	472.08*** (13.38)

Schools in urban areas are better equipped than those in rural areas

The following figure shows that schools located in urban areas are considerably better provided for in terms of infrastructure and equipment than schools in rural areas.

Figure 12: Percentage of Schools in Urban and Rural Areas with Specific Infrastructure



The profile of school directors is relatively disparate between urban and rural areas

The table below summarizes the characteristics of directors according to school location, based on data collected during the PASEC evaluation.

Gender parity is far from being attained when it comes to school directors: only 7.3 percent of directors are women. The spread is even more inequitable when the location of schools is taken into consideration. Even though women run 18.8 percent of schools in urban areas, only 4.8 percent of schools in rural areas are run by women.

Table 28: Characteristics of Directors in the 180 Survey Schools

Characteristics of Directors	Location		
	Urban	Rural	Both Areas
The director is a woman	18.8 %	4.8 %	7.3 %
Number of years' experience as a director	9.6	9.9	9.8
Number of years' experience as a teacher	14.9	12.3	12.7
Has a university qualification (degree, master's degree…)	12.5 %	5.4 %	6.7 %
Has received initial education of 12 + 2 years[66]	12.5 %	8.1 %	8.9 %
Has received initial education equivalent to 12 + 2 years[67]	46.9 %	55.4 %	53.9 %
Has received initial education of 9 + 2 years[68]	15.6 %	18.2 %	17.8 %
Has received another kind of training	12.5 %	12.9 %	12.7 %

According to the data gathered, directors have approximately 10 years of experience in their posts. However, the number of years of experience that directors have as teachers is higher, and stands at 13 years on average. It can be observed that directors' level of education is higher in urban areas. A small proportion of directors with education equivalent to the baccalaureate followed by two, three or five years of studies occupy posts in rural areas (13.5 percent), compared to 25 percent in urban areas. These figures back up the previous conclusions concerning the fact that urban schools are better provided for than rural schools. Observations concerning infrastructure and equipment hold true for the academic and professional training of school directors.

To conclude, the findings of the survey highlight that socioeconomic status has a major influence on pupil performance. Proof has also been provided that the school context can erase inequalities stemming from pupils' socioeconomic status. Nonetheless, the Cambodian education system remains inequitable because schools with the best conditions are also those attended by the wealthier pupils. Rural areas tend to be attended by the most vulnerable children and have schools which are the least well provided for, while also displaying the lowest performance. This issue merits critical consideration.

3. Other Factors Influencing Learning Outcomes

Girls perform better than boys at primary school

The results of pupil competency models reveal that girls perform better than boys both in mathematics and Khmer at the end of the primary cycle. Table 29 shows that this performance gap between girls and boys is more pronounced in Khmer, where it stands at +17.5 points in favor of girls, than in mathematics (+4.1 points in favor of girls).[69]

At the beginning of the primary cycle, girls perform better than boys only in mathematics. Hence, it appears that the gap between boys and girls in Khmer becomes more pronounced between the beginning and the end of the primary cycle.

These results also entail higher promotion rates for girls as well as lower repetition and dropout rates (see Chapter 1 of this report). This trend can also be observed in the majority of the Organization for Economic Cooperation and Development (OECD) countries, where more boys drop out than girls and where boys achieve less good results than girls, in particular in reading comprehension.[70] A study of data from the Program for International Student Assessment (PISA) shows a positive link between reading for pleasure – something girls do more than boys – and pupils' performance in reading comprehension.[71] The gap between boys and girls in reading comprehension could be reduced by encouraging boys to read written content which is of interest to them (comics, manga, sports magazines and so on). Even though the quest for parity pushes the education system to provide uniform education to both boys and girls, it does seem important to provide a wide range of remedial measures for their specific difficulties, while taking their respective activities and tastes into account.

66 Meaning studies equivalent to the baccalaureate followed by two years of further education.

67 No longer provided by the Ministry of Education and is equivalent to "12 + 2 years." However, some directors who have this qualification still work in primary schools.

68 This would correspond to the secondary school leaving examination plus two years of further education.

69 This coefficient was calculated controlling for socioeconomic status, parental involvement at home, whether pupils live at home, frequency of repetition and the difference of level between the two classes. These values remain unchanged even when controlling for school characteristics.

70 Eurydice (2009). *Différences entre les genres en matière de réussite scolaire: étude sur les mesures prises et la situation actuelle en Europe,* Brussels: European Commission, EACEA.

71 Borgonovi, F. and Kakubowski, M. (2011). *Que peut nous apprendre PISA sur l'écart entre les garçons et les filles?* Policy Forum of the UNESCO International Institute for Education Planning.

Pupils who benefit from parental involvement at home are more successful at school

Help with homework is provided by parents (mother or father) to half (50.4 percent) of the pupils at the end of the primary cycle. Pupils at the beginning of the primary cycle get slightly more help from their parents (54.8% pupils). The effect of parental involvement on performance is more pronounced at the beginning of the primary cycle than at the end, and especially in mathematics (Table 29). Pupils at the beginning of the primary cycle who are most in need of supervision (especially at home) react favorably to parental involvement at home, irrespective of the subject. However, such involvement by parents is dependent on their literacy and level of education,[72] which means that many parents are unable to help their children. Parental involvement seems to be greater in urban than in rural areas. Bolstering parental involvement in rural areas could have a positive outcome on pupils' results. This would be particularly beneficial in view of the fact that pupils residing in rural areas represent 81 percent of the total number of pupils at the beginning of the primary cycle (Grade 2 and Grade 3).

Few studies have been carried out on educational support programs, but all tend to confirm that the link between these programs and performance at school is relatively low. However, these studies do admit that in-depth research has yet to be carried out and that the effect is pupil-dependent. Weaker pupils would benefit far more from such support, especially when assistance is provided with their homework.[73] Measures involving parents in some of these sessions have also proved more effective. Even though these support programs may not have direct repercussions on learning outcomes, they do tend to foster a better attitude to schooling among pupils. Assisting pupils with their homework at school could prove to be of crucial importance, because "society and families are changing. Long hours worked by both parents or single parents, the fast-increasing trend of resorting to child-minding services after school, transformations in the family unit such as separation, all contribute to creating a context which often makes it difficult for homework to be done at home. These difficulties are further exacerbated when children have learning difficulties, parents are illiterate or feel foreign to the school culture. As a result, children are not all equal when it comes to homework: some children are not in a position to fully benefit from it. Homework then becomes a source of stress and tension within families, and may also contribute to fostering negative attitudes to school. This is turn can have an impact on school perseverance."[74]

Photo © Global Partnership for Education

[72] According to the UNESCO Institute for Statistics, the literacy rate for adults over the age of 15 was 73.9 percent in 2009 (http://stats.uis.unesco.org/unesco/TableViewer/tableView.aspx?ReportId=210).

[73] Piquée, C. and Suchaut, B. (2002). "Les dispositifs d'accompagnement à la scolarité: fonctionnement, public, efficacité et équité," in *Les Notes de l'IREDU*, Dijon: CNRS-Université de Bourgogne (http://www.fastef-portedu.ucad.sn/cesea/iredu/notes/note021.pdf).

[74] Conseil supérieur de l'éducation (2010). *Pour soutenir une réflexion sur les devoirs à l'école primaire*, Québec (http://www.cse.gouv.qc.ca/fichiers/documents/publications/Avis/50-0467.pdf).

Table 29: Pupil-Level Factors Associated with Learning Outcomes

Variables	Regression Coefficients	
	Grade 2 and 3	Grade 5 and 6
Khmer		
The pupil is a girl	4.10** (1.88)	17.53*** (3.00)
The pupil lives with their parents	NS	NS
The pupil's parents are involved in their school work	3.68** (1.75)	NS
The pupil's socioeconomic status	6.10*** (1.54)	4.94*** (1.80)
Number of classes repeated by the pupil	NS	−8.46* (2.15)
The pupil is in Grade 6	---	30.25*** (5.06)
The pupil is in Grade 3	46.89*** (5.97)	---
Constant (of the model)	471.34*** (6.22)	469.79*** (7.68)
Mathematics		
The pupil is a girl	NS	4.12* (2.41)
The pupil lives with their parents	NS	NS
The pupil's parents are involved in their school work	8.11*** (2.01)	4.44** (2.07)
The pupil's socioeconomic status	7.13*** (1.72)	6.19*** (1.53)
Number of classes repeated by the pupil	NS	−3.68** (1.57)
The pupil is in Grade 6	---	27.11*** (5.99)
The pupil is in Grade 3	32.14*** (5.17)	---
Constant (of the model)	480.90*** (7.23)	475.45*** (7.73)

Parental involvement is dependent on pupils living at home. Once the effect of parental involvement is measured, the variable "the pupil lives with their parents" indicated in Table 29 measures the gap in performance between pupils living at home but who do not benefit from parental involvement and pupils not living with their parents. Models reveal that irrespective of the subject and primary grade, there is no significant difference between the competencies of pupils who do not live with their parents and the competencies of pupils who live with their parents but do not benefit from parental support at home. The results show that living at home has a positive influence on pupils' learning outcomes only if parents supervise their children's homework.

The practice of repetition varies according to pupils' area of residence and pupils' socioeconomic groups

The practice of repetition is supposed to help pupils who are having difficulties at school to progress through the grades at their own speed. Repetition affects pupils differently depending on whether schools are located in rural or urban areas and it affects certain groups more than others.

Table 30: Frequency of Repetition, by Area of Residence

Frequency of Pupil Repetition	Grade 2 and 3			Grade 5 and 6		
	Urban	Rural	Both Areas	Urban	Rural	Both Areas
The pupil has never repeated a grade	70.6 %	66.6 %	67.3 %	72.0 %	60.4 %	62.6 %
The pupil has repeated one grade	28.2 %	30.7 %	30.3 %	25.8 %	35.1 %	33.3 %
The pupil has repeated two grades	1.2 %	2.7 %	2.4 %	1.7 %	3.4 %	3.1 %
The pupil has repeated more than two grades	---	---	---	0.5 %	1.1 %	1.0 %
Total	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %

This table shows the spread of pupils who declare having repeated at least one primary grade. The percentage of pupils who have repeated one to five grades during the primary cycle seems quite high, at over 27 percent for each of the four grades surveyed. **The practice of repetition affects pupils living in rural areas to a greater extent:** 70.6 percent of Grade 2 and Grade 3 pupils in urban areas declare they have never repeated a class, compared to 66.6 percent of pupils in rural areas; in Grades 5 and 6, 72 percent of pupils in urban areas declare they have never repeated a grade, compared to 60.4 percent in rural areas. The high frequency of repetition in rural areas can be explained in part by pupils' low level of performance in these areas (see Chapter 4) compared to urban areas.

Table 31: Frequency of Repetition, by Pupils' Gender

Frequency of Pupil Repetition	Grade 2 and 3		Grade 5 and 6	
	Girls	Boys	Girls	Boys
The pupil has never repeated a grade	68.4 %	66.2 %	66.4 %	58.2 %
The pupil has repeated one grade	29.8 %	30.8 %	30.5 %	36.6 %
The pupil has repeated two grades	1.8 %	3.0 %	2.2 %	4.2 %
The pupil has repeated more than two grades	---	---	0.9 %	1.0 %
Total	100.0 %	100.0 %	100.0 %	100.0 %

This table shows that boys repeat slightly more than girls, irrespective of the surveyed grade.

Table 32: Frequency of Repetition, by Socioeconomic Status

Frequency of Pupil Repetition	Socioeconomic Status			
	SES 1	SES 2	SES 3	SES 4
Grade 2 and 3				
The pupil has never repeated a grade	65.9 %	67.6 %	68.4 %	67.8 %
The pupil has repeated one grade	32.3 %	30.1 %	28.5 %	30.1 %
The pupil has repeated two grades	1.8 %	2.3 %	3.1 %	2.1 %
Total	100.0 %	100.0 %	100.0 %	100.0 %
Grade 5 and 6				
The pupil has never repeated a grade	61.0 %	61.7 %	65.2 %	73.3 %
The pupil has repeated one grade	34.6 %	34.3 %	30.5 %	24.4 %
The pupil has repeated two grades	3.7 %	2.9 %	3.0 %	0.9 %
The pupil has repeated more than two grades	0.7 %	1.1 %	1.3 %	1.4 %
Total	100.0 %	100.0 %	100.0 %	100.0 %

The frequency of repetition is higher among pupils from more vulnerable households than among pupils from wealthier households (especially at the end of the primary cycle).

A high frequency of repetition has a negative impact on learning outcomes

Analyses show (see Table 29) that pupils who repeat perform significantly less well at the end of the primary cycle (Grades 5 and 6) than those who have repeated less, or not at all. At the beginning of the primary cycle, the differences in the competencies of repeaters and non-repeaters are not significant.

Photo © Global Partnership for Education

The same trends are observed in the (mainly African) countries[75] evaluated by PASEC.[76] PASEC analyses prove that pupils who have repeated have a level of performance which is lower than pupils who have progressed through the grades normally. Similar trends are observed in countries that participated in the PISA evaluation (OECD, 2011), where analyses prove that repetition has a negative impact on results in certain education systems.[77] In these countries, education systems with high repetition rates are also those that perform least well. This negative relationship between repetition and pupil performance is mirrored at the level of institutions. Throughout 24 OECD countries and 27 partner countries, institutions with high numbers of repeaters usually perform less well than institutions with few repeaters.

This analysis thus highlights that repetition has a negative impact on pupil performance. The analysis proves that repetition rates (see Chapter 1) are getting closer to the sector plan goals (5 percent).[78] **Educational support programmes are needed to provide pupils with the required pedagogical measures to ensure that repetition proves beneficial for them.**

75 Chad, Benin, Cameroon, Madagascar, Gabon, Burkina Faso, Congo, Senegal, Burundi, Lebanon, Côte d'Ivoire, The Comoros and Mauritius.

76 PASEC (2010). *Synthèse des résultats PASEC VII, VIII et IX.* Dakar: CONFEMEN. (http://www.confemen.org/le-pasec/rapports-et-documents-pasec/synthese-des-resultats-pasec-vii-viii-et-ix/)

77 OECD (2011). *Résultats du PISA 2009: Surmonter le milieu social. L'égalité des chances et l'équité du rendement de l'apprentissage* (Volume II), PISA, OECD Publishing.

78 http://country.globalpartnership.org/sites/default/files/country-docs/Education%20Sector%20Plan_1.pdf

Competencies in the language of instruction have a positive impact on competencies in mathematics

The regression analysis of mathematics competencies as a function of competencies in Khmer reveals a close and positive link between these two competencies. On average, pupils who are most competent in mathematics are also most competent in Khmer, irrespective of the grade (see Table 33). This can be explained by the fact that it is necessary for pupils to have a certain grounding in the language of instruction (understanding the exercise instructions) to perform well in mathematics.

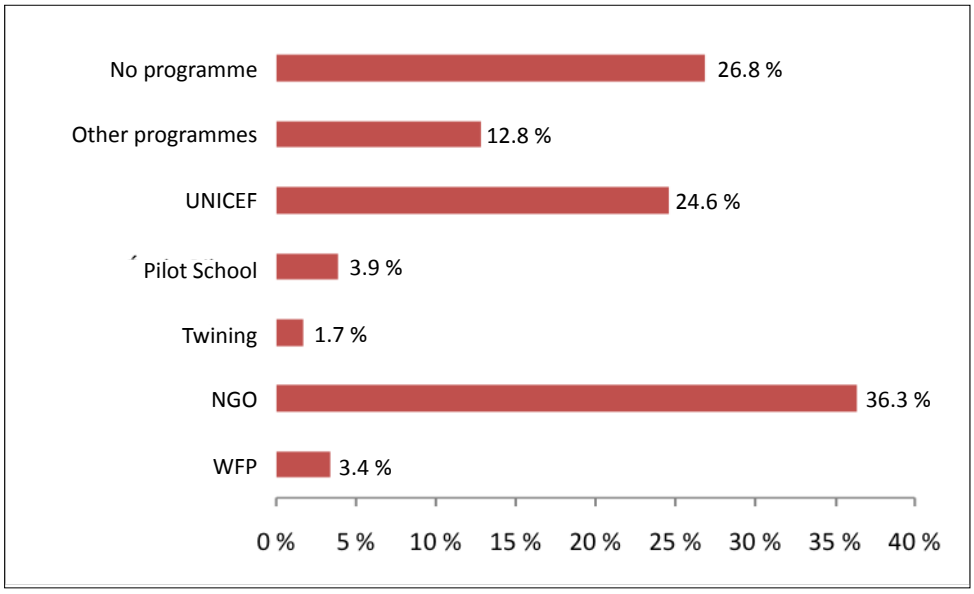
Table 33: Regression Model of Mathematics Scores as a Function of Khmer Scores[79]

Explanatory Model of Mathematics Scores	Regression Coefficients	
	Grade 2 and 3	Grade 5 and 6
Khmer Score	0.49*** (0.03)	0.46*** (0.03)
Constant (of the model)	495.91*** (4.58)	493.06*** (5.34)

Involvement of various players in primary school activities: fostering partnerships is to be encouraged

A variety of partnerships have been fostered with primary schools to bolster school activities or provide ad-hoc support. The data collected in the survey indicates that partnerships are established most frequently with nongovernmental organizations (NGOs) and UNICEF.

Figure 13: School Statements Regarding their Participation in Programmes and Partnerships[80]



Note : – UNICEF: United Nations Children's Fund
– WFP: World Food Programme

79 The calculation of the mathematics score as a function of the Khmer score was carried out controlling for pupils' socioeconomic status and the variable that indicates the class they belong to. See the table in Annex 4.2 for detailed results.

80 Some schools have established several partnerships, hence the sum of percentages is greater than 100%.

Schools can draw several advantages from such partnerships: 42 percent of schools with whom partnerships have been established declare they benefitted from training; 44 percent say they received resources and school equipment; and 25 percent state that construction of school buildings has been carried out through these partnerships.

Direct analysis of the correlations between these education programmes and partner interventions and learning outcomes cannot be performed here, given that the questionnaires administered to schools did not include the required information.

Indeed, the distinction between the goals of the various programmes and partnerships was not made. Training and the construction of school buildings for example are listed among the advantages provided by these partnerships. Although training may have a positive impact on learning outcomes, the construction of school buildings on the other hand tends to have repercussions on school capacity. Furthermore, programmes or partnerships may target schools in certain geographic areas or with specific profiles (schools with low performance, or small schools, for example).

Parental involvement in school activities is beneficial for pupils

The evaluation shows that schools do involve parents in school activities. Approximately 84 percent of surveyed school directors state that parents are willing to participate when they are called upon and half of these directors declare that parents provide material support to the school.

Apart from these contributions, parents also participate in school management via parent-teacher associations and school management committees. More than 58 percent of schools have an active parent-teacher association. Schools with a management committee represent 69.4 percent of the sample. Multivariate analysis shows that the existence of an active parent-teacher association within a school is correlated with better performance in mathematics among pupils at the beginning of the primary cycle (see Table 34).

Table 34: Relationship between the Existence of an Active Parent-Teacher Association in Schools and Learning Outcomes

School-Level Variables	**Regression Coefficients**
	Grades 2 and 3
Khmer	
The school has an active parent-teacher association	NS
Constant (of the model)	462.98*
	(−16.10)
Mathematics	
Il existe une association des parents d'élèves active dans l'école	19.21***
	(−11.29)
Constante (du modèle)	480.35***
	(−16.45)

Fostering technical and financial partnerships, in particular with international organizations and NGOs as well as civil society (pupils' parents) entails a contribution of these partners to pupils' school results. Depending on the schools (or pupils) targeted, and on the goals defined by these partners, monitoring of pupils before, during and after any such partnerships will enable an evaluation of their impact.

Chapter 6 :

Summary of Results and Recommendations for Education Policy in Cambodia

This chapter is devoted to the main findings brought to light by the diagnostic evaluation and to suggesting recommendations aiming to enhance education quality. The recommendations have been formulated in accordance with the key education policies outlined in the General Education Development Programme of the Ministry of Education, Youth and Sports.

The analyses carried out have proven that the Cambodian education system enables pupils to progress significantly in the course of a school year, both at the beginning and end of the primary cycle. However, a significant proportion of pupils face difficulties in the earlier and later stages of primary education. Furthermore, disparities in learning conditions that exist between pupils mean that the same chances of success cannot be guaranteed.

In view of the main results of this evaluation, the findings revealed by the analyses and the recommendations aiming to bolster the steering of the education system can be summed up as follows.

FINDING no 1: Part of the pupils present difficulties in Khmer and mathematics

Almost 12 percent of pupils at the beginning of the primary cycle face considerable difficulties in Khmer and in mathematics, and have not acquired the core competencies expected at this stage.

At the end of the primary cycle, 14 percent to 19 percent (depending on the grade and subject) of pupils are in considerable difficulty.

Tentative Recommendations:

The following recommendations address the aforementioned findings while taking into consideration Policy 2 of the General Education Development Programme: [81]

- *Establish a programme aiming to support and monitor pupils with the weakest performance: set up a criterion-referenced monitoring system for children in difficulty, conceive an action plan based on remediation and intervention;*
- *Adopt differentiated pedagogical approaches (workshops, extracurricular classes and remediation sessions) in teacher training;*
- *Integrate high-level cognitive knowledge (reasoning, resolution of day-to-day problems) to a greater extent in teaching practices; and*
- *Determine the practices which lead to success in schools that perform well and then transpose and adapt them to schools that perform less well.*

[81] The three main policies of the General Education Development Programme of the Ministry of Education, Youth and Sports are presented in Annex 5.

FINDING no 2: Learning outcomes are correlated with the socioeconomic status of pupils and their school

Pupils from the most vulnerable households obtain poorer scores than pupils form the wealthiest households and these inequalities can be observed both at the beginning and at the end of the primary cycle. Thus, the education system does not seem to be able to diminish inequalities linked to socioeconomic status, above all in rural areas which are less well provided for in terms of infrastructure and equipment.

Tentative Recommendations:

The following recommendations address the aforementioned issue while taking into consideration Policy 1 of the General Education Development Programme:

- *Provide funding for pupils from the most vulnerable households by increasing the number of school grants;*
- *Set up (free) school canteens, first and foremost in rural and disadvantaged areas;*
- *Organize extracurricular activities which place pupils in real-life communication situations so as to compensate for social and cultural shortcomings; and*
- *Reinforce the allocation of resources to rural areas: equipment and infrastructure.*

FINDING no 3: Girls perform better than boys

Girls perform well compared to boys. However, underachievement by boys could in some circumstances require specific measures.

Tentative Recommendations:

The following recommendation addresses the aforementioned issue while taking into consideration Policy 1 of the General Education Development Programme:

- *A range of responses should be provided to tackle the specific difficulties encountered by boys and girls, while taking into account their respective activities and tastes.*

FINDING no 4: Supervision of homework at home and parental involvement in school activities are beneficial in terms of learning outcomes

Parental involvement has a positive impact on learning outcomes and could be encouraged. Furthermore, parental involvement in school activities as well as school management proves to be beneficial in terms of learning outcomes, in particular at the beginning of the primary cycle.

Tentative Recommendations:

The following recommendations address the aforementioned issue while taking into consideration Policy 1 of the General Education Development Programme:

- *Inform parents and record their opinions of their children's school results using a pupil monitoring booklet;*
- *Encourage parents to monitor their children's school results;*
- *Invite parents to visit schools, take a look around classrooms, so as to encourage them to inquire about the activities their children take part in; and*
- *Incite parents and communities to set up a study club in their neighborhood or village and participate in all school activities (new school year ceremony, awards ceremony for the best pupils and so on).*

FINDING no 5: Repeaters perform less well than non-repeaters

Repetition has not enabled repeaters to catch up with the level of their classmates who have not repeated. Programmes targeting pupils who are in difficulty at school could provide them with the support they require to ensure that repetition proves beneficial.

Tentative Recommendations:

The following recommendations address the aforementioned issue while taking into consideration Policy 2 of the General Education Development Programme:

- *Single out (through diagnostic evaluations and knowledge assessments) pupils who are in difficulty and provide them with adapted support from a very early stage;*
- *Opt for a combination of strong and weak students for group work;*
- *Boost parent awareness regarding the importance of supervising their children at home, by providing more additional support lessons for example; and*
- *Reinforce the capacity of teachers to manage pupils in difficulty, when visiting schools on auditing missions.*

FINDING no 6: The involvement of national and international partners contributes to setting up conditions which encourage learning

National and international partners play an important role in schools by providing valuable resources such as infrastructure and equipment, training and so on.

Tentative Recommendations:

The following recommendation addresses the aforementioned issue while taking into consideration Policy 1 of the General Education Development Programme:

- *Promote the development of partnerships, especially in rural and disadvantaged areas, so as to bolster the support provided to schools and increase financial and material resources.*

Photo © Global Partnership for Education

Bibliography

Bond, T. G. and Fox, C. M. (2007). *Applying the Rasch Model: Fundamental Measurement in the Human Sciences* (2nd edition). Mahwah: Lawrence Erlbaum Associates.

Borgonovi, F. and Kakubowski, M. (2011). *Que peut nous apprendre PISA sur l'écart entre les garçons et les filles?* Policy Forum of the UNESCO International Institute for Education Planning.

Bryk, A. S. and Raudenbush, S. W. (1998). *Hierarchical Linear Models: Application and Data Analysis Methods* (2nd edition). Thousand Oaks: Sage Publications.

Conseil supérieur de l'éducation (2010). *Pour soutenir une réflexion sur les devoirs à l'école primaire.* Québec. http://www.cse.gouv.qc.ca/fichiers/documents/publications/Avis/50-0467.pdf

Datcher, L. (1982). "Effects of Community and Family Background on Achievement," *Review of Economics and Statistics*, vol. 64, no 1, 32-41.

Eurydice (2009). *Différences entre les genres en matière de réussite scolaire: étude sur les mesures prises et la situation actuelle en Europe*. Brussels: European Commission, EACEA.

Finn, J. and Rock, D. A. (1997). "Academic Success among Students at Risk of School Failure," *Journal of Applied Psychology,* vol. 82, n° 2, 221-234.

Fischer, G. H. and Molenaar I. W. (1995). *Rasch models: Foundations, Recent Developments, and Applications.* Berlin: Springer Verlag.

Jarousse, J. P. and Mingat, A. (1993a). *L'école primaire en Afrique. Analyse pédagogique et économique.* Paris: L'Harmattan.

Jarousse, J. P. and Mingat A. (1993b). L*es disparités d'acquisitions scolaires en CE2: caractéristiques individuelles, contexte scolaire et social de scolarisation, effets d'école et de circonscription*. Report prepared for the Directorate for Evaluation and Planning, Ministry of Education. France.

Johnson, M. K., Crosnoe, R. and Elder, G. H. (2001). "Students' Attachment and Academic Engagement: the Role of Race and Ethnicity," *Sociology of Education*, vol. 74, n° 3, 318-340.

Learning Metrics Task Force (2013). *Toward Universal Learning: Recommendations from the Learning Metrics Task Force.* Montreal and Washington: UNESCO Institute for Statistics and Center for Universal Education at the Brookings Institution.

Lockheed, M. E. and Verspoor, A. M. (1990). *Improving Primary Education in Developing Countries: A Review of Policy Options.* Washington: World Bank.

Lord, F. M. and Novick, M. R. (1968). *Statistical Theories of Mental Test Scores*. Reading: Addison-Wesley.

Ministry of Education, Youth and Sport of Cambodia (2013). *Report on the Education, Youth and Sport Congress.* 18-20 March 2013.

Ministry of Planning of Cambodia (2010). *National Strategic Development Plan*, 2009-2013 Update.

Nezlek, J. B. (2008). "An Introduction to Multilevel Modeling for Social and Personality Psychology." *Social and Personality Psychology Compass*, vol. 2, 842-860.

O'Dwyer, L. M. (2002). "Extending the Application of Multilevel Modeling to Data from the Third International Mathematics and Science Study," in Robitaille, D. F. and Beaton, A. E. (dir.), *Secondary Analysis of the TIMSS Results: A Synthesis of Current Research.* Dordrecht: Kluwer Academic Publishers, 359-373.

OECD (2010). *PISA 2009 Results: What Makes a School Successful? Resources, Policies and Practices* (Volume IV), PISA, OECD Publishing. http://dx.doi.org/10.1787/9789264091559-en

PASEC (2010). *Synthèse des résultats PASEC VII, VIII et IX*. Dakar: CONFEMEN. http://www.confemen.org/le-pasec/rapports-et-documents-pasec/synthese-des-resultats-pasec-vii-viii-et-ix/

Piquée, C. and Suchaut, B. (2002). "Les dispositifs d'accompagnement à la scolarité: fonctionnement, public, efficacité et équité," in *Les Notes de l'IREDU*, Dijon: CNRS-Université de Bourgogne. http://www.fastef-portedu.ucad.sn/cesea/iredu/notes/note021.pdf

Voelkl, K. E. (1995). "School Warmth, Student Participation, and Achievement," Journal of Experimental Education, vol. 63, n° 2, 127-138.

Willms, J. D. (2002). *Vulnerable Children: Findings from Canada's National Longitudinal Survey of Children and Youth*, Edmonton: University of Alberta Press.

References for the data:

World Bank: http://donnees.banquemondiale.org/indicateur/SE.XPD.PRIM.PC.ZS

UNESCO Institute for Statistics: http://stats.uis.unesco.org/unesco

United Nations Development Programme: http://hdr.undp.org/fr/statistiques

Annexes

Annex 1: Some Elements of the PASEC Methodology

This part presents the procedure adopted by PASEC in the context of the Cambodia evaluation in terms of score processing, weighting and modeling.

– Processing the Collected Data

Data were processed in two steps: validation of the double data entries, for both the pre-test and post-test on the one hand, and statistical processing of the information gathered on the other.

Validation of the double entries consisted in comparing the data of both entries and taking note of any differences in data recorded for a same pupil, teacher or director in the two databases. These differences were then communicated to the national team for correction. This step was conducted for all the data.

Data were processed in two steps:

- Processing of data collected from pupils: language of instruction and mathematics tests, and contextual questionnaire; and
- Processing of data collected from directors.

Processing of data for each target consisted in:

- Checking for non-responses and inconsistencies;
- Correcting non-responses and inconsistencies insofar as possible, or transforming them into missing data prior to imputation; and
- Imputation of missing data.

Mean imputation was carried out for quantitative variables and mode imputation for qualitative variables when the percentage of missing data was relatively low (under two percent). The multiple imputation method was resorted to when the percentage of missing data was higher.

– Data Weighting

The diagnostic evaluation was undertaken on a representative sample of schools from the Cambodian education system. A weighting system was implemented to generalize results at the level of the national population. Each unit of the sample thus represents a larger number of pupils from the same primary school grade in the education system. The sample drawing procedure consisted in selecting schools depending on their size (total number of pupils in the two grades surveyed), then in drawing the class to be surveyed depending on the number of classes corresponding to the grade in question in each school, and finally in drawing 15 pupils from within the class. In the case of classes with fewer than 15 pupils but more than 8 pupils, all pupils in the class were included in the sample. The weighting system also adjusts for non-responses at the school level and for pupils who were unable to participate in the final evaluation.

The probability of a pupil being selected for the pre-test is thus dependent on the combined probability of the school, the class and the pupil in the class being drawn. For the post-test, this selection probability is multiplied by the coefficient which corrects for non-response.

– Econometric Analyses

Econometric analyses are preceded by bivariate analyses linking pupils' performance to their individual characteristics, or to the characteristics of their families and school environments. These initial analyses suggest variables to be used in the multivariate econometric models.

The models presented are designed using multi-level regression methods. These models differ from those initially used by PASEC (ordinary least squares models) as they take into account the hierarchical structure of data. Schools are first of all drawn depending on their probability of being included in the sample, classes are then drawn depending on the number of classes at a given grade in the school, and finally pupils are drawn depending on the size of the class they are in. This model thus comprises three distinct levels. However, the fact that PASEC only surveyed pupils in a single class means that the potential differences between the performance of classes of a same school and other class variables cannot be taken into account. PASEC thus only considered two levels in the econometric models: the school level and the pupil level.

Many researchers justify the use of multi-level models by the proportion of variance attributable to Level 2 units (schools in this case). However, from a conceptual standpoint, it can be assumed that the correlation between learning outcomes and contextual variables are school-dependent. Nezlek[82] (2008) suggests that if the intra-class correlation coefficient is close to 0 and hierarchical data are used, it then becomes necessary to consider using a multi-level model. High values of the intra-class correlation coefficient thus appear to be a further reason for analyzing pupils' results by taking the hierarchical structure of data into account.

Using multi-level models has numerous advantages:

- From a methodological standpoint, the models will enable to obtain more accurate estimations than those provided by the ordinary least squares models; and
- With regard to education policies, the models enable for example to analyze the mean scores of classes depending on variables considered to be important, but also to study the way in which variables measured at the pupil level interact with variables at the class level or school level and then impact learning outcomes. It is also possible to analyze the variation in the correlation between a factor (at the pupil level) and learning outcomes throughout the school population.

The models were designed according to the principle of parsimony: models must be simple yet provide information about numerous elements of the system.

It is also important to add that the models thus designed only express a measurement of the correlation between the variables studied. Causal inference, which is not the purpose of this diagnostic evaluation, can therefore not be derived. Evaluations which enable to establish rigorous cause and effect correlations require another design.[83] The term "effect" used in this report thus does not refer to an impact on school performance stemming from a change in contextual variables, whether these be school or extracurricular variables.

– Analysis of the Variance in Learning Outcomes: The Specific Case of Cambodia

The PASEC sampling plan includes only one class for any given grade for each school in the sample. This plan does thus not enable to divide the variance between classes in two: variance between schools and variance between classes within schools. However, as regards education policies, it is essential that these two sources of variation be differentiated as institutional or pedagogic reforms destined to reduce inequity of education systems are different depending on whether the variance is found between schools or between classes within schools. In the first case, setting up school catchment areas could be considered. In the second, policies adopted by schools which aim to group pupils with similar levels of performance into one class should be resisted.

However, the adjustments made to the PASEC methodology in the context of the evaluation of the Cambodian education sector enable to overcome these limitations and break down variance into three levels: pupils, classes and schools. Box 3 of Chapter 5 describes the procedure for calculating the variance components according to these three levels.

[82] Nezlek, J. B. (2008). "An Introduction to Multilevel Modeling for Social and Personality Psychology," *Social and Personality Psychology Compass*, vol. 2, 842-860.

[83] To gain more in-depth insight into impact evaluation, consult: http://www.crest.fr/ckfinder/userfiles/files/Pageperso/fougere/fougere_fichiers/ARTICLE-FOUGERE_RFAS_1-22010.pdf.

Annex 2: Probability Tables of Correctly Answering the Test Items

Annex 2.1: Probability of Correctly Answering a Sample of Khmer Items after Two Years of Education[84]

Pupils' Competencies	Probability of Correctly Answering a Selection of Khmer Items after Two Years of Education									
	1	2	3	4	5	6	7	8	9	10
Competency level of 365	0.49	0.48	0.41	0.33	0.21	0.18	0.15	0.14	0.12	0.07
Competency level of 404	0.61	0.61	0.53	0.45	0.31	0.26	0.22	0.21	0.18	0.12
Competency level of 443	0.72	0.72	0.65	0.57	0.42	0.37	0.32	0.30	0.26	0.18
Competency level of 482	0.81	0.81	0.76	0.69	0.55	0.49	0.44	0.41	0.37	0.26
Competency level of 521	0.88	0.87	0.84	0.78	0.66	0.61	0.56	0.54	0.49	0.37
Competency level of 561	0.92	0.92	0.89	0.86	0.77	0.72	0.68	0.66	0.61	0.49
Competency level of 600	0.95	0.95	0.93	0.91	0.84	0.81	0.78	0.76	0.72	0.61
Competency level of 639	0.97	0.97	0.96	0.94	0.90	0.88	0.85	0.84	0.81	0.72

Annex 2.2: Probability of Correctly Answering a Sample of Mathematics Items after Two Years of Education

Pupils' Competencies	Probability of Correctly Answering a Selection of Mathematics Items after Two Years of Education										
	1	2	3	4	5	6	7	8	9	10	11
Competency level of 369	0.69	0.56	0.55	0.43	0.33	0.32	0.24	0.22	0.17	0.15	0.13
Competency level of 406	0.79	0.67	0.67	0.56	0.45	0.44	0.34	0.32	0.25	0.23	0.19
Competency level of 443	0.86	0.77	0.77	0.67	0.57	0.56	0.46	0.43	0.35	0.33	0.28
Competency level of 481	0.91	0.85	0.84	0.77	0.69	0.68	0.58	0.56	0.47	0.45	0.39
Competency level of 518	0.94	0.90	0.90	0.85	0.78	0.78	0.69	0.67	0.60	0.57	0.52
Competency level of 555	0.96	0.94	0.94	0.90	0.86	0.85	0.79	0.77	0.71	0.69	0.64
Competency level of 593	0.98	0.96	0.96	0.94	0.91	0.90	0.86	0.85	0.80	0.78	0.74
Competency level of 630	0.99	0.98	0.98	0.96	0.94	0.94	0.91	0.90	0.87	0.86	0.83
Competency level of 667	0.99	0.99	0.99	0.98	0.96	0.96	0.94	0.94	0.92	0.91	0.89

[84] Here, the probabilities correspond exactly to the scores in the "Pupils' Competencies" column. In Chapter 3, pupils are grouped into levels and their competencies lie between two thresholds. For example, the probability that pupils in Level 1 will successfully answer Item 1 is below 0.62. The probability that pupils in Level 2 will successfully answer Item 1 is included between 0.62 and 0.73, and so on.

Annex 2.3: Probability of Correctly Answering a Sample of Khmer Items after Five Years of Education

Pupils' Competencies	Probability of Correctly Answering a Selection of Khmer Items after Five Years of Education											
	1	2	3	4	5	6	7	8	9	10	11	12
Competency level of 375	0.62	0.60	0.42	0.42	0.41	0.34	0.34	0.21	0.17	0.13	0.11	0.07
Competency level of 416	0.73	0.71	0.55	0.54	0.54	0.46	0.45	0.30	0.25	0.19	0.17	0.11
Competency level of 457	0.82	0.80	0.66	0.66	0.65	0.58	0.58	0.42	0.36	0.28	0.26	0.17
Competency level of 498	0.88	0.87	0.77	0.76	0.76	0.70	0.69	0.54	0.48	0.39	0.36	0.26
Competency level of 539	0.92	0.92	0.84	0.84	0.84	0.79	0.79	0.66	0.60	0.51	0.48	0.36
Competency level of 581	0.95	0.95	0.90	0.90	0.89	0.86	0.86	0.76	0.71	0.64	0.61	0.48
Competency level of 622	0.97	0.97	0.94	0.93	0.93	0.91	0.91	0.84	0.80	0.74	0.72	0.61
Competency level of 663	0.98	0.98	0.96	0.96	0.96	0.94	0.94	0.90	0.87	0.83	0.81	0.72

Annex 2.4: Probability of Correctly Answering a Sample of Mathematics Items after Five Years of Education

Pupils' Competencies	Probability of Correctly Answering a Selection of Mathematics Items after Five Years of Education											
	1	2	3	4	5	6	7	8	9	10	11	12
Competency level of 387	0.64	0.54	0.45	0.43	0.30	0.23	0.22	0.21	0.15	0.11	0.06	0.03
Competency level of 432	0.75	0.66	0.58	0.56	0.42	0.33	0.32	0.30	0.23	0.16	0.09	0.04
Competency level of 478	0.83	0.76	0.69	0.67	0.54	0.45	0.43	0.41	0.33	0.24	0.15	0.07
Competency level of 523	0.89	0.84	0.79	0.77	0.66	0.57	0.56	0.54	0.45	0.35	0.22	0.11
Competency level of 569	0.93	0.90	0.86	0.85	0.76	0.69	0.67	0.66	0.57	0.47	0.32	0.17
Competency level of 614	0.96	0.94	0.91	0.90	0.84	0.78	0.77	0.76	0.69	0.59	0.43	0.25
Competency level of 660	0.97	0.96	0.94	0.94	0.90	0.86	0.85	0.84	0.78	0.71	0.56	0.36

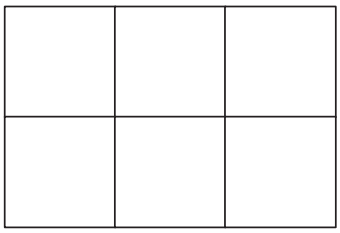
Annex 3: Samples of Representative Items from the 2011/2012 PASEC Tests in Cambodia

Annex 3.1: Examples of Khmer PASEC Test Items for Pupils Having Completed Two Years of Primary Education

ITEM nº 1

The bottom square

"You have a figure with several squares side by side."
"Pay attention, here are the instructions: color the middle square of the bottom row in black."
"I repeat: color the middle square of the bottom row in black."



ITEM nº 2

Kim

Here are a picture and three sentences.
What is Kim doing?

Check the sentence which best describes the picture:

a. ☐ Kim is preparing a meal

b. ☐ Kim is dancing

c. ☐ Kim is throwing the rubbish in the bin

ITEM nº 3

My elder brother

Read the text then answer the questions:

My elder brother went to town to look for work. He took his bag and his phone. Our neighbor lent him his motorbike and told him not to ride fast.

What advice did the neighbor give your brother?

Check the correct answer:

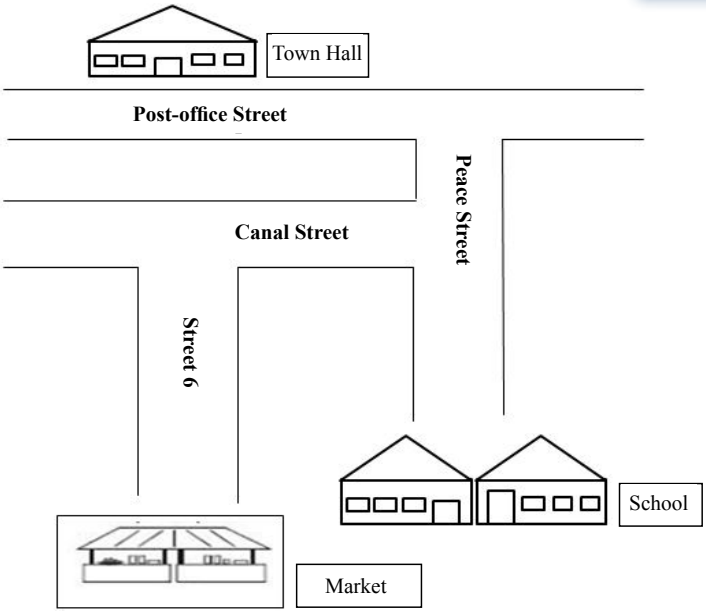
a. ☐ To ride the motorbike fast

b. ☐ To stay at home

c. ☐ Not to ride the motorbike fast

ITEM n° 4

Plan of the neighborhood



You need to go to the market.

In which street is the market?

Use the map to find the information.

a. ☐ Street 6

b. ☐ Post-office Street

c. ☐ Peace Street

ITEM n° 5

The vaccination

Read the text then answer the questions:

A nurse came to school today. She gave us a yellow fever vaccine. It hurt my arm as much as a mosquito bite.

Who came to school today?

Check the correct answer:

a. ☐ A teacher

b. ☐ A merchant

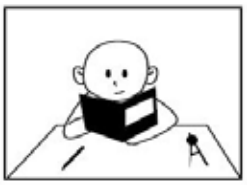
c. ☐ A nurse

ITEM nº 6

The pictures

You have three pictures and four sentences.

Connect each picture to the correct sentence:



- The pupil is doing homework.
- Linh is visiting a sick friend.
- The girls are playing in the school playground.
- Wong is helping her younger sister to ride a bike.

ITEM nº 7

A special day

"My brother is getting baptized today. I invite my friend Chan to the house. Everyone is enjoying the food."

"What is this text describing? Check the correct answer."

"Does it describe:"

"Answer a: A birth."
"Answer b: A birthday."
"Answer c: A baptism."

a. ☐ A birth

b. ☐ A birthday

c. ☐ A baptism

The right word

Example

to

Seny is from the car.

in

Circle the right word to make a correct sentence:

to

Seny goes by school.

from

ITEM n° 8

Find the missing letters

Complete the words with: j / g / gu

… ess

ve…etable

man…o

…elly

ITEM n° 9

The blacksmith of Beijing

Read the text then answer questions:

Thuan is a blacksmith and he lives in Beijing. He works in a forge. A forge is the place where metal is worked. Thuan makes metal tools, axes, hoes, pick-axes. He uses charcoal to light the fire. The blacksmith of Beijing works very hard.

What does the blacksmith light his fire with?
Find the information in the text.

Write the full answer:

. . . . . .

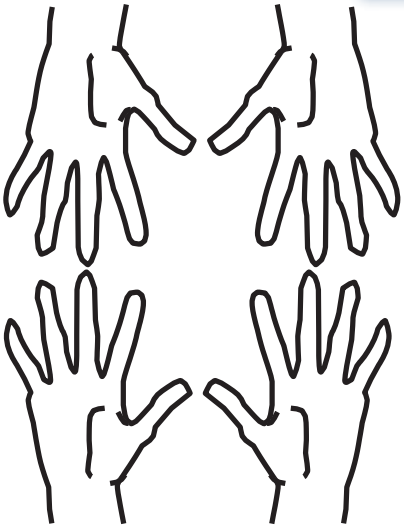
. . . . . .

ITEM n° 10

Annex 3.2: Examples of Mathematics PASEC Test Items for Pupils Having Completed Two Years of Primary Education

ITEM nº 1

Pairs of hands



How many fingers are there in the picture?

Check the right answer:

a. ☐ 20

b. ☐ 24

c. ☐ 25

ITEM nº 2

Sports Club

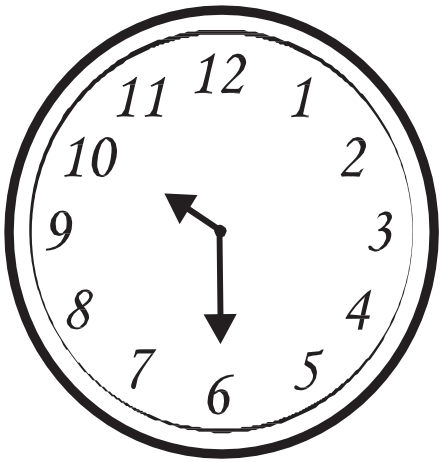
Your school has some sports clubs. Each pupil can enroll for the sport they like most.

Put a cross under the sport with the fewest pupils enrolled.

Sport	Karate	Judo	Football	Wrestling
Pupils enrolled	43	25	56	34

ITEM nº 3

The time



What time is it on the clock?

Check the correct answer:

a. ☐ 6:00

b. ☐ 10:30

c. ☐ 12:00

ITEM nº 4

(+) (-) or (×) ?

Write the correct sign instead of the dot to obtain the result:

Example

18
.
15
= 3

20
.
12
= 32

ITEM nº 5

Incomplete shapes

The following drawings are 3 incomplete shapes

Complete them to obtain a triangle, a rectangle and a square.

ITEM nº 6

Tang's fish

Tang caught 6 fish in the morning and 18 fish in the afternoon.

How many fish did Tang catch in total?

Check the correct answer:

a. ☐ 20

b. ☐ 24

c. ☐ 25

ITEM nº 7

Multiplication

Do the following operation:

2 × 8 =. . . .

ITEM nº 8

Multiplication

Example

5 + 5 + 5 = 3 × 5

Complete as in the example.

2 + 2 + 2 + 2 + 2 = ... × 2

ITEM nº 9

Classes at school

In Ping's class, there are 60 pupils. In Ryo's class, there are 12 more pupils.

How many pupils are there in Ryo's class?

Check the correct operation:

a. ☐ 60 – 12 =

b. ☐ 60 + 12 =

c. ☐ 12 + 12 =

ITEM nº 10

The election

The school committee is organizing an election to choose its president.

Calculate the results obtained by each candidate by completing the table below.

	Angèle	Birama
Grade 3 and 4	27	15
Grade 5 and 6	19	10
Total	.....	.....

ITEM nº 11

Seng's oranges

Seng has 42 oranges. He eats 18 oranges. He then gives 21 oranges to his younger brother.

Check the right operation to obtain the number of remaining oranges:

a. ☐ 42 – 18 – 21 =

b. ☐ 42 – 18 + 21 =

c. ☐ 42 + 18 – 21 =

Annex 3.3: Examples of Khmer PASEC Test Items for Pupils Having Completed Five Years of Primary Education

ITEM nº 1

The job

"The neighborhood cabinet maker. Some beautiful furniture was on show outside the workshop: bedroom furniture, armchairs, buffets and many other things which attracted clients. Kuan, the young cabinet maker is very professional. He is never heard disagreeing with his clients."

"Who is being described?"
"I will read the four answers in your booklets."
"Answer (a): Chang the blacksmith"
"Answer (b): Tchu the drummer"
"Answer (c): Kuan the cabinet maker"
"Answer (d): Sam the wrestler"

a. ☐ Chang the blacksmith

b. ☐ Tchu the drummer

c. ☐ Kuan the cabinet maker

d. ☐ Sam the wrestler

ITEM nº 2

Usain Bolt

Read the text below and then answer the questions which follow.

Usain Bolt is an extraordinary athlete.
This sprinter was born in Jamaica in 1986. At the Berlin athletics championships in August 2009 he beat the 100 meter world record by covering this distance in 9.58 seconds. At the 2008 Olympic Games held in Beijing, he had already beaten the 100 meter world record by running it in 9.69 seconds. Until the Beijing Olympic Games, the 100 meter world record was 9.74 seconds. It was Powell who held the 100 meter world record before Usain Bolt.

Here are Usain Bolt's times over 100 meters:

May 3, 2008: 9.76 seconds

May 31, 2008: 9.72 seconds

August 16, 2008: 9.69 seconds

August 19, 2009: 9.58 seconds

What nationality is Usain Bolt?

Check the correct answer:

a. ☐ Italian

b. ☐ Nigerian

c. ☐ Jamaican

d. ☐ Canadian

ITEM nº 3

First day of the new school year

Read the extract below then answer the questions that follow.

Wong is 11 years old. He lives with his sister Loun. She is 12 years old. They live in Kilimo.

They both go to the Korr primary school. Yesterday, they went back to school. It was the first day of the school year.

They got up at 6.00, washed their faces and put on their school uniforms. Then they had breakfast. After breakfast, they went to school on foot. On the way, they met Tyn, Loun's best friend. They also met Nian, Wong's best friend. Nian was with his brother Tom who is only 6 years old. Nian and Tom were wearing new shorts. The children got to school before 7.30. They played with their school friends before lessons began. Everyone was happy because it was the first day back.

According to the information provided, why was everyone happy?

Check the correct answer.

a. ☐ It was the first day of school.

b. ☐ Nian and Tom were wearing new shorts.

c. ☐ Everyone was playing football.

d. ☐ They met Tyn, Loun's best friend.

ITEM n° 4

Mequitazine

Read the extract below then answer the questions that follow:

The following leaflet is from a box of medicine.

INDICATIONS:
- Gastrointestinal disorders and more specifically:
  - Diarrhea;
  - Vomiting.

DOSAGE:
- Adults: 1 to 6 tablets per day;
- Children:
  aged 3 to 5 years: ½ tablet, twice a day;
  aged older than 5 years: ½ tablet, 2 to 4 times per day.

To be swallowed at the beginning of meals with some water, and without chewing.

WARNING:
Prolonged use of this drug may cause kidney disorders.

According to the patient information leaflet, how many tablets can an adult take per day?

Write the number of tablets.

ITEM n° 5

Tool boxes

Read the extract below then answer the questions that follow.

The carpenter's and cobbler's tools

A carpenter works with wood		A cobbler works with leather
The carpenter's tools		The cobbler's tools
Saw	Workbench	Pliers
Plane	Nails	Wooden shoe molds
Jack plane	Hammer	Nails
Measuring tape	Mallet	A hammer
Compass	Glue	Hemp thread
Set square	Pliers	Glue
		Pitch
		Pincers
		A pair of scissors

Write the name of two tools which the carpenter and cobbler have in common.

. . . . . .

ITEM n° 6

The address

"You want to know which neighborhood Mao's house is in."
"What do you ask Mao?"

"I will read the 4 answers which are in your booklets."
"Answer (a): Where are you going?"
"Answer (b): Where is Battambang?"
"Answer (c): Where do you live?"
"Answer (d): How are you?"

a. ☐ Where are you going?

b. ☐ Where is Battambang?

c. ☐ Where do you live?

d. ☐ How are you?

ITEM n° 7

One Sunday afternoon, my friends and I climbed a tree.

Tell the rest of the story in three sentences:

.....

.....

.....

ITEM n° 8

Early marriage

Kim is 13 years old and is in Grade 7. Her mother wants to marry her to a rich merchant. Her father, Fong, refuses.
What do you think?

Write two sentences to express your opinion.

.....

.....

Dangerous games

"Children, I have been watching you in the playground. Some of you play games which really are too dangerous. You run around with sharp objects in your mouths, you climb up the school wall, you wrestle without knowing the rules. This could be very dangerous and you could seriously injure yourselves."

"What is this text describing?"
"I will read the 4 answers from your booklets."
"Answer (a): How long the break lasts."
"Answer (b): The danger of certain games."
"Answer (c): Treating severe injuries."
"Answer (d): How fun it is to play with friends."

a. ☐ How long the break lasts.

b. ☐ The danger of certain games.

c. ☐ Treating severe injuries

d. ☐ How fun it is to play with friends.

ITEM nº 9

ITEM nº 10

The Letter

Read the extract below then answer the questions that follow.

Dear brother,

Two years ago, I decided to learn welding instead of going to secondary school. Dad recommended a well-known workshop. This workshop has earned its reputation thanks to the boss' know-how. I like it there.

During the first few months, I spent my time observing how my boss works and closely watching and following how he does his job. I am now no longer such a novice. I use what I learnt at school to trace the geometric shapes to ornament gates and burglar bars.

I put my heart and soul into my job so I think my boss likes me. He sometimes comes and talks with me. Anyway, study hard and tell me what you are doing,

Love,

Tang

Tang did not continue with his studies.
Do you think he regrets this?
Write two sentences to justify your answer.

.....

.....

Flight schedule

ITEM n° 11

Read the extract below then answer the questions that follow.

FLIGHT SCHEDULE

FRIDAY OCTOBER 13

Airlines	**ARRIVALS**	Departing from...
Air Mauritus	16:00, 17:20	Reunion Island
Interîles	and 18:20	
Austral Air	17:40	Reunion Island
Mauritus Air	22:30	Rodrigues
Mauritus Air	20:54	Johannesburg
Airlines	**DEPARTURES**	Bound for...
Air Mauritus	14:10, 15:30	Reunion Island

Mr. Sonit is leaving for the Reunion Island.
At what time can he catch a plane?

. . . . . .

. . . . . .

ITEM n° 12

Rural exodus

Many young people move to the cities to look for work. This rural exodus has had serious repercussions on villages: lack of workforce and ageing population.

Write two sentences to explain why young people are moving to the cities.

. . . . . .

. . . . . .

Annex 3.4: Examples of Mathematics PASEC Test Items for Pupils Having Completed Five Years of Primary Education

ITEM nº 1

Sale of cloth

Today, Yin has sold 4 pieces of cloth for 8,000 riels each.

How much money has she made in total?
Check the correct answer:

a. ☐ 30,000 riels

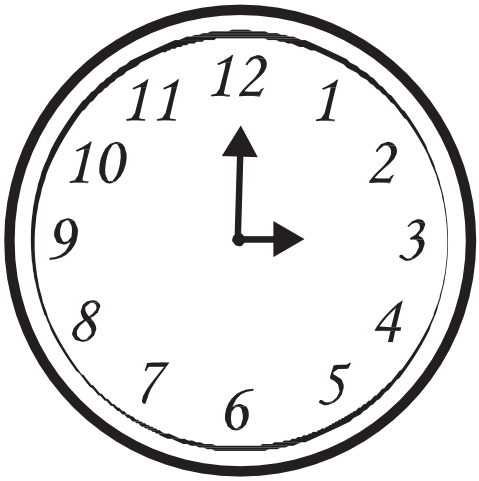
b. ☐ 24,000 riels

c. ☐ 28,000 riels

d. ☐ 32,000 riels

ITEM nº 2

The clock



What time does the clock say:

.....

ITEM nº 3

Multiplication and the distributive law

$4 \times (6 - 3) =$

Check the correct answer:

a. ☐ 3

b. ☐ 12

c. ☐ 21

d. ☐ 24

ITEM n° 4

Classes at school

In Liu's class there are 60 pupils. In Tchan's class there are 12 fewer pupils than in Liu's class.

How many pupils are there in Tchan's class?

Write-out and solve the operation:

ITEM n° 5

Ordering numbers

Here are some decimal numbers:

0.82 0.15 0.25 0.90

Order these numbers from the largest to the smallest:

ITEM n° 6

Thuan's bike

In six days, Thuan rides 36 kilometers on his bicycle.
He rides the same number of kilometers every day.

How many kilometers will he have ridden in total after five days?

Check the correct answer:

a. ☐ 26 km

b. ☐ 30 km

c. ☐ 34 km

d. ☐ 36 km

ITEM n° 7

Comparing numbers

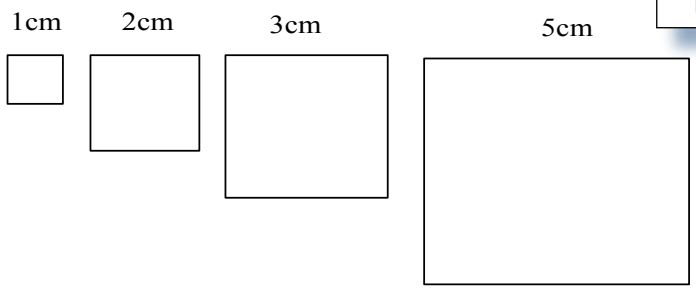
Compare the numbers using the signs <, = or > :

84,2415 …… 842,01

ITEM nº 8

Geometric shapes

Put a cross in the square which has a perimeter of 12 cm.



ITEM nº 9

Number of pupils in class

A class has 28 pupils. The proportion of girls in the class is 4/7.

How many girls are there in the class?

Check the correct answer:

a. ☐ 12

b. ☐ 15

c. ☐ 16

d. ☐ 21

ITEM nº 10

Shape of the classroom

A square classroom has a surface area of 1,000,000 cm².

What is the measurement of one side of the square?

Check the correct answer:

A. ☐ 100 cm

B. ☐ 1 000 cm

C. ☐ 10 000 cm

D. ☐ 100 000 cm

Making a shirt

To make a shirt for her uncle, Kim needs 265 cm of cloth. The merchant cuts 265 cm of cloth from a piece of cloth measuring 3.50 meters.

What length of cloth is the merchant left with?

Write out the operation and the result:

ITEM nº 11

ITEM nº 12

Sport

Wong does sports every week.

Calculate how long he practices each sport.

- He plays basketball on Mondays from 4.30 to 6.10 Lenght of time: …….
- He goes swimming on Wednesdays from 1.00 to 2.15 Lenght of time: …….
- He plays tennis on Fridays from 4.15 to 5.05 Length of time: …….

Annex 4: Detailed Education System Statistics and Other Analysis Results

Annex 4.1: Summary of Key Cambodia Indicators[85]

	Indicator	Unité	2008	2009	2010	2011	2012	2013
1.00	Poverty Level (2007)							
1.01	Total	% of population	30.1 (2007)	N/A	25.0	N/A	N/A	N/A
1.02	Phnom Penh	% of population	0.8 (2007)	N/A	N/A	N/A	N/A	N/A
1.03	Urban areas	% of population	21.9 (2007)	N/A	N/A	N/A	N/A	N/A
1.04	Rural areas	% of population	34.7 (2007)	N/A	N/A	N/A	N/A	N/A
1.05	Population under the poverty threshold in terms of nutrition	% of population	18.0 (2007)	N/A	13.0	N/A	N/A	N/A
3.00	Population							
3.01	Total: March 2008 census	Millions of inhabitants	13.4	13.9	14.1	14.3	14.5	14.7
	Density	Inhabitants/Km^2	75	81	83	84	86	87
3.02	Gender ratio	No. of men / 100 women	94.7	94.8	95.0	95.1	95.3	95.4
3.03	Age: 0 to 14 years	% of population	33.7	35.1	34.3	33.6	33.2	33.4
3.04	Age: 15 to 64 years	% of population	62.0	61.1	61.1	62.5	62.6	62.6
3.05	Age: over 65 years	% of population	4.3	3.8	3.8	3.9	3.9	4.0
3.06	Rural areas	% of population	80.5	N/A	N/A	N/A	N/A	N/A
3.07	Urban areas	% of population	19.5	N/A	N/A	N/A	N/A	N/A
3.08	Annual growth rate	%	1.54	1.40	1.35	1.34	1.32	1.30
3.09	Birth rate per woman	Born alive	3.11	3.04	2.97	2.91	2.85	2.80
3.10	Life expectancy - men	Age	60.50	60.65	61.35	62.04	62.73	63.43
	Life expectancy - women	Age	64.30	66.97	67.78	68.38	69.09	69.80
4.00	Macroeconomic Indicators							
4.01	GDP in 2000	Millions of US$	7 061	6 917	7 268	7 725	8 184	8 704
4.02	GDP growth rate	%	6.7	0.1	5.0	6.0	6.5	6.5
4.03	Agriculture	%	5.7	5.4	4.0	3.2	3.4	3.2
4.04	Industry	%	4.0	9.5	10.5	7.9	8.4	8.2
4.05	Services	%	9.0	2.3	3.3	7.3	7.4	7.4
4.06	GDP per inhabitant	US$	738	731	792	853	915	981
4.07	Inflation (yearly average)	%	19.7	−0.6	6.0	4.5	3.5	3.0
16.00	Health							
16.01	Child mortality rate – under 1 year	/ 1,000	66 (2006)	N/A	60	N/A	N/A	55
16.02	Child mortality rate – under 5 years	/ 1,000	82 (2006)	N/A	75	N/A	N/A	70
16.03	Maternal mortality rate	/ 100,000	461	N/A	350	N/A	N/A	300
16.04	Childbirth with healthcare professional	%	58	65	70	75	80	85
16.05	Childbirth with healthcare professional in a public health institution	%	39	45	50	55	60	65

[85] Ministry of Planning: National Strategic Development Plan, 2009-2013 Update.

17.00	Education		2008/2009	2009/2010	2010/2011	2011/2012	2012/2013	2013/2014
17.01	Primary schools (Grades 1-6)	Number	6 565	6 635	6 685	6 785	6 865	6 945
17.02	Net enrolment rate	%	94.4	95.0	96.0	97.0	97.5	98.0
	Boys	%	94.8	95.0	95.5	96.0	96.5	97.0
	Girls	%	94.0	95.0	96.0	97.0	98.0	99.0
17.03	Net enrolment rate: urban areas	%	94.0	96.0	96.5	97.0	97.5	98.0
	Rural areas	%	94.7	95.0	96.0	96.5	97.5	98.0
	Remote areas	%	90.3	92.0	94.0	96.0	97.5	98.0
17.04	Grade 6 completion rate	%	85.6	86.0	88.0	90.0	92.0	94.0
	Boys	%	85.4	86.0	88.0	90.0	92.0	94.0
	Girls	%	85.7	86.0	89.0	92.0	95.0	98.0
17.05	Number of lower secondary schools	Number	1 451	1 521	1 600	1 collège par commune	1 collège par commune	1 collège par commune
17.06	Net enrolment rate	%	33.9	40.0	43.0	46.0	48.0	51.0
	Boys	%	32.0	38.0	41.0	43.0	46.0	49.0
	Girls	%	35.0	42.0	45.0	48.0	51.0	54.0
17.07	Net enrolment rate: urban areas	%	54.0	56.0	58.0	60.0	62.0	64.0
	Rural areas	%	30.9	34.0	36.0	38.0	40.0	42.0
	Isolated areas	%	11.3	14.0	16.0	18.0	20.0	22.0
17.08	Grade 9 completion rate	%	49.1	51.0	53.0	55.0	57.0	59.0
	Boys	%	52.2	54.0	56.0	58.0	60.0	62.0
	Girls	%	45.9	48.0	50.0	52.0	54.0	56.0
17.09	Literacy rate: 15 to 24 years	%	87.5	88.0	89.0	90.0	91.0	92.0

Annex 4.2: Correlation between School Performance and the Regression Coefficient of Pupil Socioeconomic Status as a Function of their Performance

		Regression Coefficients of Pupil Socioeconomic Status
Mean School Performance	**Khmer – Grades 2 and 3**	−0.190
	Mathematics – Grades 2 and 3	−0.569
	Khmer – Grades 5 and 6	−0.188
	Mathematics – Grades 5 and 6	0.053

Annex 4.3: Regression Model of Mathematics Scores as a Function of Khmer Scores

Mathematics Scores Explanatory Model	**Regression Coefficients**	
	Grade 2 and 3	**Grade 5 and 6**
Khmer Score	0.49*** (0.03)	0.46*** (0.03)
Pupil's Socioeconomic Index	4.46*** (1.64)	3.98*** (1.50)
The pupil is in Grade 6	---	12.41** (5.45)
LThe pupil is in Grade 3	8.70** (4.43)	---
Constant (of the model)	495.91*** (4.58)	493.06*** (5.34)

Annex 5: General Education Development Programme of the Ministry of Education, Sports and Youth of Cambodia

The national strategy for education is outlined in Quality education for development: General Education Development Programme 2009-2013. This strategy covers a five-year period and includes the pre-primary, primary and secondary cycles. In this programme, the Ministry of Education, Youth and Sport defines the following three key policies, and their respective goals:

Policy 1: Ensuring Equitable Access to Education Services

- Expand access to the early childhood programme for children aged 3 to 6 years by targeting communes with low net intake rates and high primary repetition rates.
- Ensure all children aged six access school, including marginalized groups such as disabled children, ethnic minorities, and so on.
- Reduce all forms of parental expenditure, including informal expenses.
- Increase the number of grants (budget or food) for pupils from vulnerable families, and girls in particular, to ensure the latter can complete the primary and secondary cycles.
- Ensure vulnerable children in primary schools are identified, food security is ensured within the context of the food subsidy programme and education grants are provided for Grade 7 to Grade 9 pupils.
- Provide technical and professional education in mainstream schools.
- Reinforce access to youth development programmes for marginalized children.
- Enhance equitable access to higher education by increasing the number of grants for priority students (deserving students, students from vulnerable families, students from remote areas) and promote partnerships between the public and private sectors as well as with development partners.
- Ensure the rationalization of educational staff in remote and disadvantaged areas.
- Continue with the construction of new schools and community learning centers or the allocation of supplementary equipment to incomplete primary schools.
- Reinforce and develop all types of sports infrastructure at all levels of the education system.
- Reinforce parental and community involvement at all stages of schooling, in particular via community committees.
- Develop NGO/community/public partnerships for both formal and nonformal education in border areas, remote or disadvantaged areas, so as to bolster the availability of skills required at the local level, provide professional training, and ensure that basic competencies are acquired which meet the needs of society and of the employment market.

Policy 2: Improving the Quality and Efficiency of Education Services

- Reduce repetition and dropout rates at all levels.
- Improve the quality of teaching, learning outcomes and research at all levels and on a national scale.
- Implement the new curricula policy, including in primary and lower secondary cycles, with an emphasis on the number of hours of teaching.
- Create national standards for the learning outcomes of Grade 3, Grade 6 and Grade 9 pupils.
- Improve the initial and ongoing training of teachers.
- Increase teacher remuneration and bonuses based on merit and upholding teaching standards.
- Increase the responsibility of public financial institutions and of educational institutions regarding budgets and operational decisions taken in the context of the programmes.
- Increase transparency and enhance the monitoring of the performance and accountability of teachers, schools and higher education institutions.
- Improve the quality and efficiency of technical and professional training, lifeskills education and vocational guidance.
- Reinforce and broaden school health programmes in all schools/institutions at all levels.

- Improve the quality and efficiency of physical education and sports programmes.
- Boost awareness and support by emphasizing the importance of physical education and sport.
- Improve the quality and efficiency of youth development programmes leading to socioeconomic development.

Policy 3: Institutional and Capacity Development for Educational Staff in View of Decentralization

- Improve the quality and efficiency of the planning, monitoring and evaluation of the execution of sector plans at the national and sub-national levels.
- Reinforce the alignment, harmonization and coordination of efforts for the development of education sector capacity carried out by MOEYS in collaboration with development partners.
- Establish clear regulations for all sectors and sub-sectors based on the Education Law.
- Reinforce public services in the education sector.
- Improve the systems used for medium-term financial planning and decentralized financial management, and improve governance and regulation systems.
- Ensure that all schools/institutions are operational and efficient in terms of management and budget use.
- Further incorporate information technology so as to modernize and decentralize the management and auditing system at the school level.
- Improve the quality and efficiency of administrative management.
- Improve the quality and efficiency of education infrastructure management.
- Reinforce the systems used for monitoring financial and public institutions at the national and sub-national levels.
- Reinforce good governance in management, conformity and performance processes.
- Reinforce the capacities and management of higher education institutions by providing quality education that meets the needs of society and push for the implementation of institutional and financial management reforms to provide higher education institutions with greater operational autonomy.
- Develop a management framework for the Education for All programme and enhance staff capacities at all levels.
- Reinforce the management capacities for youth development programmes tailored to the needs of the region's young people.
- Reinforce leadership and management skills at national and sub-national levels.
- Strengthen education sector performance and the impact monitoring system.
- Reduce gender disparities in management posts at national and sub-national levels.

PASEC Publications

Vietnam (2014) – *Performances scolaires et facteurs de la qualité de l'éducation en République socialiste du Vietnam.* Academic year 2011/12.

Cambodia (2014) – *School Performance and Public Primary Education Quality Factors in Cambodia.* Academic year 2011/2012.

Lao People's Democratic Republic (2014) – *Performances scolaires et facteurs de la qualité de l'éducation en République démocratique populaire lao.* Academic year 2011/2012.

Mali (2014) – *Qualité de l'enseignement fondamental au Mali: quels enseignements?* Academic year 2011/2012.

PASEC (2012) – *Synthèse des résultats PASEC VII, VIII et IX.*

Chad (2012) – *Améliorer la qualité de l'éducation au Tchad: quels sont les facteurs de réussite?* Academic year 2009/2010.

Côte d'Ivoire (2012) – *Évaluation diagnostique de l'école primaire: pistes d'actions pour une amélioration de la qualité.* Academic year 2008/2009.

Togo (2012) – *Améliorer la qualité de l'éducation au Togo: les facteurs de réussite*. Academic year 2009/2010.

Lebanon (2012) – *Évaluation diagnostique des acquis scolaires.* Academic year 2008/2009.

Democratic Republic of Congo (2011) – *L'enseignement primaire en République démocratique du Congo: quels leviers pour l'amélioration du rendement du système éducatif?* Academic year 2009/2010.

Comoros, The (2010) – *Diagnostic et préconisations pour une scolarisation universelle de qualité.* Academic year 2008/2009.

Burundi (2010) – *Enseignement primaire: quels défis pour une éducation de qualité en 2015?* Academic year 2008/2009.

Burkina Faso (2009) – *Les apprentissages scolaires au Burkina Faso: les effets du contexte, les facteurs pour agir.* Academic year 2006/2007.

Republic of Congo (2009) – *L'enseignement primaire au Congo: à la recherche de la qualité et de l'équité.* Academic year 2006/2007.

Mauritius (2008) – *L'enseignement primaire: la qualité au cœur des défis.* Academic year 2006.

Gabon (2008) – *Vers la scolarisation universelle de qualité pour 2015.* Academic year 2005/2006.

Madagascar (2008) – *Quelques pistes de réflexion pour une éducation primaire de qualité pour tous.* Academic year 2004/2005.

Benin (2008) – *Diagnostic de la qualité de l'enseignement primaire au Bénin.* Academic year 2004/2005.

Senegal (2007) – *Évaluation PASEC Sénégal.* Academic year 2006/2007.

Cameroon (2007) – *Le défi de la scolarisation universelle de qualité.* Academic year 2004/2005.

Mauritania (2006) – *La qualité de l'éducation en Mauritanie: quelles ressources pour quels résultats?* Academic year 2003/2004.

Chad (2006) – *La qualité de l'éducation au Tchad. Quels espaces et facteurs d'amélioration?* Academic year 2003/2004.

PASEC (2005) – *Le redoublement: mirage de l'école africaine?*

Nigeria (2004) – *Contract Teachers and the Quality of Basic Education in Nigeria: An Evaluation.* Academic year 2001/2002.

Mali (2004) – *Enseignants contractuels et qualité de l'école fondamentale au Mali: quels enseignements?* Academic year 2001/2002.

Togo (2004) – *Recrutement et formation des enseignants au Togo: quelles priorités?* Academic year 2000/2001.

Senegal (2004) – *Le redoublement: pratiques et conséquences dans l'enseignement primaire au Sénégal.* Academic years 1995/2000.

Guinea (2003) – *Les programmes de formation initiale des maîtres et la double vacation en Guinée.* Academic year 1999/2000.

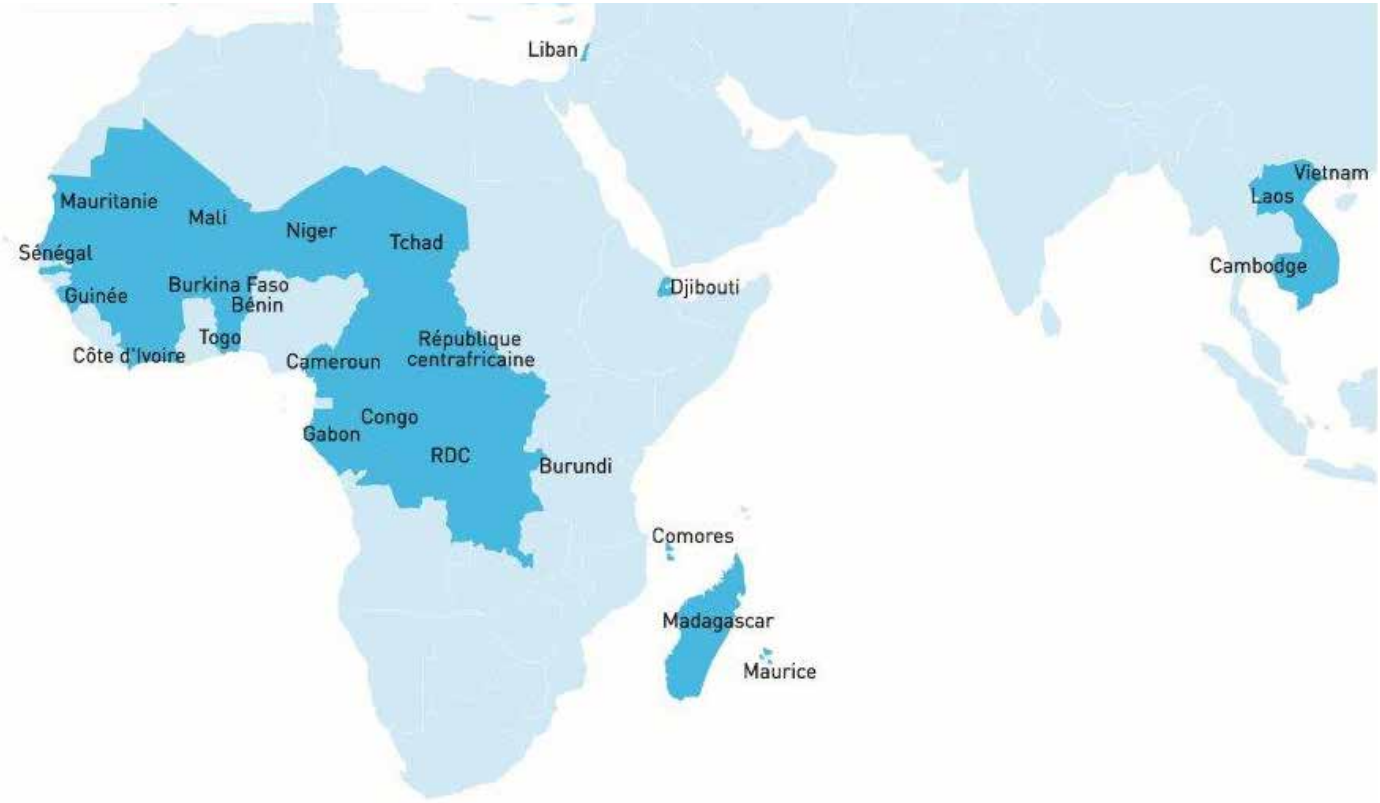
Madagascar (1999) – *Évaluation des niveaux de performance des élèves de 10e et de 7e pour une contribution à l'amélioration de la qualité de l'enseignement primaire à Madagascar.* Academic year 1997/1998.

Côte d'Ivoire (1998) – *Investigations et diagnostics en Côte d'Ivoire pour l'amélioration de la qualité du système éducatif.* Academic years 1995/1998.

Burkina Faso (1998) – *L'enseignement primaire au Burkina Faso: investigations et diagnostics pour l'amélioration de la qualité du système éducatif.* Academic years 1995/1998.

Cameroon (1998) – *L'enseignement primaire au Cameroun: investigations et diagnostics pour l'amélioration de la qualité du système éducatif.* Academic year 1995/1996.

PASEC Evaluations



Diagnostic Evaluation Report - Cambodia

Academic Year 2011/2012

Photo © Global Partnership for Education

CONFEMEN

Since its creation in 1960, the Conférence des ministres de l'Éducation des États et gouvernements de la Francophonie (CONFEMEN) has worked for the promotion of education. Today it has 44 member states and governments.

CONFEMEN has three basic missions:

- Inform its members on the evolution of education systems and ongoing reforms;
- Contribute to reflections on topics of common interest; and
- Facilitate consultations between ministers and experts to support regional and international education policies.

PASEC

Created in 1991, the CONFEMEN Programme for the Analysis of Education Systems (PASEC) aims to document the evolution of education systems in order to support the elaboration and monitoring of education policies. Over two decades, it has carried out 35 national assessments in over twenty countries in Africa and Asia. Since 2012, PASEC has developed comparable international assessments to better respond to countries' needs.

PASEC is a supporting tool for monitoring the education systems of CONFEMEN member States and governments for an improved quality of education.

Conférence des ministres de l'Éducation
des États et gouvernements de la Francophonie

Permanent Technical Secretariat
Complexe Sicap Point E, Immeuble C
3e étage, avenue Cheikh Anta Diop
BP 3220, Dakar (Senegal)
Tel: (221) 33 859 29 79 / 33 859 29 91
Fax: (221) 33 825 17 70
confemen@confemen.org