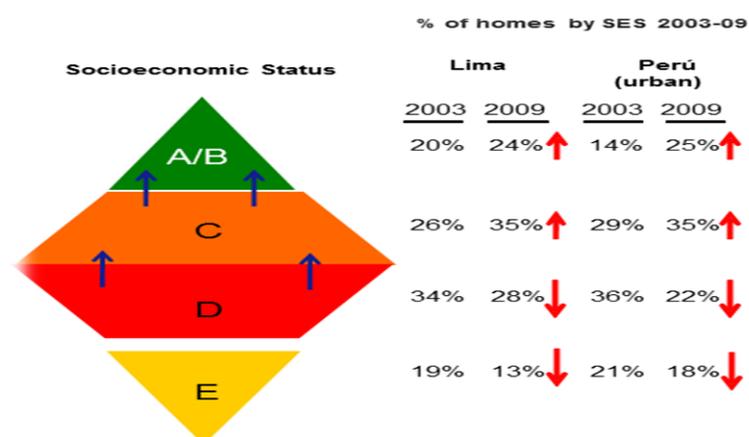**Monitoring Note- ILE-OECD**
Innova Schools- Colegios Peruanos

1. *Aims*

Innova Schools (IS) has under its vision to offer quality education at a reasonable cost to the children in Peru. The targeted children are those that pertain to lower B, and C, Socio Economic Status (SES). Our aim is to offer an alternative that is excellent, scalable and affordable, in order to narrow the gap regarding the problem of quality education in Peru. As a private educational system, we are resolved to overcome this learning gap, with initiatives and interventions that have innovation at the core. As can be seen in the figure below, since 2003 Peru is experiencing an interesting economic growth which allows families to search for better education for their children, still at a reasonable cost, and as a consequence of the poor quality education in the public sector.
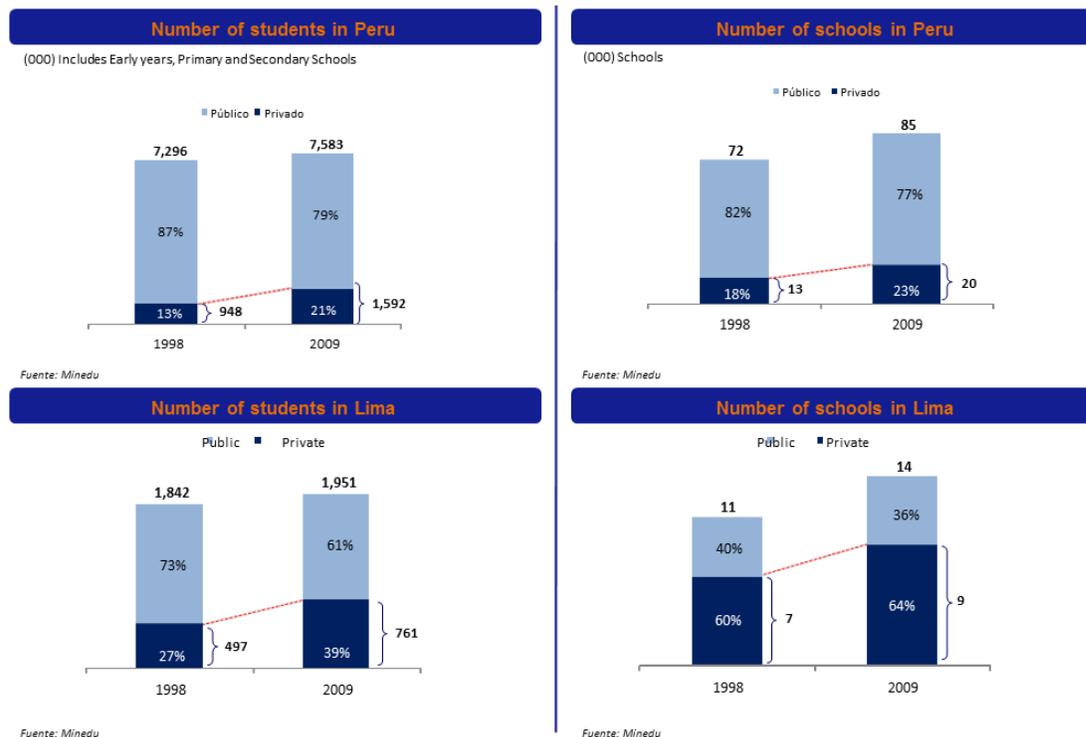
Figure 1

% of homes by SES 2003-09

Socioeconomic Status	Lima 2003	Lima 2009	Perú (urban) 2003	Perú (urban) 2009
A/B	20%	24% ↑	14%	25% ↑
C	26%	35% ↑	29%	35% ↑
D	34%	28% ↓	36%	22% ↓
E	19%	13% ↓	21%	18% ↓

Source: INEI, IPSOS - APOYO Opinión y Mercado, IPE

Figure two shows the growth of the Private education in Peru since 1998 to 2009, from data provided by the Ministry of Education.

Figure 2

Number of students in Peru
(000) Includes Early years, Primary and Secondary Schools
Público ■ Privado
7,296   7,583
87%   79%
13%   21%
948   1,592
1998   2009
Fuente: Minedu

Number of schools in Peru
(000) Schools
■ Público ■ Privado
72   85
82%   77%
18%   23%
13   20
1998   2009
Fuente: Minedu

Number of students in Lima
Public ■ Private
1,842   1,951
73%   61%
27%   39%
497   761
1998   2009
Fuente: Minedu

Number of schools in Lima
Public ■ Private
11   14
40%   36%
60%   64%
7   9
1998   2009
Fuente: Minedu

Since we are a private educational system, we have put into place some innovations in order to be scalable and sustainable, however for the purposes of this paper we will refer to one particular innovation, the one we have put into place to answer the following question: What is the most effective implementation of blended learning? More specifically: What might be the ideal combination of teacher hours and use of technology to overcome the student achievement gap? We see in the use of technology an efficient way to deal with different pace of students learning.

2. *Leadership and partners*

At the educational system level, Jorge Yzusqui our CEO is a member of the National Council of Education [Consejo Nacional de Eduación-CNE]. There is also a close connection between our CEO and Martín Vegas who is the vice-minister of pedagogic management at the Ministry of Education in Peru

In terms of institutions of higher education we have an agreement of cooperation with PUCP [Pontificia Universidad Católica del Perú] from which we beneficiate from all the educational technological innovations that the university develops. IS has developed some projects of professional development, especially one related to reinforcing capacities of teacher monitoring, with UPCH [Universidad Peruana Cayetano Heredia]. We also count with the support for

professional development from UCIC [Universidad Coorporativa de Intercorp] which is the Corporate University of the Interbank Corporation[1].

In terms of business corporations, we have an agreement with Google by which Google deploys the apps (e-mail, word processor, spreadsheets, presentations, and forms) for students and teachers. Google also funds some of our pilots to verify connectivity issues in our media labs. Another strategic partner is IDEO which is an innovation international consultant firm with which we have developed some of our innovative strategies in terms of use of space, pedagogy, construction model, use of technology and others.

Each of our schools also establishes relationships and work directly with local organizations from different sectors: NGOs, government, private sector, etc.

3. *Context*

Here we refer to some important aspects surrounding the origins of Innova Schools in Peru: the economic and social context, privatization, and the educational context in Perú. Perú has the highest growth (6.9% in 2012) and lowest inflation (2.8% in 2012) in Latin America.[2] Per capita income is higher and the poverty rate has decreased from $2.3k and 51% respectively in 2003 to $6.0k and 27.8% in 2011[3]. The emerging middle class has expanded over the past decade: SES C grew from 15% of the population in 2003, to 20% in 2011.

Peru has a school population of approximately 7.2 million children, 22% of the students in Peru attend private schools, in Lima 43% attend private schools as a consequence of the economic growth. There are 21 000 private schools in Peru**[4]**.

In recent years, the problem of quality has been addressed at different levels by the national educational system:(i) students and teacher assessments are being applied, (ii) a Public Teacher Career path has been developed, (iii) national standards on student performance are also being developed recently. We describe these issues more broadly in the following lines.

> *National assessments on student and teacher performance*

>> -National assessment on student performance. These are on mathematics, language arts, and science. These are applied to students in some grades through primary and secondary level and are not done periodically: 1996, 1998, 2001, 2004[5].

>> - National censal assessment of student performance on 2nd grade: This is a REading and Comprehension and Mathematics assessment for second graders

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[1] The Interbank corporation is the corporation to which Colegios Peruanos belongs.
[2] Banco Central de Reserva (2013): Reporte de Inflación. Panorama actual y proyecciones macroeconómicas. Marzo 2013, Lima.
[3] Instituto Nacional de Estadística e Informática (2012): Informe Técnico: Evolución de la Pobreza 2007-2011. Mayo, 2012, Lima.
[4] Information retrieved from Unidad de Estadísticas Educativas - ESCALE. Ministerio de Educación, Lima- Peru,
[5] Cueto, Santiago (2007): Las evaluaciones nacionales e internacionales de rendimiento escolar en el Perú: balance y perspectivas. En: Investigación, políticas y desarrollo en el Perú. Lima: GRADE, 2007

in Peru. This assessment started on 2007 and has been taken on yearly basis since then. The last national census evaluation in 2012, indicated that only 13% of students in second grade were proficient in math, and 31% were proficient in Reading and comprehension[6]. The goals for student proficiency in mathematics and reading comprehension are 35% and 55% respectively for this assessment by 2016.

- National assessment of teacher performance is still a controversial issue in the country because of the lack of clarity about teacher performance standards and because of the type of tests that have been designed to assess teacher performance- which at the same time derives from the problem of lack of standards. This assessment started on 2007 and the law establishes that should be taken every three years.

Public Teacher Career Path

A national reform of Teacher Career Path was launched by 2007[7] and relaunched by 2012[8]. As a result, there is an increasing number of public teachers taking the national assessments for teachers and engaging in professional development processes, aligned to the results of these standardized testing[9]. Some teachers are seeing an increase in their salaries as a consequence of this engagement. Some teachers are more attracted by the idea of becoming a public school teacher in Peru, as a result of the salary compensations related to the Public Teacher Career.

National Standards on Student Performance

National standards for Elementary and Secondary Education in Mathematics and Language Arts have recently been published. Standards for the rest of the areas in the curriculum are still being developed.

All these reform movements should impact on student achievement over time. However, it is important to state that these might not be sufficient considering peruvian current results in national and international assessments. These results show a big student learning gap compared to student performance in other countries in the region and the world.

It is in this context of sustained economic growth with its consequences on privatization, and low teacher and student performance, that IS has emerged. The systematic economic growth has caused families over time, to start considering private schools as an option for the education and as a possibility to offer a better future to their children. This explains the privatization phenomenon. Nevertheless the problem of quality education, expressed in poor teachers and

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[6] Ministerio de Educación (2013): Resultados de la Evaluación Censal de Estudiantes de Segundo Grado. MINEDU: Lima, 2012

[7] Ley de la Carrera Pública Magisterial. Law Nº 29062. 11 July, 2007

[8] Ley de Reforma Magisterial. Law N° 29944 . 25 November, 2012

[9] Rodríguez, C. (2010): Educación Vol. XIX, N° 37, septiembre 2010, pp. 87-103.

student performance, represents a big challenge in order to implement a quality education in both: private and public schools in the country.

As it has already been described, there are some educational policies recently put into place at a national level (national assessments on teacher and student performance, standard based policies) that might have an impact on this problem of quality education overtime, but these might not be sufficient considering the huge gap on peruvian student achievement.

IS is trying to answer to this problem with the creation of a network of private schools through an initiative that has the ideas of: "excellence", "affordable" and "scalable" at the core. IS sees in the blended learning strategy not only a strategy to overcome the problem of teacher performance, but also an opportunity to impact on student achievement; because of the scale (70 schools in 20 years) IS has to come up with innovative ways in which the problem of teacher performance can be addressed in the short term.

The overall idea is not to completely substitute the teachers in their role of teaching, it is to find a ratio that will allow the learning process to combine face to face, teacher and student interaction, in contexts of collaborative and inquiry learning; with other spaces of autonomous learning that are student led, and in which technology plays an important role.

4. *Resources*

To provide an account of our resources we will refer to financial resourcing, facilities, equipment, technological resources and the way the Area of Educational Planning and Management is organized.

Financial resourcing
To perform its vision, IS started as a full-fledged company with a carefully designed plan. The total estimated investment is circa $300 million, with an equity capital contribution of $76 million. The balance of the investment will be funded by internally generated cash flows and financial leverage. The Inter-American Development Bank has granted Colegios Peruanos - Innova Schools a loan of $15 million to finance the expansion of our network.

Equipment and Technology
We have a significant investment in technology and connectivity. A regular school has 27 classrooms, 2 media laboratories, 1 science laboratory and open spaces for lunch and recreation. An average school has 100 computers, 20 multimedia projectors and internet connection of 3 mbps. Internet connectivity is difficult in Peru, especially in the areas where our schools operate.

Area of Educational Planning and Management

This area gives supports in all the possible aspects of the daily activities of a school, that is why it articulates the academics, operation and logistics sections of Innova Schools.
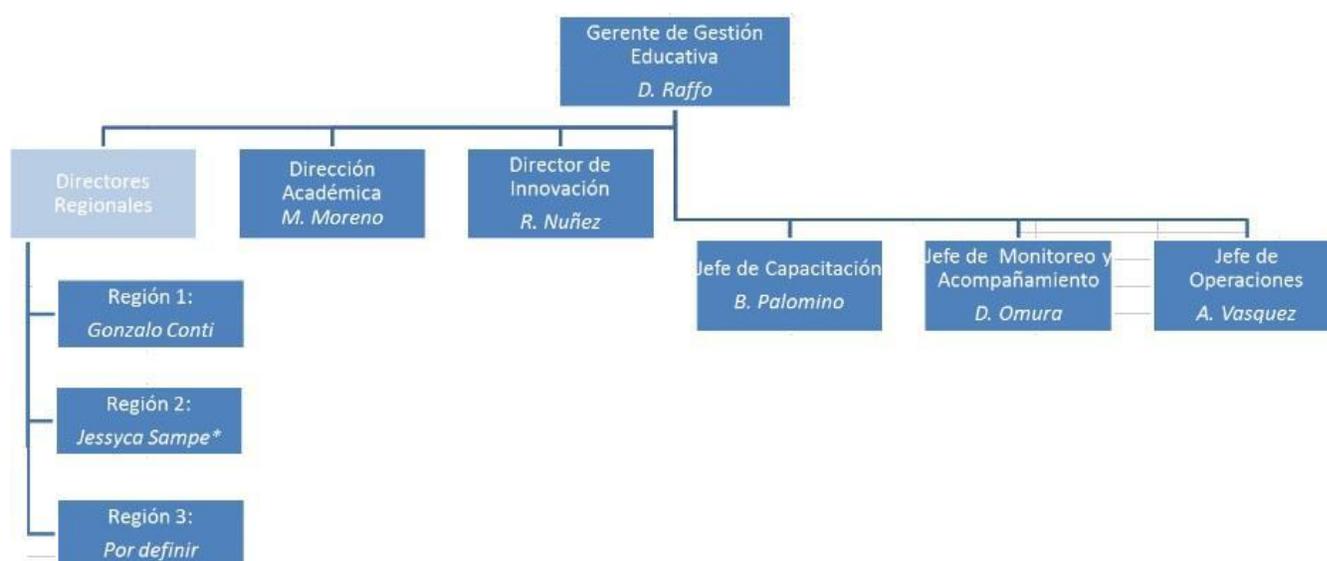
-*Teachers*: Young professionals with little or no experience as teachers in previous schools. They are trained in our teaching methodology and handle around 30 teaching hours per week.

-Academic coordinators: These are mostly our best kindergarten or elementary school teachers, with at least three years of teaching experience in our schools. This is part of a career line in which becoming a Principal is also a possibility.

-Service Coordinators: They are responsible of schools logistics, maintenance and administration. They have an administrative background and work directly with the principals.

-Principals: The head of the school, a professional in education that has had some school leadership experience. This persona has either been Head of a school department or Head of a school level.

-*Regional Directors*: This is a professional with experience in school management who is responsible of approximately 7 schools in many aspects: pedagogical as a priority, financial, marketing, and other issues related to school management.

-*The Academic Department* has Curriculum area specialists for the core subjects (mathematics, language arts, english as a second language, and science). These are experienced teachers that have also had experience in activities related to curriculum design and teacher training. The academic director makes decisions regarding the study plan, curriculum and pedagogy in general.

-*The Area of Innovation:* The innovation department designs, prototypes and pilots new breakthrough ideas at innova schools. Currently the area is working on initiatives in 4 key areas: academics, space, systems and infrastructure. With an eye to the future the

area is exploring digital content and content generation platforms that will help incorporate adaptive learning to our learning model.

-*The area of professional development:* This area works in coordination with the academic department and UCIC, the corporate university of Intercorp, to design the training programs for teachers and school leaders. These programs are aligned to the educational model, and the training needs of the personnel. The area offers different learning pathways for teachers at different levels of teaching experience and performance at IS.

In 2013 a formal agreement was developed with UCIC through which we were able to systematized teacher training programs. A cascade training model has been developed where many of our academic coordinators have participated as trainers (teachers teaching teachers). We worked with our teachers in "macrosedes"[10].

The following learning modules were designed and delivered through the teacher training program: Competences for lifelong learning framework, Blended learning, collaborative learning (group learning mode) , solo learning mode and use of software, the use of TRC for teachers lesson planning, students assessment,implementation of the Innovation Program, use of google tools, among other courses that dealt with the role of the teacher at IS.

-*The Area of Teacher Monitoring* (*teacher monitoring teachers*): These are mostly IS teachers or teachers from other schools that have proved to be good at teaching, these teachers are trained to provide feedback to the teachers in service at IS. Becoming a teacher mentor in the core areas of the IS curriculum is also attractive and part of the career path offered at IS, to our in service teachers

A large scale system for teacher monitoring was implemented in 2013. This system is formed by 16 teacher mentors that visit schools. These mentors are organized in groups of 4 (each one specializes in one of our core subjects: Math, Spanish, English and Science). The mentors visit a "macrosede" and mainly support teachers from 4th to 11th grade. Lower grades are monitored and supported by the Academic Coordinators and Principals in each school.

The implementation of this system has included selection and hiring of teacher mentors, and a specialized training that has been conducted by Universidad Peruana Cayetano Heredia (UPCH). This university in Peru has developed some expertise in teacher monitoring for the public sector. A system for collecting and reporting data from teacher monitoring has been designed and regular meetings with principals and regional directors are held to socialize and discuss the data from the observations.

-*Service and schools management coordinators*: These are professionals that come from management experiences in the private sector and help Principals deal with the administration of the schools. The aim here is to liberate Principals from the

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[10] Macrosedes are strategic sites, a school that has been chosen because of its strategic location to attend a population of teachers that belong to the same geographical area.

administrative tasks and have them more focussed on the pedagogical aspects in the schools.

5. Strategies and activities

5.1 Rationale

The educational system in Peru has been able to overcome issues related to access to education. Elementary Education has 94% of national coverage, while Secondary Education has improved from 68% in 2001, to 77% in 2009[11].

However the problem of quality still pertains. This is evidenced in the results of national assessments. The *Evaluación Censal de Estudiantes* is a nation wide assessment for students of second grade which is applied on yearly bases. In the *Evaluación Censal de Estudiantes, 2012*, only 30.9% of students reached the expected level in Reading Comprehension while only 12.8% did the same in Mathematics[12]. Moreover, the results in international assessments make it also clear that education quality in Peru is a present issue. Peruvian results in SERCE 2006[13] and PISA 2009[14] are in every subject or aspect of the evaluations, below average.

These graphics show the performance on reading comprehension and mathematics of second grade students in Peru, from *Evaluación Censal de Estudiantes* over time: 2007 to 2012[15].

Table 1: Reading Comprehension in Second Grade[16]

Reading Comprehension	< Level 1 %	Level 1 %	Level 2 %
2007	29.8	54.3	15.9
2008	30.0	53.1	16.9
2009	23.3	53.6	23.1
2010	23.7	47.6	28.7
2011	23.1	47.1	29.8
2012	19.8	49.3	30.9

[11] Benavides,M.; Ponce, C. & Mena, M. (2011): Estado de la Niñez en el Perú. Fondo de las Naciones Unidas para la Infancia y Instituto Nacional de Estadística e Informática. Lima

[12] MINEDU- UMC. Muestra de Control de Evaluación Censal de Estudiantes 2007, 2008, 2009, 2010, 2011 y 2012

[13] Regional Bureau for Education in Latin America Latina and the Caribbean OREALC/UNESCO (2008): Student achievement in Latin America and the Caribbean.Results of the Second Regional Comparative and Explanatory Study (SERCE),Santiago de Chile.

[14] OECD (2010): PISA 2009 Results: Executive Summary, Figure 8

[15] Unidad de la Medición de la Calidad (2011): Evaluación Censal de Estudiantes 2011. Informe de resultados para autoridades y especialistas de la Dirección Regional de Educación. Ministerio de Educación, Lima.

[16] Level 2: Achievement level, Level 1: Below

Table 2: Mathematics in Second Grade

Mathematics	< Level 1	Level 1	Level 2
	%	%	%
2007	56.5	36.3	7.2
2008	54.7	35.9	9.4
2009	49.2	37.3	13.5
2010	53.3	32.9	13.8
2011	51.0	35.8	13.2
2012	49.0	38.2	12.8

The following table shows results from the PISA-OECD 2009 assessment[17]:

Table 3: Perú Results in PISA 2009

PISA 2009	Peru Results	OECD Average
Reading scale:	370	493
Mathematics scale:	365	496
Science scale:	369	501

The results in this table show Peruvian children performance in 3rd and 6th grades on Mathematics, Language Arts and Natural Sciences in the Second Regional Comparative and Explanatory Study (SERCE) by the Latin American Laboratory for Assessment of the Quality of Education (LLECE) published in 2008[18].

Table 4: Perú Results in SERCE

Third Grade	Below I[19]	I	II	III	IV
Peruvian Results in Mathematics	15.24%	45.42	25.95	8.61	4.77
LLECE Average in Mathematics	10.19	36.03	28.26	14.30	11.23
Peruvian Results in Reading	9.24	36.18	35.79	15.13	3.65
LLECE Average in Reading	6.71	25.51	37.74	21.63	8.41

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[17] OECD (2010): PISA 2009 Results: Executive Summary, Figure 8
[18] Regional Bureau for Education in Latin America Latina and the Caribbean OREALC/UNESCO (2008): Student achievement in Latin America and the Caribbean.Results of the Second Regional Comparative and Explanatory Study (SERCE),Santiago de Chile.
[19] For descriptions of the performance expected at each level please refer to Attachment 1.

Sixth Grade	Below I	I	II	III	IV
Peruvian Results in Mathematics	2.41	19.58	39.82	28.90	9.29
LLECE Average in Mathematics	1.48	13.91	40.82	32.35	11.44
Peruvian Results in Reading	2.24	24.08	41.65	22.57	9.46
LLECE Average in Reading	0.93	16.51	35.46	26.79	20.30
Peruvian Results in Natural Science	6.97	46.93	39.36	6.37	0.36
LLECE Average in Natural Science	5.18	38.72	42.24	11.40	2.46

As stated in the introduction of this paper we are a private educational system. As such, IS has put into place some innovations to be scalable and sustainable over time. IS has a particular interest in one strategy: the implementation of blended learning in all schools in the network. The impact behind this innovation can be seen from two different perspectives: teacher performance and student performance.

In terms of teacher performance, we have found that many of our novice teachers[20] are experiencing difficulties in order to deliver content with accuracy. Our students have personal questions and interests that are not frequently addressed by their teachers in class. Novice teachers have difficulties in helping students deal with their learning difficulties. Therefore, we see in the implementation of blended learning (group and solo learning) the possibility of providing teachers and students a way to overcome learning difficulties using technology in a very effective way.

5.2 Design, features, and activities of the strategy

A social constructivist learning model is highly effective because it allows students to seek knowledge and construct their own understanding. However it is expensive and requires special teaching talent-both barriers to scale.Blended learning combines direct hands on experiences in the classroom (social constructivist learning) with digital learning in which students use computer based tools to discover and work through core academic concepts. Blended learning at IS is made up of two modes:*Group learning* and *solo learnin*g.

In group learning students collaborate with each other, often in small groups that are led by a teacher to discover new concepts and develop high order understanding through projects and exercises. While group learning is key to helping students develop academic knowledge, it

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[20] Innova schools has chosen to work with young teachers that have just finished and completed their bachelor's degree in education. The rationales behind is that these teachers are more open to innovation; the downside to this, is that most of the times,they do not have the experience required to deliver quality education. This is why training and teacher monitoring systems are very important at innova schools.

supports the development of competences such as collaboration, teamwork and leadership. This usually happens in classes of around 30 students.

Solo learning is a new format of independent, student-led and self-paced learning facilitated by technology. Students construct their own goals, paths, and work flows, with teachers providing targeted support as needed. Solo learning is a major differentiator for IS, here the student learns to develop autonomy, focus, and responsibility for their own learning. Solo learning usually happens in a classroom of 60 students.

 The strategy of blended learning as shown in the diagram above, allows IS to combine two types of effective instruction: group and solo learning. We are not inclined towards the complete elimination of Group learning because we see the benefits of group learning in the promotion of collaboration, inquiry, and other skills that come along with face to face interaction. Therefore our question in the process of monitoring this initiative is: Which would be the ideal combination of teacher hours and use of technology to overcome the student achievement gap?

Just to provide an example, on a weekly basis, a student has 8 hours of mathematics.Typically, 6 of these eight hours are taught through *group learning* and only 2 hours through solo learning. During these two hours, students go to the media lab and use Khan academy for autonomous *learning.*

We have had encouraging results in the pilot we did last year in terms of increase of students achievement using Khan academy in mathematics instruction: 97% of the students showed an increase on math performance in the post test; 65 percent of the students doubled and even tripled their mathematics results in the post test. All the observed measures were statistically significant.

Considering these results and the impact on student learning, our question facing the future is: What might be the right combination of group and solo learning hours for the future curriculum plan at IS? Should there be a difference in terms of the amount of time allocated to solo learning, in older students; as opposed to the amount of time allocated to solo learning on younger students? Are there any differences across subject domains in the implementation of solo learning in the curriculum: (i.e.) should we allocate to Mathematics and English as a second language, more solo learning hours, as opposed to science and social studies?

Figure 3 Blended Learning

5.3. Theory of change: Life cycle of a product or service and innovation

In the business world, the life cycle of a product or service has an impact on sells over time. A product or service goes through the same stages as a human being does: it is born, grows, reaches maturity, declines and dies. The life cycle of a product is an interesting tool for marketing purposes. It helps to align the strategy to sell the product to its cycle.

Figure 4
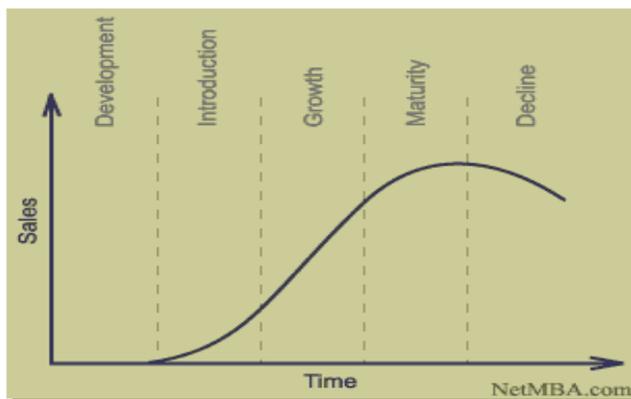
If the curve is the one presented above, we can argue that it is a big mistake to let the product or service, follow this "determined" path. By introducing innovations all the time it is possible to keep the slope upward. *Innovation therefore* is key to extend the life of a product or service, in order to ensure it slopes upward.

Innovation inherently requires some level of change and change requires learning. At IS we have come to the understanding that using design thinking to solve problems can transform the way we develop products, services, processes, and strategy. It has allowed IS to develop creative tools to address a vast range of challenges.

Design thinking as defined by Tim Brown, president and CEO at IDEO, "is a deeply human process that taps into abilities we all have but get overlooked by more conventional problem-solving practices. It relies on our ability to be intuitive, to recognize patterns, to construct ideas that are emotionally meaningful as well as functional, and to express ourselves through means beyond words or symbols. Nobody wants to run an organization on feeling, intuition, and inspiration, but an over-reliance on the rational and the analytical can be just as risky. Design thinking provides an integrated third way"[21]

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[21] Cited from IDEO web page: http://www.ideo.com/about/
21

Prototyping and piloting are two strategies by which innovations are implemented at IS. We design, prototype, and implement small pilots. Then, from the lessons learned through the prototyping phase, we organize the big scale implementation.

5.4. Communication and feedback

In order to make sure that group and solo learning are being delivered accordingly throughout the school network, IS has put into place some strategies for communication and feedback purposes:

-The Teacher Resource Center (TRC) for Blended Learning: The TRC is the online home for the Innova learning program. It contains a comprehensive set of quality lessons for each subject across every grade. These lesson plans are authored by Innova, and are specific to the learning model. The lesson plans, and the aggregation of them in one central resource, allows Innova to distribute quality teaching resources to every teacher. It simplifies the process of lesson planning and creates common standards across the innova network. With the TRC Innova wishes to create a community of practice where teachers can build on the initial materials and upload and share new resources.

-Regional directors are in charge of 7-8 schools, this allows them to work closely with school principals to identify difficulties and to elaborate and execute improvement plans to assure the correct functioning and management of schools. Regional directors also identify and systematize good and innovative practices within schools in the system. The regional director is in some way a coach to the principal, who offers feedback and helps the principal stay focus on the task of managing the school and leading all students to a successful performance and achievement of the learning goals in the network.

-Professional development: Training programs are designed for teachers and school leaders. These programs are aligned to the methodology of Innova schools, and are aimed at attending the needs of the teachers. Professional development is essential at IS where our teachers are for the most part novice teachers, through an intensive process of teacher training IS provides its teachers with a good understanding of the blended learning methodology at Innova.

-*Teacher monitoring Area:* IS is aware that teachers also need support during service, for this reason the Teacher Monitoring system is put into place to observe teachers performance in classroom and give feedback based on observation instruments that are aligned to our educational model. The communication between teachers, mentors and school principals is essential to assure permanent and significant improvements in teacher performance.

-*The Department of quality assessment* This Department is in charge of the accreditation process of the schools in the network, and accreditation of the network itself. These processes are carried out to make sure that our schools are meeting the national and international standards of quality education. This department leads the implementation in the schools, of the processes involved in education improvement such as: self-assessment, external assessment, and certification of quality. The department also applies standardized testing to students twice a year, to measure student achievement, in order to verify if students are meeting the learning

standards at IS, and the international learning standards per grade among the core courses of IS curriculum. Assessments are also applied to evaluate skills such as: leadership, team collaboration and creativity which are at the core of the learning methodology at IS.

The department also evaluates if the innovations are having impact on student learning and achievement. Along these lines, there are class observations and tests with control group design, to measure the impact of innovations, such as Solo learning using Khan Academy.

5.5. Monitoring and evaluation in place to gauge take-up, success, and effectiveness

As mentioned lines above, IS pilots all innovations before implementing them full scale. This piloting process implies design, prototyping and close monitoring. In the following lines we describe how several pilots on Solo Learning and TRC were conducted in 2012, before the larger implementation in eight new schools was carried out in 2013.

Solo Learning Pilot Project and Implementation

During the third and fourth term of 2012 two pilot projects on Solo Learning were conducted, one for Mathematics and another one for Communication in two of our Schools: Surco and Villa El Salvador.

The objective of this pilot project was to understand the functioning of Solo Learning Sessions in order to design the large scale implementation for 2013. The pilot project was designed to retrieve information on the following aspects: the requirements needed for solo learning, the teaching competencies, the characteristics of the teaching methodology needed to implement Solo Learning and the impact of Solo Learning on student learning. The following chart shows the principal characteristics of the pilot project.

Table 5

Subject	Schools	Grade and Sections	Learning Software	Content	Teachers
Communication (Spanish)	Surco and Villa El Salvador	4 A and 4B	LEO	Reading Comprehension: Narrative and informative texts	Catherine Chávez Karla Trejos
Mathematics	Surco and Villa El Salvador	7A and 7B	Khan Academy	Selection of content covering 7th grade Algebra and Geometry	Annie Caycho Athenas Flor

This pilot project considered 3 phases which are explained in detail on the table below:

Phase	Dates	Activities	Tasks	Responsible
Planning	Jul - Aug 2012	Design of the pilot projet	Design of methodology and instruments to collect information.	Academic Direction

			Define profile for school, grades and teacher selection to participate in the pilot project. Design SOLO class sessions	
Planning	Jul - Aug 2012	Software selection	Software testing Content mapping	Academic Direction
Planning	Jul - Aug 2012	Logistics and Infrastructure	Adaptation of classrooms and schedules. Buy computers and furniture. Instal broadband internet connection. Design protocol of execution	Infrastructure area. Operations area. IT area.
Planning	Jul - Aug 2012	Teacher training	Training for each software (LEO, Khan).	Academic Direction
Implementation	Aug - Nov 2012	Implementation	Development of Solo Learning sessions	Trained teachers
Implementation	Aug - Nov 2012	Technical Support	Check and set hardware. Set internet connection	IT area
Implementation	Aug - Nov 2012	Collect information	Apply and adjust instruments: Class observation, tests, focus groups, surveys. Pre Tests / Post Tests Systematize and report data	Quality assurance area
Closure	Jan - Apr 2013	Final systematization	Data analysis Readjustment of protocols Final Report	Quality assurance area

The monitoring process was carefully designed to learn the most from this pilot project and to make corrections during the course of the pilot. For the recollection of data, several instruments were assigned to 3 principal variables:

Implementation Requirements: This variable considers furniture, equipment and softwares needed for the correct implementation of Solo Learning in our schools. It also considers the organization of resources, spaces and schedules.

Instruments: -Class Observation checklist

-Space usage and student rotation observation checklist [22]

-Time note

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[22] Classroom rotation is not common in Peru. Students usually stay in one single classroom while the teachers move from one classroom to the next.

Teaching Competencies: This variable considers the necessary teaching competencies for implementing a Solo Learning session. The collection of data in this variable considered: teacher´s role and classroom management skills when working with 60 students, ICT skills, adaptation of content and lesson plans and use of the software´s dashboard to monitor student performance.

> Instruments: Classroom observation checklist
>
> Interviews to teachers
>
> Focus groups with students

Group and Solo Methodology: This variable considers the interaction between Group and Solo Learning and how it may power learning. It also considered the students response to Solo session, their learning pace and the development of autonomy and digital competencies.

> Instruments: -Classroom observation
>
> -Surveys to parents
>
> -Focus groups / survey to students

In order to determine the level of impact of Solo Learning on student performance in Mathematics and Communication pre and post tests were applied in both areas. In Communication the pretest was taken in August and the post test was taken in November. Both of them were reading comprehension and vocabulary based. in Mathematics, the tests were applied before and after each of the 3 units. These tests were prepared by the teachers participating in the Pilot Project and supervised by the Mathematics specialist of the Academic Direction.

The lessons we learned have been classified into four groups: (i) Implementation and logistics, (ii) required teacher competences for SOLO learning, (iii) teaching methodology and (iv) levels of student engagement. We present these lessons in the following lines. Currently SOLO learning is being implemented in eight schools in the network, and all these lessons have been taken into account for this larger implementation:

> a) *Lessons about the implementation and Logistics:* It is necessary to have an implementation protocol for Solo Learning. This protocol should clearly explain the implementation phases, the tasks and the responsibilities associated to each phase. This protocol also needs to be shared and understood by all the actors involved.

> b*) Lessons about the required teaching competencies*: It is important that during the teacher training for the implementation of Solo Learning, teachers explore the software and experience the use of this software both, as users (student perspective) and administrators (teacher perspective). It is also important to give support to the teachers during the implementation, both in pedagogical aspects, through a mentoring and monitoring system, and support for technological aspects like internet connection, hardware problems, etc.

c) *Lessons learned about the teaching methodology for SOLO learning*: SOLO learning methodology is different from GROUP learning methodology. The pilot allowed the IS team to identify which are the key characteristics of this particular methodology::

-There is an interesting switch on the teacher role: from facilitators of learning, to a role of learning monitor.

-Teachers allow learning to be activated through the use of technology.

-Teachers promote autonomous work of the students with technological support

-The teacher takes advantage of the technological skills of students (they are digital natives). Teachers can easily motivate students to learn because the softwares are appealing to them

d) *Lessons learned about the levels of student engagement*: The Pilot Project provided the following results in terms of student levels of engagement with Khan Academy. This platform has a dashboard that has allowed us to collect the following data during the pilot:

-98% of the students that engaged in the pilot project used the software at home at least once, during the 16 weeks of the pilot project.

-15% of the students used the software during their vacations week in October.

-85% of the students used the software at home, at least for 30 minutes during the first week.

-85% of the students accessed the platform from home for at least 30 minutes during the first week of class after vacations. Graph 1 shows the percentage of students that used the software on weekly bases during the pilot. Figure 4 shows the percentage of students that used the software per week in the pilot.

Figure 4
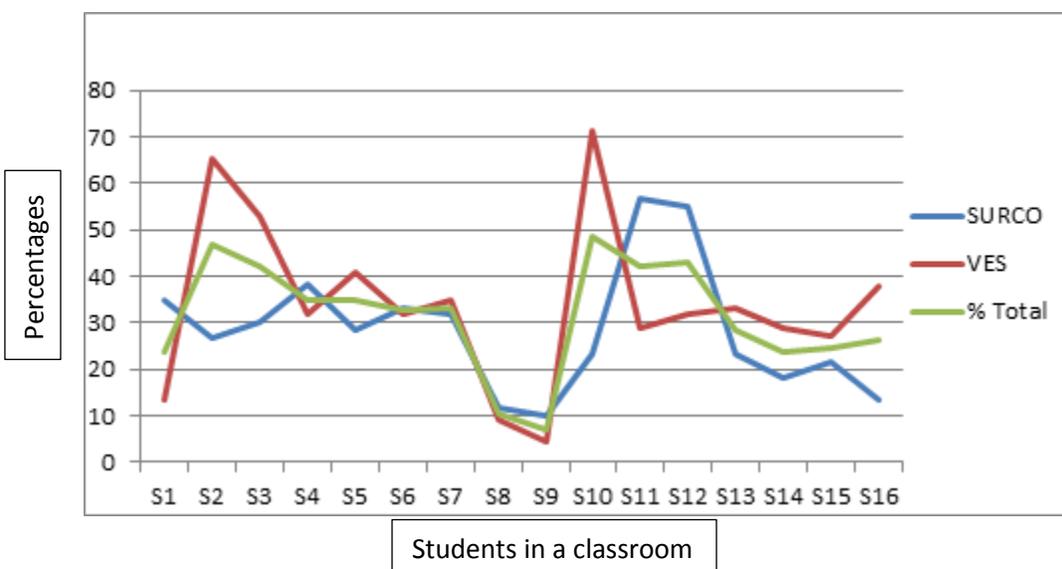
A survey was applied to measure the levels of satisfaction of students. These are the general results of the survey:

-63% of students like Khan Academy

-63% of the students consider that Khan Academy helped them to learn mathematics.

-50% of the students mentioned that what they liked the most was the fact that Khan Academy allows you to learn at your own pace.

The following table shows the results of the students' performance in pre and posttests after using Khan Academy. It shows the average scores in pre and posttest in the three units where Khan academy was used for Mathematics Solo Learning.

Table 6
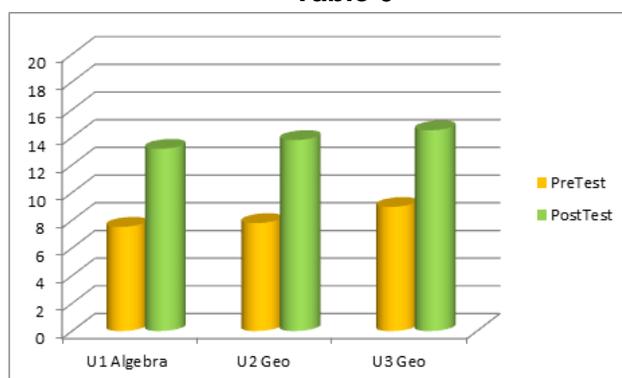
Large scale implementation of Solo Learning started in 2013 in eight of our new schools. The area of Teacher Monitoring and Support has been assisting teachers with Solo Learning since the beginning of the school year and started to systematically monitor teacher performance in Solo Learning sessions since June. There is a specific observation instrument that has been prepared by the Quality Assurance Area. Here below you will find a summary of the most important findings until July 2nd, 2013.

Table 7

	The teacher helps develop autonomy in students	*The teacher constantly supervises the students performance using the software´s dashboard*	*The teacher gives feedback and support to the students that need it*
Always	33%	38%	57%
Very frequently	36%	24%	21%

Occasionally	26%	17%	19%
Never	5%	21%	2%
	The teacher identifies the needs of the group and provides support to the whole group accordingly	*The teacher shows mastery of the software being used*	*The teacher moves through the classroom paying attention to the student´s needs*
Good	55%	54%	69%
Fair	32%	39%	21%
Poor	13%	7%	10%

The Student Role in Solo Learning

	The students are involved actively in the task. No student is distracted nor exploring other web pages	*The students work in an autonomous way*	*Students show mastery of the software being used*
All of them	33%	29%	36%
Almost all of them	62%	50%	52%
Some of them	5%	19%	10%
None of them	0%	2%	2%

This monitoring process will continue until the end of the school year.

TRC Pilot Project

The Teacher Resource Center (TRC) was another innovation that IS decided to prototype and pilot before large scale implementation in 2013. The initial design of the TRC and the first prototypes were prepared as part of IDEO´s consultancy on May 2012. This first prototype was presented to several focus groups of teachers to get feedback, mainly on the general design, content organization, and visual display.

The final design of the TRC was completed by August 2012, and a pilot project was designed and implemented in the schools of Callao, Canto Grande, San Martín de Porres and San Miguel between October and November 2012.

The following chart shows the main characteristics of the TRC pilot project.

Table 8

Subjects & Grades	Schools	Duration	Teachers
Science 6th Grade	-Callao -Canto Grande -San Martín de Porres -San Miguel	3 weeks of the IV term.	Jersey Human Magaly Vasquez Patricia Cotillo Liliana Maravi
Mathematics 3rd Grade	-Callao -Canto Grande -San Martín de Porres -San Miguel	3 weeks of the IV term	Carmen Hinojosa Fabiola Mendoza Marcela Codina Maria Gracia Sofia Pizarro

The following chart shows the schedule of the TRC pilot project.

Table 9

Week	Date	Activity
1	24.10.2012	Teacher Training
2	29.10.2012 to 02.11.2012	TRC forum analysis and daily report
2	02.11.2012	First interview (group 1)
3	05.11.2012 to 09.11.2012	TRC forum analysis and daily report
3	05.11.2012	First interview (group 2)
4	12.11.2012 to 16.11.2012	TRC forum analysis and daily report
5	19.11.2012 to 20.11.2012	Second interview
5	21.11.2012	Evaluation meeting

The variables and instruments used for the collection of Data in this pilot project were the following:

In order to learn about the TRC as a teaching tool, *Teacher perception on the TRC* was the variable we decided to focus on. This variable considered the time invested by teachers to prepare lesson plans, the quality of the lesson plans, and their alignment to the Innova teaching model as well as lesson plans usability.

Instruments: -First interview at the beginning of the pilot project.

-Second interview at the end of the pilot project.

<u>In order to learn about the TRC forums as tools for discussion and feedback on the lessons</u>, the variable to observe was, s*haring and giving feedback*. This variable considered the forums usability and generation of collaborative learning among teachers.

Instruments: -Daily analysis of the forums.

-First interview at the beginning of the pilot project

-Second interview at the end of the pilot project.

<u>To learn about the TRC as a software</u> we picked up the *TRC User experience* as the variable to focus on. This variable considered the navigation through the platform, access to lesson plans, uploading and retrieving information, etc.

Instruments: -First interview at the beginning of the pilot project.

-Second interview at the end of the pilot project.

The lessons we learned from this pilot, using TRC as a teaching tool were the following:

Positive aspects	Things to improve	Suggestions
It reduces the amount of time to prepare lesson plans. It allows to have new materials and teaching resources. It allows to share experiences among IS teachers. It allows to have a minimum teaching standard	Some sessions are not easy to understand. The time assigned to some phases in the lesson plan need to be revised. Some lesson plans have content that is not connected to the context of all schools. Some Science lesson plans needed to be performed in the Laborary and it was not available.	Add extra resources or links related to the topic that is being covered. Check lesson plans before being uploaded: -High cognitive demand -All resources are correctly attached to each lesson plan and they are correctly cited. -Text editing: grammar, spelling, wording, etc.

The lessons we learned from this pilot, using TRC as software were the following:

Positive aspects	Things to improve	Suggestions
It is easy to use. Weekly organization of the lesson plans is very efficient	Each lesson plans should be visualized independently, not all the week in single screen.	Make the TRC more interactive. There should be icons to

.	It is difficult to access to resources.	identify subject are and term.
	Some attachments do not work.	The font size should be bigger and the colors should be more inviting.
	Internet speed at schools is too low.	Include annual program for each subject/grade.
		Generate links to IS website.

TRC Large Scale Implementation

After evaluating these results we started a larger implementation of the TRC in the 8 new schools in the network for the school year 2013 (March to December, divided in 4 terms). By the end of the first term, a survey was applied to all participating teachers to monitor the level of usage and satisfaction. In the following tables we present the results of this first survey.

Table 10

The TRC is easy to use:				
Totally disagree	disagree	agree	Totally agree	Grand Total
1%	19%	68%	12%	100%

How often do you develop your classes following the lesson plans proposed in the TRC?				
Never	1 time per week	2 or 3 times per week	Every day	Grand Total
4%	6%	16%	75%	100%

In comparisson to other years when you needed to prepare your lesson plans, do you consider that the TRC allows you to save time?				
No, never	Yes, sometimes	Yes, most of the times	Yes, always.	Grand Total
6%	27%	40%	27%	100%

The lesson plans in the TRC are coherent with Innova educational model:				
Totally disagree	disagree	agree	Totally agree	Grand Total
2%	13%	71%	13%	100%

The results of this survey have been analyzed and shared by the members of the academic department in order to make the corresponding adjustments. Another survey will be applied during this school year and focus groups will be held to collect feedback on usability, navigation, and quality of the lesson plans.

References

Banco Central de Reserva (2013): Reporte de Inflación. Panorama actual y proyecciones macroeconómicas. Marzo 2013, Lima.

Benavides,M.; Ponce, C. & Mena, M. (2011): Estado de la Niñez en el Perú. Fondo de las Naciones Unidas para la Infancia y Instituto Nacional de Estadística e Informática. Lima

Colegios Peruanos - Dirección de Calidad (2013). Informe final del Piloto SOLO Learning. (Documento de trabajo). Lima.

Colegios Peruanos - Dirección de Calidad (2012).Protocolo Pilotos. (Documento de trabajo). Lima.

Colegios Peruanos - Dirección de Calidad (2012).Piloto SOLO Learning – Plan de Investigación. (Documento de trabajo). Lima.

Cueto, S.(2007): *Las evaluaciones nacionales e internacionales de rendimiento escolar en el Perú: balance y perspectivas.* En: Investigación, políticas y desarrollo en el Perú. Lima.

Instituto Nacional de Estadística e Informática - INEI (2012): *Informe Técnico: Evolución de la Pobreza 2007-2011*. Mayo, 2012, Lima.

Ministerio de Educación (2007): Ley de la Carrera Pública Magisterial. Law Nº 29062. 11 July, 2007

Ministerio de Educación (2012): Ley de Reforma Magisterial. Law N° 29944 . 25 November, 2012.

Ministerio de Educación (2013): *Resultados de la Evaluación Censal de Estudiantes de Segundo Grado.* MINEDU: Lima, 2012.

OECD (2010): PISA 2009 Results: Executive Summary, Figure 8

Regional Bureau for Education in Latin America Latina and the Caribbean OREALC/UNESCO (2008): Student achievement in Latin America and the Caribbean.Results of the Second Regional Comparative and Explanatory Study (SERCE),Santiago de Chile.

Rodríguez, C. (2010): Educación Vol. XIX, N° 37, septiembre 2010, pp. 87-103

Unidad de Estadísticas Educativas - ESCALE. Ministerio de Educación, Lima-Perú,

Unidad de Medición de la Calidad (2005): *Documento de trabajo 12. Evaluación Nacional del Rendimiento Estudiantil 2004. Informe descriptivo de resultados*. Ministerio de Educación, Lima.

Unidad de la Medición de la Calidad (2011): *Evaluación Censal de Estudiantes 2011. Informe de resultados para autoridades y especialistas de la Dirección Regional de Educación.* Ministerio de Educación, Lima.

Unidad de Medición de la Calidad (2013): Muestra de Control de Evaluación Censal de Estudiantes 2007, 2008, 2009, 2010, 2011 y 2012, Lima.