EFFECTS OF STRUCTURED TEACHING METHODS IMPLEMENTED IN MOROCCO'S EDUCATIONAL REFORM

CLERMONT GAUTHIER
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May 2026

2nd Revised and Expanded Edition

Manuscript finalized
May 2026

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ISBN 978-2-9822424-2-5

Legal Deposit – Bibliothèque et Archives nationales du Québec, 2026

Suggested citation:

Gauthier, C., and Bissonnette, S. (2026). *Effects of Structured Pedagogies Implemented in Morocco's School Reform* (2nd ed.). Lévis: Éditions Les pendules à l'heure.

Foreword

Few researchers have the opportunity to participate in the development and implementation of a nationwide educational reform; yet this is precisely what happened to us in Morocco. In 2022, we were commissioned to provide the country with a framework of research-validated teaching strategies, as well as a pedagogical guide to facilitate their implementation. The framework for explicit instruction and the accompanying practical guide that we produced would play a central role in the reform, which was still in its early stages at that time.

A Ministry of Education's decision to adopt explicit instruction involves curricular, pedagogical, and political challenges. It first requires revising the curriculum to align it with the demands of structured instruction, with specific objectives for each subject and grade level. Ministry teams carried out this revision with care. It then involves the production of scripted lessons consistent with this curriculum and the model we proposed to them, which they adapted to their context; a designated team of inspectors took on this task. It also requires training staff in explicit instruction. Based on the framework and the pedagogical guide, we trained the inspectors responsible for providing ongoing professional development to teachers at the selected pilot schools. These schools piloted the pedagogical approach during the 2023–2024 school year.

Finally, there is also a political stake for a government—an obligation to deliver results—as it will be held accountable for the relevance of its choices. Morocco has chosen to rigorously measure student performance in order to assess the impact of the pedagogical practices implemented in the pilot schools. Few reforms include such rigorous evaluation mechanisms.

We present the evaluations conducted in the pilot elementary schools during the 2023–2024 school year. The challenge of basing the Moroccan reform on research-validated pedagogical strategies was successfully met during this pilot phase. With the results of these evaluations, our framework on explicit instruction, its practical guide, the training we provided to school inspectors, the proposed tools, and the scripted lessons have received initial large-scale empirical validation in elementary schools.

While these initial results are promising, the reform is far from complete: a pilot program is only a starting point. The rollout of the program to all schools nationwide will occur gradually, in successive phases, in elementary schools. At the same time, an initial pilot was launched in 2024–2025 in middle schools to adapt the model to the realities of secondary education. We also present the very encouraging results of this pilot phase, which confirm the potential of the Pioneer Schools model beyond elementary school.

Our role was central, but it was essentially limited to the pilot phase conducted in elementary schools. However, in the fall of 2024, at the express request of the Minister of Education, we met with several key stakeholders in secondary education to examine how to continue, at this level of education, the work initiated and tested in elementary schools. It is important to note that we did not participate directly in the independent evaluations of this phase, nor in the expansion of the program, nor in the rollout of the model in secondary schools. We remain, however, deeply committed to this project and wish to closely monitor its progress. That is why, in this second edition, we aim to report on recent developments, analyze public evaluations as the program is rolled out, and share broader reflections on evidence-based educational reforms.

The authors

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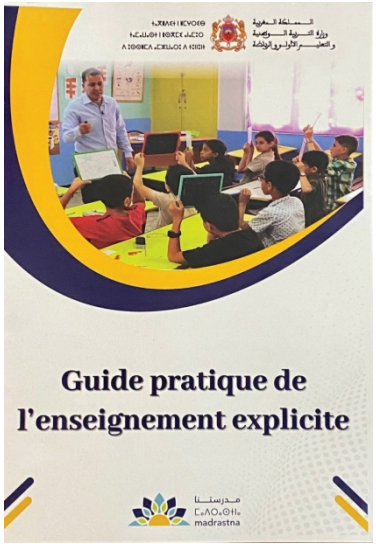
Introduction

In January 2022, we were contacted by Mr. Youssef Saadani, an advisor to Morocco's then-Minister of Education and the official in charge of the new reform, for an initial meeting. His request was to develop a *framework of effective teaching strategies based on explicit instruction* and to supplement it with a *practical guide for teachers*. These two requests align with the need, outlined in the *2022–2026 Roadmap*, to improve the quality of public schools, particularly through the systematic measurement of the impact of implemented initiatives on students and through the training of stakeholders.

The two requested documents were submitted: in July 2022 for the evidence-based framework, and in January 2023 for the practical guide, which is intended as a training tool for school inspectors and teachers. The effects of the pilot program were assessed during the 2023–2024 school year.

Figure 1
The Explicit Teaching Framework

Figure 2
The practical guide to explicit instruction



Note. Excerpted from *the Explicit Instruction Framework*, by the Moroccan Ministry of National Education, Preschool, and Sports (MENPS), 2023, Madrastna Portal.

Note. *Presentation of the Framework for Explicit Instruction and the Practical Guide* to the Minister of National Education, Preschool, and Sports (MENPS) of Morocco, 2023.

Although the Moroccan reform encompasses several different initiatives, this framework[1] of best teaching practices and its practical guide are nonetheless central components in the sense that 1) the reform's *pedagogical message* is grounded in evidence through the proposed explicit teaching approach and 2) this message is conveyed by *messengers* (inspectors and teachers) who have been trained for this purpose. Morocco has established a pilot program to test this explicit instruction approach in a real-world, large-scale setting: 626 schools participating in the pilot, approximately 10,700 teachers trained by 157 inspectors, and involving 322,000 students across all regions of the country. National planning calls for the model's rollout to continue over the next few years in elementary schools, and the pilot will even begin at the secondary level. It is important to note that, already, remarkable results have been achieved after the first year of the pilot (2023–2024) in elementary schools. In secondary school, the pilot schools also achieved excellent results following a year of pilot testing in 2024–2025.

We will likely need to temper our enthusiasm for the future, as other variables will come into play after the pilot phase and during the program's rollout to all schools nationwide; this large-scale rollout will undoubtedly influence the results obtained. Indeed, from the very first

1. We then revised these two documents to create a book: Gauthier, C., and Bissonnette, S. (2023). *Explicit Instruction and Evidence-Based Practice: 40 Effective Teaching Strategies for the Classroom and School*. Montreal: Chenelière éducation.

In the year the project was rolled out across elementary schools (2024–2025), 2,000 schools were added, bringing the total to 2,626, involving 45,000 teachers, 400 school supervisors, and 1,300,000 students. The plan is to continue the reform by systematically measuring student success and closely supporting the change with this significant quantitative leap of 2,000 additional schools per year, which will be added until full coverage of elementary schools is achieved around 2027. The quality of implementation will be a determining factor in ensuring the success of this rapid rollout. A similar process has been initiated in secondary schools and will continue through 2028.

This monograph is divided into 8 chapters. In the first two, we address the alarming situation of Moroccan schools, which face significant challenges, and present the solutions proposed by the government in its *2022–2026 Roadmap* to overcome the crisis. The following three chapters (3-4-5) present evaluations of *the Pioneer School Program (PEP)* in elementary schools after a year of pilot testing (2023–2024). In Chapter 6, we present and discuss the results of the evaluation of the Pioneer Middle Schools initiative in secondary education following a year of piloting (2024–2025). In Chapter 7, we offer a summary of the results of these evaluations and analyze the conditions that made this reform a true success. In Chapter 8, we present a roadmap, developed based on the Moroccan experience, to guide the implementation of evidence-based school reform. In conclusion, we emphasize that Morocco's school reform must now be considered an exemplary case that can serve as a model to follow at the international level.

Chapter 1. The Crisis in Moroccan Education

The *World Declaration on Education for All* was adopted at the World Conference on Education for All held in Thailand in 1990. Participants included delegates from 155 governments, among them policymakers and specialists in education and other major sectors of society. It was an extension of the *Universal Declaration of Human Rights* adopted in 1948, which affirmed that "everyone has the right to education." Despite the considerable efforts made by countries around the world to guarantee this right to education for all, reality has not lived up to the envisioned ideal, which is why in 1990 it was deemed necessary to reaffirm the need to ensure *education for all*. In Morocco, significant efforts have been made since then to ensure universal primary school enrollment. "This goal has been achieved, and today nearly 100% of children aged 6 to 11 attend school, both in urban and rural areas." (Saadani, 2023, p. 275). However, in Morocco as in many other countries, this quantitative progress has not necessarily been accompanied by a qualitative improvement in academic achievement. "Affecting public schools more severely, this learning crisis amplifies social inequalities and negatively impacts the country's development prospects" (Saadani, 2023, p. 275).

According to the *National Assessment Program* (PNEA, 2019), 70% of students in Moroccan public schools have not mastered the curriculum by the end of elementary school (Arabic, French, and mathematics), and 90% have not mastered it by the end of middle school.

Figure 3

Results of the National Assessment Program (2019)

Note. Excerpted from *An Interview with Youssef Saâdani: Implementation, a Major Innovation in Education Reform*, by N. Elafrite, 2022, *Médias24*. medias24.com

The PNEA results (2019) are similar to those obtained in the 2018 and 2022 PISA assessments. In 2018, 24% of Moroccan students achieved a minimum level of proficiency in mathematics and 27% in reading. In the 2018 PISA assessments, Morocco ranked 77thth out of 79 countries in mathematics and 75th out of 79 countries in reading literacy. The results actually deteriorated in the 2022 PISA tests. In these tests, only 18.4% of Moroccan students demonstrated a minimum level of proficiency in mathematics and 18.9% in reading.

In September 2023, a placement test was administered to 300,000 elementary school students prior to the launch of a remedial program. The test assessed basic skills, specifically reading proficiency and mastery of basic mathematical operations (addition, subtraction, multiplication, and division).

> The results reveal a dire situation regarding learning: nearly 80% of students have not mastered the fundamental skills taught the previous year. The vast majority of students are more than a year behind, making them highly vulnerable to the risk of failure in their future academic careers (Saadani, Diaporama, 2023).

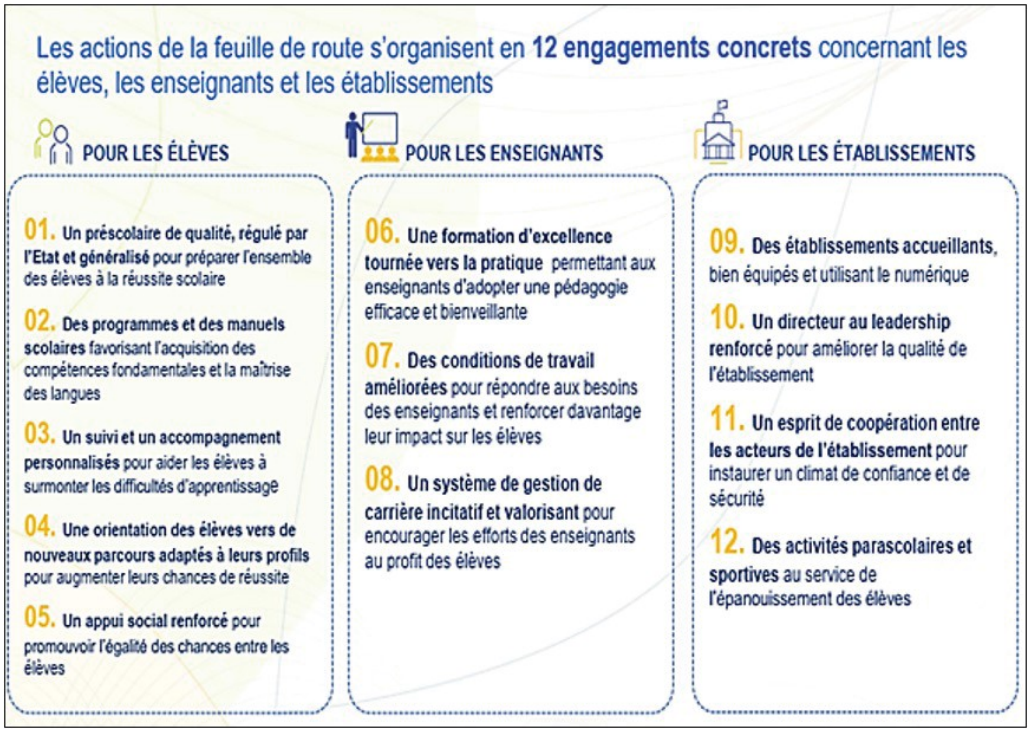
Added to this is another major problem: significant school dropout rates. Since 2016, approximately 300,000 students have dropped out of school each year (23% in elementary school, 53% in middle school, and 24% in high school), particularly in disadvantaged or rural areas (80%) (Saadani, Diaporama, 2023).

Chapter 2. The 2022–2026 Roadmap

In response to this crisis in public schools, the Moroccan Ministry of Education developed a work plan for reforming its education system, which was presented in November 2022. Titled *the 2022–2026 Roadmap*, this plan aims to achieve three major strategic objectives: 1) Increase by more than 30% the number of students mastering fundamental academic skills, 2) Reduce by more than 30% the number of school dropouts,
3) Improve student participation in extracurricular activities (El Mahir, 2024).

The *2022–2026 Roadmap* proposes twelve commitments involving a series of concrete actions affecting students, teachers, and schools, which have been gradually implemented in 626 *Pioneer Schools* since 2023.

Figure 4
2022–2026 Roadmap: Twelve Commitments



Note. Taken from *The 2022–2026 Roadmap for Education Reform: 12 Measurable Commitments*, by Médias24 (reproducing data from the Ministry of National Education), 2022.

Pioneer schools are public elementary schools that voluntarily adopt educational innovations aimed at significantly improving student learning outcomes.

> These are schools where both the principal and the teachers have chosen to implement the new teaching methods introduced

> by the Ministry of National Education. Indeed, to obtain pioneer school status, the principals of these elementary schools and at least 70% of their teaching staff volunteered to implement the reforms proposed by the ministry. This change must be desired, not imposed, explains Minister Chakib Benmoussa regarding the choice of voluntarism. (Majdi, 2023, p. 39).

For Mr. Benmoussa, the proposed reform aims to improve teaching methods in order to "ensure the transmission of knowledge through new methods based on scientific approaches whose effectiveness has already been proven" (Ibid, p. 39). The task seems difficult, however, as two previous attempts at change reportedly failed at the very moment reforms were being implemented in schools.

> That is why, in the lead-up to this reform, the Ministry of National Education first focused on training teachers in the explicit teaching method. Under the guidance of two Canadian experts, Steve Bissonnette and Clermont Gauthier, 157 inspectors were initially trained. During this training period, explicit instruction was even compared with so-called "traditional" teaching methods, with conclusive results in favor of explicit instruction. These inspectors were then tasked with training nearly 11,000 teachers in this method, which was also the subject of detailed guides developed by the Ministry for teachers. (Majdi, 2023, p. 39).

Note. Training of inspectors from the Moroccan Ministry of National Education, Preschool, and Sports (MENPS), 2023.

Following a phase of development and refinement, and provided there is a demonstrable improvement in students' academic performance, the pilot school model may be rolled out more widely and gradually extended to other public elementary schools. If so, the expansion will continue in 2024/2025 at a rate of 2,000 additional schools each year, with the goal of achieving broad coverage by 2026/2027.

Figure 5
Pioneer Schools: First Phase 2023–2024

Note. Taken from *Initial Impacts of Educational Reform in Morocco: Pioneer Schools,* by Y. Saadani, 2023, LinkedIn.

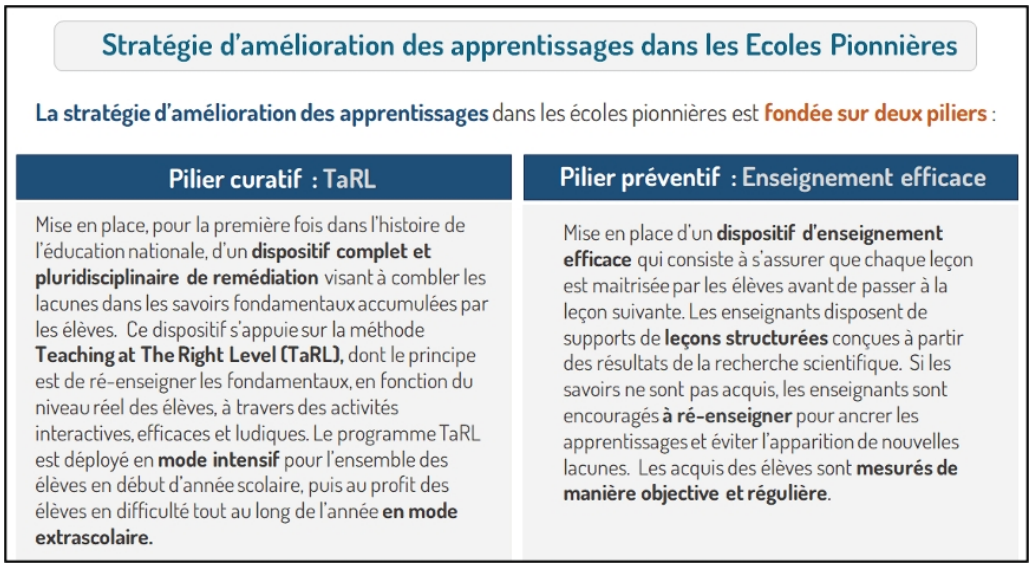
> To facilitate their implementation, pioneer schools receive special support regarding physical conditions, educational resources, training, and support for stakeholders. An operational framework and tailored rules are established to enable the implementation of an experimental approach within these pioneer schools, particularly regarding pedagogical organization, instructional content, and student assessment methods. (Saadani, 2024, p. 1).

To improve student learning, the pioneer schools rely on two complementary interventions—one remedial and the other preventive—which are, in a sense, the two pillars upon which the reform rests.

1. A *remedial pillar* aimed at addressing the gaps in students' learning that have accumulated over time. This pillar relies primarily on the *Teaching at the Right Level* (TaRL) remediation program, which targets foundational knowledge.
2. A *preventive pillar* that aims to ensure the acquisition of new learning at each stage of instruction. This pillar is based on methods validated by scientific research, particularly *explicit instruction*. (Saadani, 2024, p. 1).

Figure 6

Two pillars of intervention



Note. Excerpted from **Early Impacts of Educational Reform in Morocco: The Pioneer Schools*,* by Y. Saadani, 2023, LinkedIn.

In these schools, a rigorous monitoring and evaluation system has been implemented to measure the effects of these pedagogical innovations on student learning.

2.1 The Remedial Pillar (TaRL)

The *Teaching at the Right Level* (TaRL) program was developed by the Indian NGO Pratham. By building on each child's current level, it enables them to quickly acquire the basic reading and arithmetic skills they have not mastered in their standard school curriculum.

The TaRL (remediation) intervention was rolled out in September 2023 in the pilot schools. A pre-post test evaluation was conducted with 63,000 students to measure their progress following four weeks of intensive remedial interventions (TaRL). This evaluation was carried out by the Sindi association, which specializes in assessing the impact of the TaRL program (Khettou, September 25, 2024).

The TaRL remediation program was adjusted to incorporate explicit instruction as proposed by Gauthier and Bissonnette (2023). The figures below, taken from the teaching materials provided to teachers, present the recommended explicit instruction strategies. A TaRL mathematics lesson is also shown.

Figure 7

Recommended Explicit Teaching Strategies

Note. Taken from *French: Teacher Training – Effective Teaching*, by the Ministry of National Education, Preschool, and Sports (MENPS), 2023, Scribd (scribd.com).

Figure 8

TaRL Activity Sheet: Addition Using Play Money in Mathematics

Le soutien scolaire selon l'approche « TaRL »	Mathématiques	
Opérations de base	**Addition par le biais d'argent fictif**	N° 8

Objectif de l'activité	L'élève sera capable de résoudre un problème d'addition avec retenue comprenant des nombres à trois chiffres.
Matériel didactique	Argent fictif ; Tableau ; Stylo.
Durée	20 minutes

Déroulement de la séance

Préparation	**Organiser l'espace ; préparer le matériel didactique ; capter l'attention des élèves ; énoncer l'objectif de l'activité.**

Modelage

L'enseignant(e) fait le modelage :

- Il écrit l'énoncé du problème et le lit à haute voix. Les élèves écoutent sans répéter après lui.
- Il demande aux élèves : «Qui peut lire comme moi ? ».
- Il invite un apprenant à passer au tableau pour lire tout en l'encourageant.
- Il pose les quatre question clés pour résoudre un problème :
  1. Quelles sont les données dont nous disposons ?
  2. Quelle est la tâche demandée ?
  3. Que devons-nous faire ?
  4. Pourquoi?

- Sur une tableau mobile ou une feuille Flip-Chart, l'enseignant dessine le tableau comportant les colonnes des unités, des dizaines et des centaines pour réaliser l'opération.

- Il invite deux élèves à jouer les rôles des personnages et à participer à la réalisation des étapes.
- A l'aide d'un questionnement ciblé, il les amène à représenter les nombres en question à l'aide des billets d'argent qu'il leur remet.
- Quand l'élève parvient à composer le nombre avec les billets, l'enseignant l'inscrit dans le tableau: Ibrahim a composé le nombre 358 avec 3 billets de 100, 5 billets de 10 et 8 billets de 1Dh.
- Il reprend le même procédé devant les élèves pour aider Ahmed à composer le nombre 235 Dhs.

- L'enseignant engage une discussion avec les élèves sur l'opération qu'il faut choisir afin de trouver le montant final de Ibrahim. Pourquoi vous avez choisi l'addition ? Les élèves ont été habitués à repérer les mots clés dans les énoncés : «Donner» dans ce contexte veut dire : Ajouter ; augmenter ; accroitre ; ...etc.
- Il écrit le signe de l'addition « + » dans le tableau, et invite les apprenants à se rappeler les règles de l'addition.(L'échange des unités en dizaine).

- Nous commençons toujours une addition par la colonne des unités. Regardons les billets dans ce tableau : Ahmed a donné 5 billets de 1Dh à Ibrahim qui possède 8 billets de 1Dh. Nous allons les rassembler et les mettre en bas. On compte ensemble : 1,2,3,4,.....13.
- Est-ce qu'on va écrire 13 dans cette colonne ? Naturellement, les élèves répondent : Non. Donc, on va échanger 10 billets de 1Dh avec un seul billet de 10Dhs, et on va le mettre dans la colonne des dizaine (La retenue). Quant au trois billets de 1Dh, nous les gardons dans la case des unités. L'enseignant veille à écarter les 10 billets échangés du tableau pour ne pas perturber les élèves.
- Maintenant, on va rassembler 3 billets de 10Dhs de Ahmed avec 5 billets de 10 Dhs de Ibrahim, sans oublier la retenue (1 billet de 10Dhs). On compte ensemble : 1,2,3,4,..8 et 9. Alors, on prend ces 9 billets ensemble et on les met en bas dans la case des dizaines.

- Nous procédons de la même manière avec la colonne des centaines. On compte ensemble : 1,2,....5. On prend les 5 billets de 100 Dhs et on les met en bas dans la case des centaines.
- Ainsi, après avoir ajouté les 235 Dhs d'Ahmed aux 358 Dhs d'Ibrahim, nous obtenons 593 Dhs, le total dont dispose Ibrahim.
- Nous rédigeons la solution du problème ainsi : Ibrahim possède 593 Dhs, parce que : 358+235▪593.

La pratique guidée

- L'enseignant distribue les billets d'argent fictif aux groupes (des groupes de 6 personnes).
- Il rédige sur le tableau quelques opération d'addition avec retenue. (Des opérations équivalentes)
- Il demande à chaque groupe de choisir une opération et de la résoudre à l'aide de l'argent fictif.
  - Chaque groupe dessine un tableau d'addition similaire à celui présenté lors de la phase de modelage.
  - Les membres du groupe effectuent des manipulations pour représenter les nombres avec les billets.
  - L'enseignant supervise le travail des élèves et clarifie la tâche si nécessaire.
  - L'enseignant rappelle les règles de l'addition : Commencer par les unités et ne pas oublier la retenue.
  - Le représentant de chaque groupe passe au tableau pour effectuer l'opération et expliquer les étapes.
  - Le groupe gagnant est celui qui termine le premier et ne commet pas d'erreur.
  - Le groupe qui rencontre des difficultés peut recommencer l'opération avec d'autres nombres.

Clôture de l'activité

Pendant cette phase, l'enseignant veille à faire participer tous les apprenants pour énumérer les étapes à suivre afin d'effectuer une addition avec retenue.

La pratique autonome

L'enseignant invite ses apprenants à réaliser les activités pratiques proposées dans le livret de l'élève.

Orientations générales

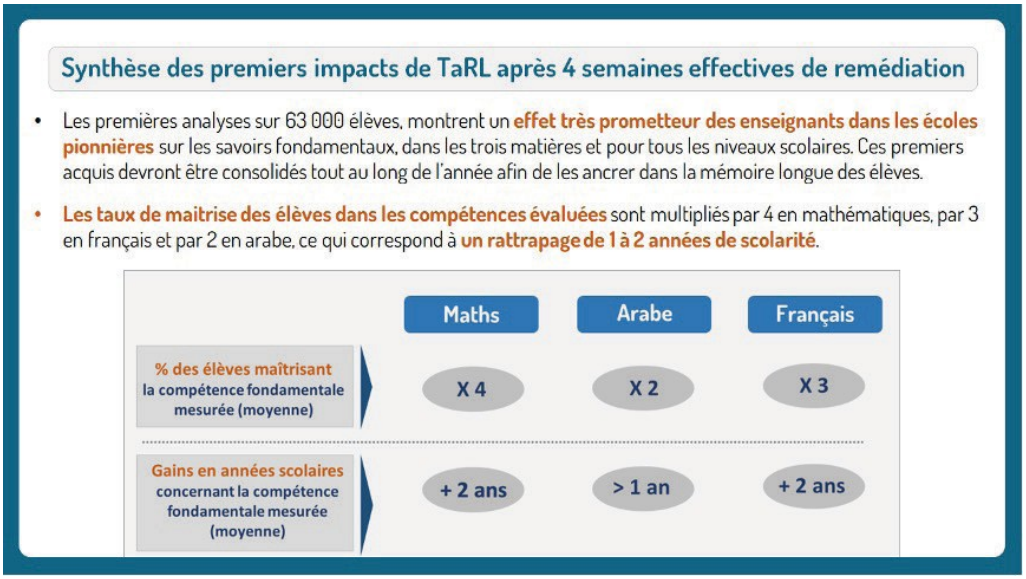
- L'enseignant doit veiller à ce que les membres des groupes participent au processus de la résolution du problème donné
- L'enseignant demande aux apprenants de tirer uniquement les billets nécessaires à la réalisation de l'opération et de mettre le reste dans l'enveloppe pour ne pas perturber le processus.

Note. Excerpted from *the TaRL Activities Guide: Mathematics*, published by the Ministry of National Education, Preschool Education, and Sports (MENPS), 2023, Kingdom of Morocco.

The figure below presents the initial TaRL results measured in terms of learning outcomes: the percentages of students mastering the fundamental skill being measured have quadrupled in mathematics, doubled in Arabic, and tripled in French. This performance bodes very well.

Figure 9

The initial results of TaRL



Note. Taken from *Initial Impacts of Educational Reform in Morocco: Pioneer Schools*, by Y. Saadani, November 10, 2023, LinkedIn (linkedin.com).

As mentioned by Moroccan authorities in their PowerPoint presentation titled *Pioneer Schools, Initial Measured Impacts of Teacher Engagement in Pioneer Schools*, November 5, 2023:

- **The initial measured impacts offer real hope [for Morocco]**: after several decades of initiatives and reforms to improve learning, this is the first time, to our knowledge, that such a significant and rapid improvement in student performance has been measured.
- **The learning crisis in the Moroccan education system is not inevitable**: we can build a high-quality public school system for all children and become an educational leader in Africa and the Arab world.
- **The collaborative work of the teaching team is the key to success**: every stakeholder—teachers, principals, inspectors, and provincial and regional administrators—contributed through their efforts and expertise to the project's collective success. (Saadani, 2023, p. 15)

It is important to note that TaRL remediation sessions will also be offered throughout the year to students who continue to struggle with foundational skills.

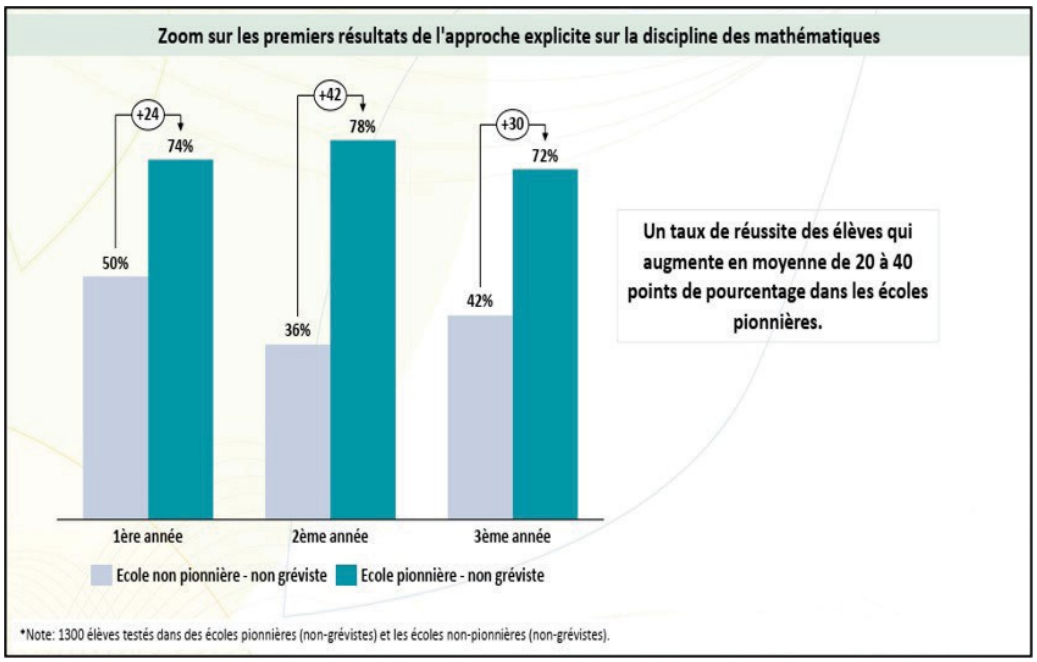
2.2 The preventive pillar (explicit instruction)

In addition to this remedial intervention, a preventive approach—*explicit instruction*—was introduced in November 2023, as proposed by Professors Gauthier and Bissonnette (2022).

A preliminary impact assessment of explicit instruction in mathematics, conducted in January 2024 in pilot schools and compared to the standard teaching methods used in non-pilot schools, also shows very positive results. In a presentation on the program's progress in pilot schools, it is evident that success rates are 20 to 40 percentage points higher in schools using explicit instruction. The table below shows the results obtained from 1,300 students[2] .

Figure 10

Initial Results of the Explicit Approach in Mathematics

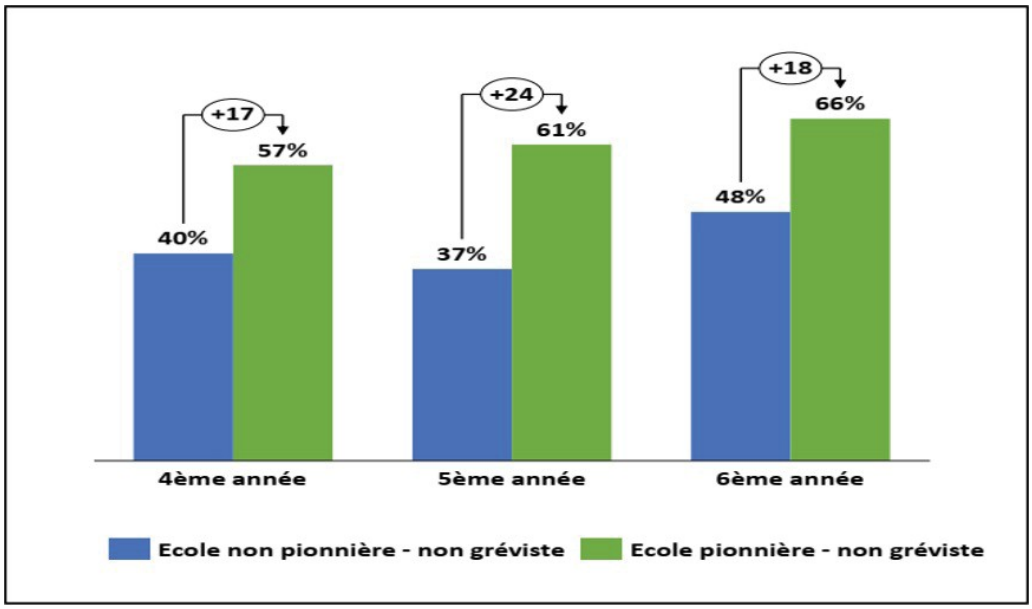


Note. Taken from *Initial Trends on the Effects of Explicit Instruction in Mathematics*, by Y. Saadani, January 2024.

2. Due to a teachers' strike that disrupted Moroccan schools for three months in 2023, the results presented here compare pilot schools with non-pilot schools that were not affected by the strike.

Positive effects are also observed among students in grades[4]through 6 (1,199 students).

Figure 11
Additional Results of the Explicit Approach in Mathematics



Note. Taken from *Initial Trends on the Effects of Explicit Mathematics Instruction*, by Y. Saadani, January 2024.

As can be seen, the initial results obtained by students in the pilot schools are highly encouraging, both in terms of remedial and preventive effects. The relevance of the choices made is also corroborated in the analysis of the *2022–2026 Roadmap* conducted by Hassan El Mahir (2024), particularly in light of the cost-effectiveness analysis, which demonstrates the effectiveness of these two pedagogical interventions. Through the lens of the recommendations of *the Global Advisory Panel on Evidence in Education* (GAPEE)[3] , El Mahir analyzes the strategic choices adopted within the Moroccan school system. On this subject, the researcher notes that:

> Among the smart choices outlined in the 2022–2026 roadmap, two stand out. First, supporting teachers with structured pedagogy—including lesson plans, learning materials, and ongoing support—has proven effective in Kenya, Liberia, and South Africa, notably improving basic literacy and numeracy… The operational implementation of these choices within the framework of the roadmap

3. https://thedocs.worldbank.org/en/doc/542371603461026964-0090022020/original/GEEAPTORcleanRev10222020fin.pdf

2022–2026 includes the adoption of explicit instruction, a structured, phased, and integrated strategy, as well as the TaRL (*Teaching at the Right Level*) approach, grouping students according to their initial proficiency levels in reading and mathematics to address their diagnosed deficiencies. (El Mahir, 2024)[4] .

What El Mahir (2024) calls "smart choices" are defined as a series of effective, highly cost-effective interventions supported by a solid body of empirical evidence in published research. Consequently, evidence-based data is used to guide the selection of instructional interventions within the framework of the Moroccan reform.

It is important to note that the educational choices made in Morocco align exactly with the recommendations of *the Global Education Evidence Advisory Panel* (GEEAP, 2023) as outlined in their report titled *"Cost-effective approaches to improve global learning*." This report provides governments and other stakeholders in low- and middle-income countries with guidance on what works to improve learning and educational outcomes. The report is based on a systematic review of more than 13,000 studies and categorizes various educational policies and programs according to their cost-effectiveness. Among the **most effective programs** are teacher support **through structured pedagogy and targeting instruction** by **learning level** rather than grade level (GEEAP, 2023).

4. https://medias24.com/chronique/optimiser-leducation-au-maroc-analyse-des-choix-strategiques-a-la-lu-miere-de-lapproche-cout-efficacite/?fbclid=IwAR1HRXig8A-r7dNMAmqlJ9VGbc819vPY8o4ZGZUY-gNOn3dEKMyP-6VDiv5c)

Chapter 3. Evaluation of the Implementation of the Pioneer Schools Program Based on a Perception Survey. ONDH Report

In the context of the reform and implementation of the Pioneer Schools project, it is important to note that the Ministry of National Education, Preschool, and Sports (MENPS) wishes to place particular emphasis on regular consultation with stakeholders. It is essential for the Ministry to promote dialogue with teachers and other actors in the field in order to ensure rigorous monitoring of implementation, to assess its impact on students, and, where necessary, to promptly make the required adjustments.

With this in mind, the perception survey regarding the *Pioneer Schools Program* at the regional level was therefore initiated by *the National Observatory for Human Development (ONDH)*[5]following a request from the MENPS in January 2024. The objective of this evaluation is to obtain an accurate and credible picture of the views of stakeholders on the ground regarding *the Pioneer Schools Program* (EP) after four months of implementation of the pilot phase. More specifically, the aim is to evaluate the ongoing implementation across three dimensions: (a) the dynamics of implementation within schools, (b) the support measures provided at the provincial directorate level, and (c) the results of the pilot phase of *the Pioneer Schools Program*. More specifically, the survey aimed to answer the following question: Are the framework of objectives and the implementation mechanisms of the *Pioneer Schools* Program adapted to the various situations encountered within the Moroccan public school system, or should changes be introduced?

To this end, the researchers interviewed stakeholders in the public school system within their respective regions: principals, school inspectors, Pioneer School coordinators, teachers, students, and their parents. The stratification of the surveyed population is based on a cross-tabulation of three variables. First, the region: the strata are constructed by considering Morocco's geographical division into 12 regions. Second, the school environment: urban, peri-urban, or rural. Finally, the educational level: stratification is achieved by considering the two types of primary schools: Pioneer Schools (PS) and schools not participating in the program pilot (NON-PS).

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5. Morocco's *National Observatory for Human Development* (ONDH) is a national public agency responsible for analyzing, monitoring, and evaluating human development policies and programs in the country. The ONDH acts as an independent observer and a decision-making tool serving public authorities. It works in particular with the United Nations System in Morocco to promote evidence-based public policies.

The sample was selected by random draw, and the survey methods employed a qualitative approach (life stories, semi-structured interviews, focus groups). The survey lasted six weeks and was conducted as follows: a central discussion group with 20 inspectors involved in the program's pilot phase, followed by five weekly regional meetings, each consisting of three days of work—two days at the school level (one pilot school and one non-pilot school) and one day at the provincial directorate level.

The value of this qualitative approach lies in the need to give a voice to all stakeholders in the public school system (teachers, students, principals, inspectors, and parents) in order to gather their opinions on the approaches, implementation methods, and results of the Pioneer Schools Program. In total, 16 life stories and 7 interviews were conducted, and 16 focus groups were organized, involving 189 participants, including 113 girls and women. The data processing and analysis method involved identifying and defining recurring themes in the participants' discourse.

It is important to note that this study is based on the perceptions of the stakeholders; it is therefore subject to the participants' subjectivity. However, it must be acknowledged that what they express is linked to their lived experiences and what they believe—and that is what matters. Furthermore, the short duration of the mission (6 weeks) did not allow for interviews to be conducted with a larger sample. These factors limit the generalizability of the conclusions, but they nevertheless offer relevant insights to be analyzed with a view to potentially improving the implementation of the model.

3.1 Results

The report highlights the generally favorable reception given to the *Pioneer Schools* Program by the various stakeholders interviewed. Added to this is a genuine hope in its potential to improve the quality of education in Morocco.

> The Pioneer Schools Program has been widely recognized and praised for its innovative approach. This approach has significantly contributed to improving teaching methodologies and student interaction within the classroom. Stakeholders praised the project for fostering the introduction of specialized teaching practices and for having significantly contributed to enriching students' educational experience. (National Observatory for Human Development, 2024, p. 10).

According to the evaluators, "The Program is at a crossroads where the integration […] of stakeholder suggestions, as well as perseverance in the face of challenges, can significantly enhance its effectiveness." (ONDH, 2024, p. 7). In other words, while adjustments will certainly be needed to maximize its impact, the initiative

is worth continuing, as survey participants highlight its potential for future success and its expansion across the country.

3.2 Impact of the program on school life within the school and on students

The implementation of the program had a significant impact on the dynamics within the school. According to the testimonials collected, the program led stakeholders to collaborate more closely and to feel jointly responsible for its successful implementation. Increased communication enabled stakeholders to discuss specific issues, assert themselves more confidently, and feel respected.

Impact of the program on students. Teachers and school supervisors report a series of observable improvements in students' mastery of core subjects, attributed to the adapted and engaging methods used as part of the project. Parents have also noted an improvement in students' academic performance, particularly in fundamental skills such as reading and mathematics.

Furthermore, the positive impact on student learning and engagement is undoubtedly the most significant testament to the program's success. Students' increased enthusiasm for learning is perhaps one of the most significant indicators of the *Pioneer Schools Program's* success. Engaging teaching methods and a supportive learning environment have also helped create a more dynamic classroom atmosphere.

3.3 Challenges

Despite the positive feedback, implementing the Program has not been without difficulties. A major concern has been raised repeatedly in various locations, particularly in rural areas, regarding the inadequate technological infrastructure that hinders the effective integration of digital resources into teaching. This is a major issue that must be addressed.

Stakeholder feedback also yielded several constructive suggestions for anticipating, in the future, the need for teachers to adapt to the program's new rules. Among these is *the need* for *ongoing professional development* for teachers to ensure they are prepared to manage new technologies and instructional strategies. The stated need for targeted professional development is a recurring theme in all feedback. Stakeholders suggest that a *national professional development strategy* be adapted and adopted to address specific technological and pedagogical needs.

Stakeholders also suggested *involving parents more* in the educational process to foster an inclusive environment in which they can more effectively support their children. For the majority of teachers, greater parental involvement in the dynamics of *the Pioneer Schools Program* is considered vital for reinforcing learning at home. In this context, it was suggested that *a digital platform be created to ensure regular interaction between schools and parents*.

Chapter 4. External Evaluation of the Pilot Phase of the Pioneer Schools Project. CSÉFRS Evaluation Report

In its report, the *Higher Council for Education, Training, and Scientific Research* (CSÉFRS) presents a detailed analysis of the results of the external evaluation of the pilot phase of *the Pioneer Schools* project. The CSÉFRS, an advisory body, was established in 2011 with the adoption of the country's new constitution; it conducts external evaluations and issues opinions on all public policies and matters of national interest, particularly regarding education, training, and scientific research.

The Ministry of National Education, Preschool, and Sports commissioned the CSÉFRS, through its *National Evaluation Body*, to assess the impact of *the Pioneer Schools Program*—which is part of the *2022–2026 Roadmap*—prior to its rollout and large-scale implementation in all primary schools across the country.

The evaluation was conducted in the 626 pilot elementary schools during the 2023–2024 school year. The purpose of this evaluation was to assess the schools' compliance with the criteria initially defined for the project, to identify success factors and challenges encountered, and to highlight regional disparities. It could have been an implementation evaluation limited to measuring the gap between what was planned under the 12 commitments and what was achieved during the pilot in the 2023–2024 school year, but the report contains much more, and we will return to it.

4.1 Methodology

The evaluation methodology focused on three main areas related to the *2022–2026 Roadmap*: 1) The student, 2) The teacher, and 3) The school. These three areas are subdivided into 12 dimensions and 42 sub-dimensions.

Various data collection tools were used, including questionnaires for principals and teachers, observation checklists to assess infrastructure and teaching practices (explicit instruction and TaRL), review of administrative documents, and ASER[6]tests to measure students' proficiency in mathematics and languages.

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6. The ASER (*Annual Status of Education Report*) survey has been conducted since 2005. The ASER tools were designed to measure basic learning outcomes using a common assessment for all children, regardless of their age or grade level, due to concerns about low achievement levels in reading and mathematics during primary school years and beyond.

The assessment targeted all principals of the 626 pilot schools, as well as a random sample of 2,457 teachers (approximately 4 teachers per school, from 2nd to 6th grade) and 8,732 students (approximately 15 students per school, selected by grade level and gender). Data were collected via the CSPro[7] platform by trained interviewers. The data collection operation was led by 47 interviewer-supervisors who were appointed and trained for this purpose, ensuring the smooth conduct of the survey.

To assess the degree of compliance with the objectives set for *the Pioneer School Program*, composite indicators were developed based on the data collected. These indicators range from 0 to 100; the closer a school's indicators are to 100, the higher its level of compliance with the defined quality standards. It is important to note that the indicators are calculated for each school in addition to the national average. This allows us to determine each school's position relative to the national average. To examine disparities related to geographic factors, these indicators are also calculated by region and by setting. This is crucial for monitoring the reform and ensuring continuous improvement.

4.2 Results

On average, the *pilot schools* achieved a satisfactory level of performance relative to the established goals. The average compliance score was 79 out of 100, and most schools scored above 75 points. Furthermore, rural schools achieved an average performance level similar to that of urban schools (78 points versus 80 points). This average performance can be described as very good.

Given the large number of schools involved, it was to be expected that some would face particular difficulties in achieving the expected results. In this context, the gap in scores between the highest-performing and lowest-performing schools remains significant (42 points). It was also to be expected that there would be disparities between regions and within the same region. *However, it is worth noting that rural schools show an average performance similar to that of urban schools (78 points versus 80 points), which is nonetheless a very positive result*.

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7. *The Census and Survey Processing System* (CSPro) is software for entering, editing, tabulating, and disseminating census and survey data. CSPro combines the functionalities of the *Microcomputer Processing System* (IMPS) and the *Integrated System for Survey Analysis* (ISSA) in a Windows environment. CSPro is in the public domain and is available for download at www.census.gov/ipc/www/cspro.

Supervision and instructional support show an average compliance score of 60 points, with a notable difference in favor of urban areas due to the low frequency of inspection visits in rural areas. Additionally, teacher training and certification in TaRL approaches and explicit instruction scored 73 and 66 points, respectively, with regional disparities. The evaluation highlights an insufficient number of inspectors to ensure adequate pedagogical supervision, particularly in rural areas, which has compromised the goal of weekly visits. The lack of material resources (access to electricity, internet, suitable facilities) in remote areas has also limited the adoption of pedagogical innovations. *These challenges are similar to the areas for improvement (training, support, and resources) that were also highlighted by the ONDH perception survey (2024).*

Assessments of schools' overall performance show that they generally meet the criteria defined for *the Pioneer School*. However, opportunities for improvement must be seized and gaps must be narrowed. Since the evaluation indicators were calculated not only at the national average level but also for each school, *the Ministry will know precisely where to focus greater efforts to reduce the observed gaps*. This is a key strength of this evaluation.

4.3 The interpretation of certain challenges identified by the CSÉFRS is surprising!

In addition to interesting findings on interregional and intraregional disparities, the evaluation report concludes with certain recommendations of a rather ideological nature that cast a shadow over the observed academic successes and ultimately call into question the Pioneer Schools project. This criticism, which goes beyond the data collected by the evaluation itself, surprised us and deserves to be commented on. Four criticisms of the project are raised, which we will examine in turn.

1. The criterion of voluntary participation to be part of the pioneer schools.

The CSEFRS points out that the voluntary participation criterion for schools in the experimental phase limited the representativeness of the schools, particularly those located in rural areas. The voluntary participation criterion may have favored the inclusion of schools benefiting from relatively favorable conditions. In our view, at this stage of the experiment, this poses no problem, since the success rate of rural schools was as high as that of urban schools. However, if the experiment had proven unsuccessful in schools from favorable contexts, this would have been a major setback and would likely have led to the project's termination. Failing when favorable conditions for success are in place certainly does not encourage pursuing a project further and with greater

so when it comes to public investments. On the other hand, when unfavorable conditions have prevented, for example, visits by inspectors, the use of PowerPoint, etc., urgent and targeted corrective measures must be taken without, however, calling into question the relevance of a project.

Furthermore, opening the pilot program to all schools would have been ill-advised, because—as is the case with any planned change—there were inevitably stakeholders who were more or less supportive of the pilot schools' project and who would likely not have put in the necessary effort or, worse still—and this cannot be ruled out—might have done everything in their power to sabotage it. In that case, we would not have had any credible information to clearly determine whether the pilot schools' model can improve student success. Selecting volunteer schools is a cautious approach that allowed us to verify during a pilot year whether the project could yield good results and, in the event of a possible failure, to limit the costs of a hasty rollout that could have gone wrong. Fortunately, that was not the case, but it could nevertheless have happened. Launching an educational reform with a pilot program in select schools is the standard procedure for most educational reforms.

2. The limitations of this pedagogical model focused on basic skills.

In its report, the CSEFRS notes that, regarding the pedagogical model, the Pioneer Schools project is limited to improving mastery of basic knowledge, without taking into account the skills that the *2015–2030 Strategic Vision* considers essential, such as innovation, creativity, and critical thinking. This argument is surprising for at least three reasons!

First, the data regarding the very poor performance of the Moroccan education system is, however, very clear. Let us not forget that we are dealing here with elementary school students whose academic deficits are so significant that the majority of them are, so to speak, illiterate. One must first learn to read, write, and count before thinking about developing critical thinking and creativity.

Furthermore, a person cannot become competent simply by exercising critical judgment as if it were a skill that can be learned in isolation, on its own; rather, this skill develops only within a specific field of knowledge where the individual has already accumulated a solid and organized foundation of knowledge (Willingham, 2007, 2019), which is obviously not the case for elementary school students who are still at the stage of learning the basics of reading, writing, and arithmetic.

Finally, even though pilot schools have just begun implementing this approach at the secondary level at the start of the 2024–2025 school year, what is known as the development of 21st-century skills (critical thinking, creativity, innovation) is far from being universally accepted in the research community. Indeed, recent studies on the transfer of learning (Sala et al., 2018), as well as the work of Rey (1996), Kirschner and Hendrick (2024),

Willingham (2007, 2019), contradict the idea that there is a general and universal form of creativity. Creativity in painting differs from that in literature, and neither of these forms is comparable to creativity in computer programming (Bissonnette and Boyer, 2018). No skill whatsoever—be it critical thinking, creativity, or innovation—can be transferred to other fields, as it is inseparable from the context in which it is applied and requires a substantial body of knowledge in that field (Kirschner and Hendrick, 2024; Rey, 1996; Willingham, 2007, 2019).

Can a skill like critical thinking really be taught? After decades of research in cognitive science, the conclusion is disappointing: not really. Those who have attempted to teach it have assumed it is a skill comparable to riding a bike, assuming that once acquired, it could be used in any context—such as a bike path, a street, or a forest trail. Yet studies in cognitive science reveal that thinking does not work that way. The mechanisms of thinking are intimately linked to its content—in other words, to domain-specific knowledge (Kirschner and Hendrick, 2024; Willingham, 2007, 2019). It is this domain-specific knowledge that must first be taught, and this is exactly what has been done in Morocco. Consequently, mastery of the foundational learning observed among students in PEP schools is essential for fostering the subsequent development of critical thinking, creativity, and higher-order skills.

Before critiquing the effects of the Pioneer Schools program based on the discourse regarding these 21st-century skills—which the *2015–2030 Strategic Vision* presents as established facts—the CSEFRS would have been well advised to examine the scientific literature on the subject more closely, as it actually highlights the fragility of this concept.

3. The Pioneer Schools reform proposes an educational model that contrasts with the one promoted in the Strategic Vision 2015-2030 document.

The authors of the CSÉFRS report refer repeatedly to the *Strategic Vision 2015–2030* document. Bourqia (2016) notes that the *Vision* calls for *a shift in the educational paradigm*, notably through "… the introduction of pedagogical innovation in classrooms by personalizing learning through the adoption of *differentiated methods for each student* […] In this context, the Vision recommends a learner-centered reform …". Bourqia (2016) goes on to emphasize that "the teacher shifts from a traditional role as a purveyor of knowledge or instructor to *that of a facilitator who must spark learners' curiosity and teach them the art of seeking solutions to the problems presented*. In fact, what the Vision addresses is a critique of traditional pedagogy and its desired replacement with a constructivist approach centered on the student's discovery of knowledge.

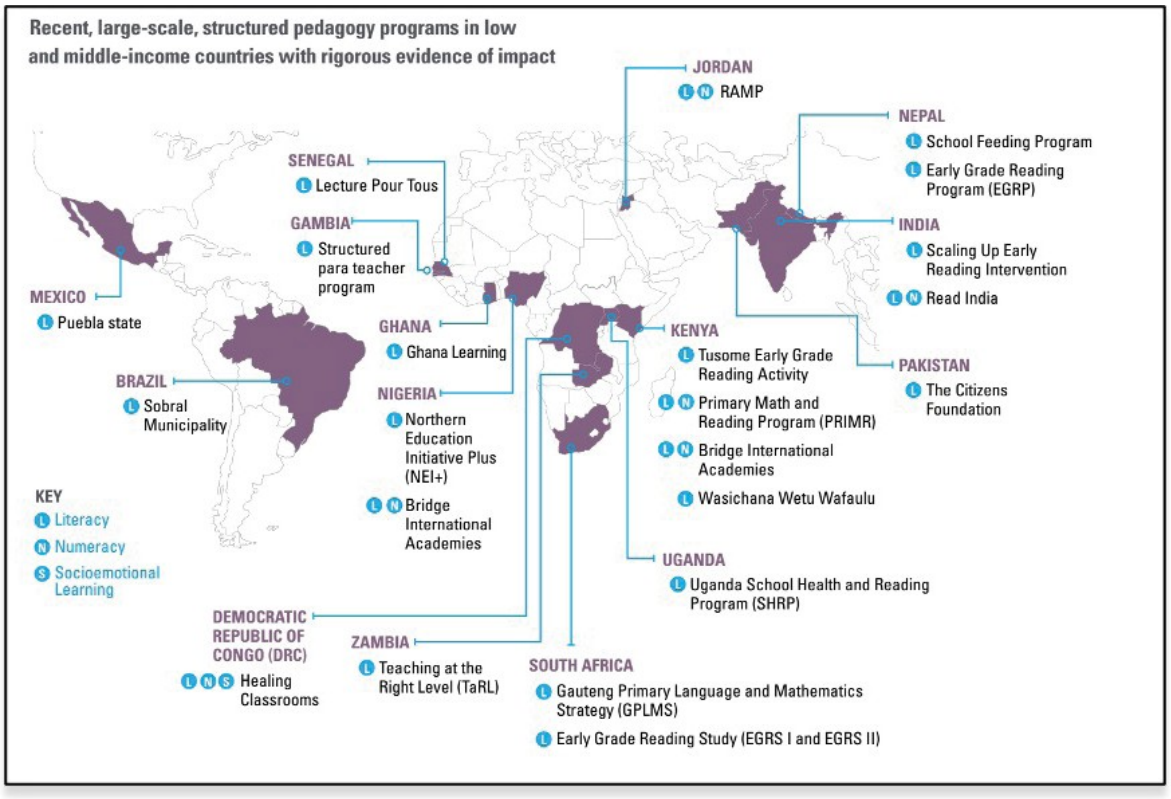
However, neither differentiated instruction, nor constructivism, nor socioconstructivism has been shown to ensure student academic success (Zhu & Goddard, 2026). The evidence on teaching effectiveness clearly does not support this, and the Pioneer Schools project instead relies on research-validated pedagogical approaches such as TaRL and explicit instruction. This is a better choice, a *"best* buy" as noted by the authors of the GEEAP report (2023)[8]. For them, and based on their comprehensive review of the research literature, structured pedagogy and knowledge-level-targeted instruction such as TaRL are among the most cost-effective interventions identified.

The CSÉFRS endorses an interpretation of the preferred pedagogical model that differs from that of the Ministry, which has instead opted for evidence-based teaching methods recommended by the GEEAP (2023). The shift toward TaRL and explicit instruction is quite different, better grounded in scientific research, and far more predictable in terms of students' academic and educational success than the approach advocated by the CSÉFRS, which recommends the pedagogical stance of the *2015–2030 Strategic Vision* but is not supported by any evidence. In a literature review on the effects of structured pedagogies, such as TaRL and explicit instruction, Piper and Dubeck (2020) demonstrated the positive outcomes of these approaches on students' literacy and numeracy learning across several low-income countries worldwide (see the map below).

8. In drafting this important report, the Global Education Evidence Advisory Panel (GEEAP) worked in collaboration with the UK's Foreign, Commonwealth, and Development Office, the World Bank, the United Nations Children's Fund (UNICEF), and the U.S. Agency for International Development (USAID).

Figure 12

Large-scale structured pedagogy programs that have demonstrated an impact on learning in low- and middle-income countries



Note. Excerpted from *2023 Cost-effective approaches to improve global learning: What does recent evidence tell us are "Smart Buys" for improving learning in low and middle-income countries?*, by the Global Education Evidence Advisory Panel (GEEAP), 2023, World Bank

To address the crisis in Moroccan education, should we align with certain elements of the *2015–2030 Strategic Vision* as if it were a document supporting scientifically indisputable theses, or rather with the *2022–2026 Roadmap*, which builds upon it, retaining key elements, while allowing us to move beyond it by taking into account advances in research? The 12 concrete commitments of the *2022–2026 Roadmap* concerning students, teachers, and schools do indeed make it possible to implement the pedagogical model of pioneering schools while relying on evidence. The CSÉFRS initially appears to endorse them in the presentation by the director of Morocco's National Evaluation Authority, Mr. Ait Mansour[9]. He expressly mentions that the *Pioneer Schools* project is part of the framework

9. This was a continuing education program held in France on March 12, 2025, for inspectors from the French Ministry of Education, organized by IH2EF, a training organization for executives in France. https://podeduc.apps.education.fr/video/84025-webinars-m-auverlot-m-ait-mansour-m-renaud/3400d15487b69d79276fd46c6170d0b657c19e0f365ca71b018b7ccaceff474e/

of the *2022-2026 Roadmap* and aims to improve the quality of learning, and that this initiative is based on a comprehensive approach that addresses several key areas:

- Modernization of teaching practices
- Continuous assessment of learning outcomes
- Intensive academic support
- Certified teacher training
- Teacher specialization
- Integration of digital tools
- Improvement of school infrastructure
- Increased financial resources
- Recognizing teachers through financial incentives. (Mansour, 2025)

Curiously, the CSÉFRS's interpretation of this in the conclusion of its report ultimately diverges from it in favor of a pedagogical model such as that advocated in the *2015–2030 Strategic Vision,* which does not take into account recent advances in scientific research (GEEAP, 2023).

Setting aside certain surprising comments, however, it is worth noting that the CSÉFRS acknowledges the significant progress in student learning in the classes of the pilot schools. Ultimately, this is the most important takeaway from this evaluation.

4. Decentralization as a solution to all problems.

The evaluation report notes that even though the *Strategic Vision* emphasizes the need for more decentralized educational governance, allowing schools to adapt their operations to local specificities, the actual implementation of the Pioneer Schools project is still largely carried out under central supervision, particularly with regard to strategic directions, pedagogical approaches, and monitoring and evaluation mechanisms.

However, decentralization is not necessarily a panacea. In fact, it might be more appropriate to speak of deconcentration rather than decentralization. There are not a thousand effective ways to teach; not all pedagogical approaches are equally effective. It would be wrong to think that every school, every classroom, chooses a pedagogical approach as if it were a piece of clothing, based solely on taste or subjective preference. This is a mistake that has been made time and again in numerous educational reforms. The government has opted for evidence-based practices and, consequently, a structured pedagogical approach, such as TaRL and explicit instruction, which works in various contexts and countries (Piper and Dubeck, 2020). However, it must absolutely support all schools in remote or disadvantaged areas in implementing the chosen approach and allocate the necessary resources. This is where the problem lies, and corrective measures must be taken.

Chapter 5. Evaluation of the Impact of the Pioneer School Program (PEP) in Primary Schools After One Year of Implementation. The J-PAL Report[10]

An end-of-school-year evaluation was conducted by the *Morocco Innovation and Evaluation Lab* (MEL)[11] , in collaboration with the Abdul Latif Jameel Poverty Action Lab (J-PAL)[12] , a research center affiliated with the *Massachusetts Institute of Technology* (MIT) and other organizations and institutions, to scientifically and rigorously measure the impacts of the Pioneer School over a full school year (2023/2024).

The study titled *"The Best Buy? Prospective Evidence on Successful Remediation in Morocco's Public Primary Schools,"* authored by Ibrahim, de Barros, Deschênes, and Glewwe (2024), stems from this collaboration. Its objective is to evaluate the impact of *the Pioneer School Program (PEP)* during its pilot phase on student learning outcomes in Morocco's public primary schools. The report highlights the program's significant effects and situates it within the context of global efforts to address the learning crisis. We provide an overview of the report's main findings.

5.1 Background and the Pioneer Schools Project

The authors of the report begin by highlighting what they call the global learning crisis affecting many low- and middle-income countries. According to them, more than half of the children in these countries do not acquire basic reading and math skills by the age of 10. Despite rising enrollment rates, learning outcomes remain low.

As mentioned earlier, Morocco, despite its notable progress in education, is also not immune to this crisis. The 2021 PIRLS assessments reveal that Moroccan 4th-grade students rank second-to-last out of 57 countries in reading, and in the 2019 TIMSS tests, they are among the lowest-performing in mathematics out of 64 countries, with more than half of them failing to reach the minimum proficiency threshold.

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10. Ibrahim, H., I., De Barros, A., Deschênes, S., Glewwe, P. (2024). *The best buy? Prospective evidence on successful remediation in Morocco's public primary schools*. Report prepared in collaboration with the Morocco Innovation and Evaluation Lab, University Mohamed VI Polytechnic, Abdul Latif Jameel Poverty Action Lab (J-PAL), and the Harvard Center for International Development. Prospective evidence on successful remediation in Morocco (Preliminary Report).pdf

11. It should be noted that the Morocco Innovation and Evaluation Lab (MEL) is a joint initiative with Mohammed VI Polytechnic University, the Abdul Latif Jameel Poverty Action Lab (J-PAL) at MIT, and the Harvard Center for International Development. Its mission is to promote the use of rigorous scientific evidence to improve the effectiveness of policies and programs in Morocco and to ensure that research is translated into concrete actions, thereby contributing to the country's long-term development. (Le Matin newspaper, Morocco, September 24, 2024)

12. https://www.povertyactionlab.org/fr/afrique

In response to this challenge, Morocco's Ministry of National Education, Preschool, and Sports has launched the *Pioneer School Program* (PEP), an ambitious initiative inspired by the recommendations of *the Global Education Evidence Advisory Panel* (GEEAP, 2023). As mentioned, the PEP, launched in September 2023 in 626 Moroccan public elementary schools, aims to address low learning levels in public elementary schools and reduce school dropout rates. The PEP is considered a flagship intervention, and the Ministry plans to expand it to an additional 2,000 schools by 2024–2025, thereby covering approximately 30% of the country's students.

The PEP program is inspired by the GEEAP recommendations (2023) and incorporates two high-impact interventions (*great buys*) to address this crisis: structured pedagogy and targeted remediation.

1. **Structured instruction**, in this case explicit teaching, involves, in particular, the use of scripted lesson plans and pre-established instructional materials for teachers in grades 1 through 6 to help them implement this approach.
2. **Targeted remediation**, inspired by the *Teaching at the Right Level* (TaRL) approach, aims to help students in grades 2 through 6 address their learning gaps.

In addition to these two main components, the PEP encourages teacher specialization in Arabic, French, and mathematics, and establishes a certification system—the *"Écoles Pionnières"* label—for schools that successfully participate in the program, thereby ensuring the quality of implementation.

5.3 Methodology

To assess the impact of the PEP, the study used a combination of the difference-in-differences method and matching.

- **The** difference-in-differences (DiD) **method**. This is a quasi-experimental econometric method used to assess the causal effect of an intervention or treatment by comparing changes in outcomes between a treatment group and a control group before and after the intervention. It is based on the assumption that, in the absence of the intervention, the average difference in outcomes between the experimental and control groups would remain constant over time. In other words, any differential change in outcomes after the intervention can be attributed to the effect of that intervention.
- **School matching**. This helps explain why, in the difference-in-differences approach, it is important to carefully match schools between the experimental group and the control group. Detailed administrative data were therefore used to identify non-PEP schools similar to PEP schools in terms of socioeconomic characteristics and

. This meticulous matching process allowed for the rigorous creation of a comparison group similar to the experimental group for the analysis. *The researchers were thus able to match 138 non-PEP schools with 138 randomly selected PEP schools*.

- **Primary data collection**. Assessments were conducted at the start of the school year, in September 2023 (*Baseline*), to measure students' initial academic level, followed by end-of-year assessments (June and July 2024, *Endline*) to measure progress made. These assessments measured student performance (N=22,846) in Arabic, French, and mathematics at all primary school levels. These assessments covered the content specified (declarative and procedural knowledge, skills, etc.) in the various curricula (Arabic, French, and mathematics): oral expression, writing, fluency, reading comprehension, mathematical skills, reasoning, application and problem-solving, geometry, measurement, etc.
- **Data Analysis**. Changes in student performance between the baseline and end-of-year assessments were analyzed to compare PEP and non-PEP schools in order to estimate the program's impact. An item response theory (IRT) model was used to aggregate student responses and generate continuous estimates of their abilities. Scores were standardized to facilitate the interpretation of results. The items with the most robust results are presented in the appendix to the report (see page 34 of the report).

5.4 Results

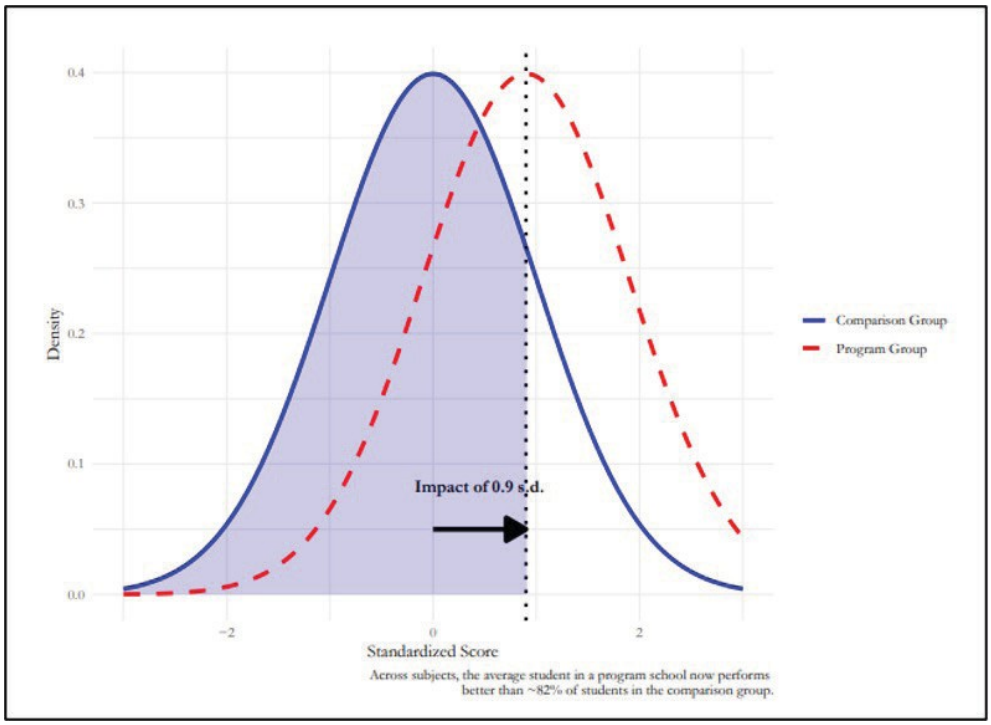
It is important to note that we were not involved in J-PAL's evaluation process. Our role in this reform project in Morocco was limited to producing a framework, a teaching guide, training school inspectors, and providing them with tools for teacher training. We did not meet with the J-PAL researchers and are in no way connected to the scientific rigor of their approach. Their evaluation was therefore conducted with complete impartiality, and their interpretation is their own.

That said, the results of the experiment are exceptional and highlight the PEP's remarkable impact on student learning outcomes:

- **Overall improvement of 0.90 standard deviations (effect size)**. On average, students in PEP schools scored 0.90 standard deviations higher than students in non-PEP schools, representing a significant learning gain. This means that the average student in a PEP school performs better than approximately 82% of students in the comparison group, those in non-PEP schools (see Figure 13 below).

Figure 13

Impact of the PEP on student learning outcomes

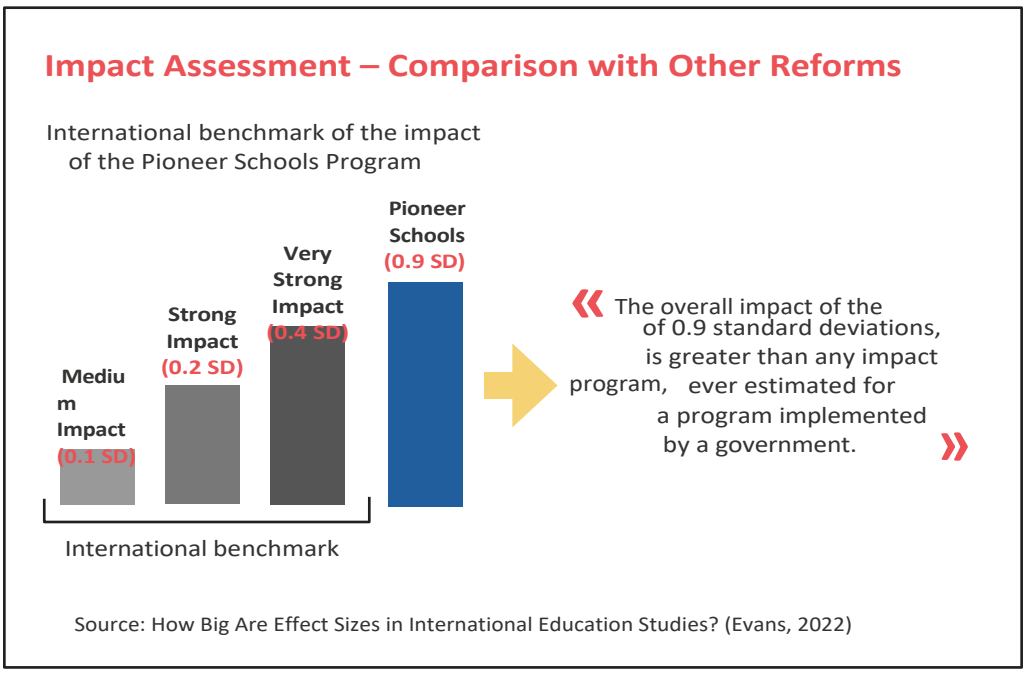


Note. Adapted from *"The Best Buy? Prospective Evidence on Successful Remediation in Morocco's Public Primary Schools,"* by H. I. Ibrahim, A. De Barros, S. Deschênes, and P. Glewwe, 2024, p. 14, J-PAL.

– **Significant impacts by subject**. The program had a positive impact on all three subjects assessed, with gains of 0.52 standard deviations (effect size) in Arabic, 1.30 standard deviations (effect size) in French, and 0.93 standard deviations (effect size) in mathematics.

Figure 14

Comparison of the Impact of Pioneer Schools with International Standards of Educational Effectiveness



Note. Adapted from *Pioneer Schools: Reform's Impact Is "Spectacular" According to Initial Evaluations*, by Médias24, 2023 (medias24.com). Comparison data are from Evans (2022)[13] .

– **Comparison with global interventions**. The overall impact of the PEP (0.90 standard deviation) ranks in the **top 1% of impacts observed** for educational interventions in low- and middle-income countries, according to a systematic review of impact studies.

The study also highlights that the program's impact is not limited to the highest-performing students or to students of a specific gender. Significant gains were observed among both girls and boys, as well as among students with different initial learning levels. In short, *the PEP's impact benefited all students who participated, including both boys and girls, and ranging from the lowest-performing to the highest-performing students*.

13. Watch the report here: https://medias24.com/2025/03/28/ecoles-pionnieres-le-directeur-pedagogique-du-ministere-decrypte-une-reforme-cle/ :~:text=Since%20the%20launch%20of%20the%20%C3%A9coles,Approximately%20320,000%20students#

5.4 Conclusion of the Study on the PEP Pilot Program in Elementary Schools

According to its authors, the PEP project provides compelling evidence of the highly positive impact of *the Pioneer School Program* on student learning in Morocco. This project has yielded exceptional learning gains, *demonstrating that an integrated intervention (structured instruction and remediation), implemented on a large scale by a government, can effectively combat the learning crisis*.

> These encouraging results pave the way for a nationwide expansion of the program and the implementation of similar interventions in other contexts. The number of pilot schools currently in operation is set to increase from 626 to 2,626 during the 2024–2025 school year, with the number of beneficiary students expected to rise to 1,300,000—approximately 30% of Moroccan elementary school students. This expansion is expected to reach 8,630 primary schools by the 2027–2028 school year (Elayachi, 2024, p. 77).

Chapter 6. Evaluation of the Pioneer Schools Project in Moroccan Middle Schools 2024-2025 (de Barros et al., 2026)

The report by Barros and colleagues (2026) presents the results of the evaluation of the "Pioneer School" program implemented in Moroccan public middle schools during the 2024–2025 school year. This phase of Morocco's major educational reform builds on the initiative launched in 2023–2024 in pioneer schools at the elementary level.

At the secondary level, the Ministry of National Education, Preschool, and Sports aims to transform teaching practices, sustainably reduce school dropout rates, and improve socio-emotional support. The evaluation is based on a rigorous quasi-experimental design that, like the evaluation conducted at the primary level, uses the difference-in-differences econometric model to compare 200 pilot middle schools with 100 matched control middle schools. According to the evaluators, the performance of the Moroccan pilot middle schools places the program among the most effective educational interventions documented in low- and middle-income countries.

In the following sections, we present in greater detail: first, the context, objectives, and mechanisms implemented in the middle schools; next, the evaluation methodology used by the researchers; and finally, we

6.1 Context, Objectives, and Mechanisms of the Moroccan Secondary School Reform

As we have seen previously, although Morocco has a high enrollment rate, the education system nevertheless faces what could be described as a profound learning crisis at both the primary and secondary levels. We have seen that the results in primary school were alarming. In fact, in the 2021 PIRLS reading assessment, fourth-grade students in Morocco ranked second-to-last (out of 57 countries), and more than half of the students (59%) did not reach the minimum proficiency threshold (Mullis et al., 2023). In the 2023 TIMSS mathematics assessment, fourth-grade students in Morocco ranked second-to-last (out of 58 countries), and here too, more than half (54%) did not reach the required minimum proficiency threshold (von Davier et al., 2024). These poor results led to the implementation of the Primary Pioneer Schools Program, the evaluations of which we have reported in Chapters 3, 4, and 5 of this document.

As for lower secondary school, the learning gap is just as significant, and its consequences for the young people themselves and for the country are dramatic. In terms of academic achievement, Moroccan eighth-graders ranked second-to-last out of 42 countries on the 2023 TIMSS assessment in mathematics, and 64%

of them fell below the lowest international threshold in mathematics (von Davier et al., 2024). The results of the 2022 PISA survey confirm findings already established at the national and international levels. Among the 81 countries assessed, Morocco ranked71st in mathematical literacy,79th in reading literacy, and76th in scientific literacy, falling nine places in the latter two areas (OECD, 2023). Consequently, these results confirm the findings established at both the national and international levels, highlighting the learning crisis affecting students in the public education system as a priority issue to be addressed.

Furthermore, the challenge becomes more complex at the secondary level due to the scale of the dropout phenomenon resulting from this learning crisis, whether it is voluntary on the part of the student, the result of expulsion from school, or due to grade repetition. The dropout rate is estimated at approximately 7.4% in 2023–2024, with higher rates in middle school (nearly 8.5% over the same period), while the grade repetition rate reaches 12.1% in 2023–2024, peaking at 18.5% in high school. These recent data are part of a concerning trend already observed previously, where widespread grade repetition constitutes a major risk factor for school dropout (Higher Council for Education, Training, and Scientific Research, 2023; Moroccan Ministry of National Education, 2024).

Young people who drop out of school are jeopardizing their future. Without basic training or a specialized diploma, at a critical age when they are questioning their identity and their relationship to the world and others, they are already confined to a path where the future looks bleak, leading to a series of problems such as job insecurity, poverty wages, unemployment, and constant instability, among others. Furthermore, for a state, depriving itself of the skills of a significant percentage of its youth workforce is a predictable disaster that must be addressed as soon as possible and as effectively as possible.

This is the major challenge that Morocco has committed to addressing. As with elementary school, the government has decided to launch a *Pioneer Schools Program* (PEP) for middle school students in grades7,8, and9(equivalent to5ththrough9th grade). Three strategic objectives are targeted: 1) raising students' academic achievement in Arabic, French, mathematics, and science; 2) reducing school dropout rates and grade repetition, two phenomena that hinder their development; and 3) strengthening students' social-emotional skills and well-being. The pilot phase of the project was launched in September 2024 in 232 public middle schools[14] . These 232 middle schools in the first cohort are spread across all 12 regions of the country. Their selection was primarily on a voluntary basis, suggesting an initial commitment by educational teams to implementing the reform.

14. From this initial group, 535 additional schools were added for the 2025–2026 school year, bringing the total number of pilot middle schools to 767 and representing 32% of the country's middle schools. The plan is to complete the rollout by 2028 with the addition of the remaining 1,777 middle schools, thereby ensuring full coverage of all 2,544 middle schools.

To achieve these objectives, the middle school reform proposes an *evidence-based* intervention model and targets individual *schools* for intervention. Relying as much as possible on *research data* is now the preferred strategy in educational reforms. For decades, reforms have been based more on well-meaning exhortations than on proven evidence of effectiveness. Without a rigorous experimental foundation, we risk, even in the 21st century, going in circles from one reform to the next in a ceaseless pendulum swing, as Slavin (1989) lamented. Furthermore, targeting change interventions at *the school level*—by establishing a pilot program in pioneering middle schools—is likely to have a greater impact than a project focused solely on the classroom or a mere organizational restructuring. Relying on evidence and focusing on the school are two essential prerequisites that are likely to ensure success from the outset.

In addition to these two fundamental choices for ensuring the success of the reform, emphasis was placed on integrating several interdependent mechanisms: 1) a structured pedagogy,
2) targeted support at the start of the school year, 3) an early warning system to identify students at risk of dropping out, 4) additional academic support for these at-risk students, 5) enhanced extracurricular activities, 6) social-emotional development workshops for a select number of students and schools, 7) ongoing teacher training, 8) a school quality certification system.

In the following paragraphs, we describe the nature of these measures in greater detail based on information contained in the evaluation report (by Barros et al., 2026) and other data from supplementary sources we have identified. These measures were not explicitly described in the report, nor was their impact necessarily evaluated, as they extend far beyond the three objectives of the mandate (subject learning, dropout rates, and socio-emotional skills). They do, however, shed light on the scope and complexity of the reform.

1. **Structured instruction**. The structured instruction in question is explicit teaching based on the work of Rosenshine (1986). In addition, there are scripted lessons inspired by Engelmann's work on *Direct Instruction* and made available to teachers in all middle schools. Structured instruction and scripted lessons are effective teaching strategies validated by research.
2. **TaRL Remediation**. Given that a large number of students entering middle school are significantly behind in all subjects, the first two months of the school year are devoted to remedial work. This remediation, inspired by the TaRL model, is based on students' actual level of knowledge in the subjects covered by the curriculum rather than on their chronological age or "theoretical" grade level
   "theoretical" grade level. TaRL is an effective remediation approach that has been validated by

research[15]. Intensive remediation in middle school covers a broader range of subjects than in elementary school, including Arabic, French, mathematics, physics and chemistry, and life and earth sciences. The fundamental principle applied in middle school remains the same as in elementary school: focusing on the essential prerequisites without which the acquisition of new learning is compromised. In practice, this translates into targeted work on fluency and direct comprehension in languages, on basic arithmetic operations and algebraic concepts in mathematics, as well as on the use of simple tables and graphs in science. Intensive remediation also adopts an explicit teaching approach. At the end of this period, new learning is introduced using this same method, with the use of scripted lessons and new textbooks, building on what was established in elementary school.

3. **Early warning system**. Given that school dropout is a major concern for the Moroccan government, it stands to reason that measures to identify and monitor students at risk of dropping out have been implemented. The early warning system relies on the combined use of several data sources: academic performance history and grade repetition; qualitative assessments by teachers and members of the educational team; and real-time absence data. This information is used to generate regularly updated lists of at-risk students. These lists are confidential, and access is restricted to members of the school's monitoring unit responsible for tracking at-risk students and preventing school dropout.
4. **Additional academic support for identified at-risk students**. Tutoring sessions have been offered to these at-risk students.
5. **Expanded extracurricular activities**. The range of activities has been diversified to encourage student participation. Whereas these activities were previously sporadic and largely dependent on the individual initiative of certain teachers, they have been formalized as part of the reform. Each school now offers a structured program of extracurricular activities covering various fields and including dedicated afternoons. Each student receives two hours of activities per week. In addition, a strengthened quality framework has been implemented: the Ministry, in partnership with specialized associations, has developed guidelines, educational content, and training programs for the teachers responsible for these activities.

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15. These two program components align with the *Global Education Evidence Advisory Panel* (GEEAP, 2023), which considers them two "high-value" recommendations for addressing the learning crisis in low- and middle-income countries.

6. **Social-emotional workshops**. It goes without saying that adolescence—and especially its early stages—is a pivotal period in the life of every person seeking their identity, during which there is an increased risk of dropping out of school. Part of the pioneering schools' initiative involved social-emotional workshops led by specialists in 84 schools for 7th and 8th grade students. These workshops cover several dimensions: 1) In terms of *interpersonal skills*, they address the perception of emotions and prosocial behaviors; 2) Regarding *intrapersonal skills*, the program examines 2.1) *perceived control*, which includes a growth mindset, locus of control, and self-efficacy, as well as 2.2) *self-discipline,* which encompasses dimensions such as self-regulation, perseverance, discipline, and diligence in work.

   In addition, the creativity component was measured using the Torrance scale (1968, 1998) based on the interviews conducted. However, it is unclear whether there were any specific activities aimed at fostering creativity or how many such activities took place.

   It is important to emphasize once again that middle school dropout rates constitute a major challenge in the Moroccan context. A response focused solely on academic learning did not seem sufficient given the specific needs of adolescents. Furthermore, there was a desire to make middle schools more attractive and safe by offering extracurricular activities that foster personal growth and by providing socio-emotional support capable of addressing bullying, school violence, and mental health issues. The presence of social support staff within the schools effectively supports this comprehensive approach

7. Continuing education for teachers. Secondary school teachers involved in the program receive approximately nine days of continuing education, delivered in three phases. This training covers the objectives and tools of the remediation period, effective teaching practices and explicit instruction, methods for monitoring and assessing students, and classroom behavior management. This structure reflects a commitment to aligning expected teaching practices with teachers' professional development.

8. School-level quality certification system. The
   "Pioneer Schools" is based on a multidimensional approach centered on the three pillars of the 2022–2026 roadmap: the student, the teacher, and the school. Awarding the label to a school depends on meeting some twenty quality criteria related to these three dimensions. These criteria focus in particular on the adoption of effective teaching practices, teacher training and certification, rigorous assessment of learning, the principal's leadership, school management, and physical conditions. (Moroccan Ministry of National Education, Preschool, and Sports, 2026)

6.2 Evaluation Methodology

This quasi-experimental study analyzes the impact of a large-scale school reform, led by a government (Morocco) and targeting all schools, in lower secondary school classrooms. As mentioned earlier, the researchers aim to determine whether this reform has improved students' academic achievement, reduced school dropout rates, and improved socio-emotional outcomes.

Furthermore, it is important to note that, to ensure greater transparency, the research was pre-registered on *the Open Science Framework* (OSF), which is publicly accessible via the following link: *osf.io/g54kd*[16] . More technical information on the research protocol is also available there.

The sample of schools

To estimate the overall impact of the comprehensive school reform in Moroccan middle schools, the researchers used the "differences-in-differences" method to compare 200 middle schools in the intervention group—the "pioneer schools"—with 100 matched comparison schools. Out of a total of 2,544 middle schools in Morocco, the study selected 300 for the experiment: 200 of the 234 pioneer middle schools, plus 100 matched non-pioneer middle schools serving as the control group. Furthermore, among the 200 pioneer middle schools, 84 were randomly assigned to test the impact of socio-emotional support workshops led by specialists working on these dimensions in schools; consequently, the remaining 116 pioneer middle schools serve as the control group for the analysis of this dimension.

The matching of schools was done meticulously to ensure baseline equivalence among the compared schools and to isolate the causal effect of the intervention program. The comparison schools were selected through algorithmic matching based on pre-intervention data from national administrative records dating from before the program's launch. The hypothesis is that the trend in the pilot middle schools mirrors that of comparable non-pilot schools in the absence of the intervention program. Comparisons of exam score trends over the three years preceding the reform corroborate this. This hypothesis implies that the trend in results over time in the pilot schools would have been the same as the average trend in the matched non-PSP schools if the PSP program had not been implemented in the PSP schools.

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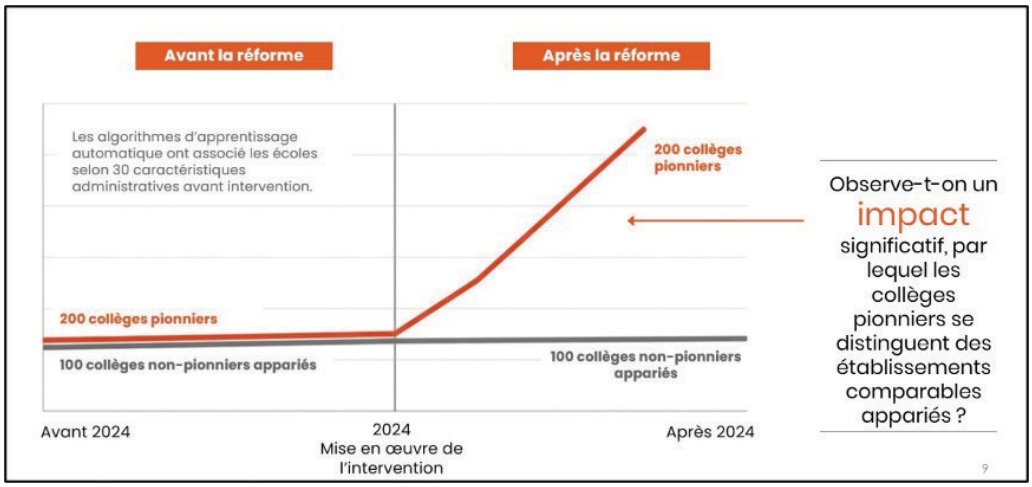
16. OSF is a free, open-source online platform developed by the *Center for Open Science* (COS). It enables researchers to manage, document, share, and increase the transparency of their research projects at all stages of the scientific research cycle (*osf.io/g54kd*). It allows for the centralization of research work (protocols, data, analyses, documents) in a single collaborative space, promoting transparency, reproducibility, and the sharing of results.

Figure 15

Matching Evaluation Protocol for Measuring the Impact of the Collèges Pionniers Program



Note. Excerpted from *The Effectiveness of the Pioneer Colleges: Results of an Independent Impact Evaluation* [Presentation], by A. de Barros and F. Devoto, March 2026, Teachers' Forum, Rabat, Morocco. Morocco Innovation and Evaluation Lab (MEL).

Sample of students

For the analysis of the effects on school dropout rates, the data comes from national administrative records. There were 326,819 students enrolled in the 300 middle schools during the program's first year of implementation, in addition to 310,768 students from the previous school year. This represents a total of *637,587 observed data* points covering school attendance, absences, academic performance, and transitions.

For analyses of effects on learning and on social-emotional skills, the researchers rely on a randomly selected subsample of students comprising *20,036 students distributed across the 300 schools in the study* (4,869 in Arabic, 4,876 in French, 5,141 in mathematics, and 5,150 in science).

The range of measures conducted

The study is based on primary data collected during two data-collection phases across all 300 schools in the study sample: an "initial" baseline assessment in September 2024 and a "final" assessment in June 2025. In addition, administrative data and supplementary data on the quality of implementation were collected. During these data collection phases, all students in the sample took group-based paper-and-pencil assessments in the four subjects. Students also participated in individual interviews to assess their language skills in Arabic and French, and some of them were assessed for their social-emotional skills.

The primary data were collected by ministry officials not affiliated with the schools involved in the study, with the support and under the supervision of staff from *the Moroccan Laboratory for Innovation and Evaluation* (MEL). It is estimated that more than 800 interviewers contributed to the assessment and interviews with students and school staff.

School dropout. The Ministry provided researchers with access to two years of student enrollment data, including information indicating whether students who were no longer attending their original school were still enrolled because they had transferred to another public school. Using this data, it was possible to determine whether a student had left the country's school system at the end of a school year, whether they had left voluntarily, had been expelled, or had to repeat a grade.

Academic learning. Learning in the academic subjects covered in the middle school curriculum was assessed. In *mathematics*, numbers, geometry, algebra, data and probability, and measurement were assessed. These areas align with the TIMSS and PISA frameworks and allow for a comprehensive assessment of students' mathematical skills. The assessment also incorporates three cognitive dimensions (knowledge, application, and reasoning) to measure not only students' ability to recall and recognize mathematical concepts, but also their ability to apply mathematical procedures and demonstrate high-level reasoning.

The science domains—life sciences, physical sciences, and earth sciences—cover subjects such as biology, chemistry, physics, and environmental science. These domains are also aligned with the TIMSS and PISA frameworks and ensure that the assessment reflects internationally recognized benchmarks for scientific literacy. As with the mathematics assessment, the science assessment incorporates three cognitive dimensions—knowledge, application, and reasoning—to assess students' ability to understand key scientific concepts, apply them in real-world contexts, and engage in analytical reasoning and problem-solving.

The written portion of the Arabic and French language assessment focuses on reading comprehension and writing skills. The reading section required students to extract explicit information, draw logical conclusions, synthesize ideas, and critically analyze texts, while the writing section assessed their ability to formulate clear, structured, and coherent written responses. These two components align with the PIRLS and PISA frameworks.

The assessment of oral skills in French and Arabic complements the written section by evaluating listening comprehension, fluency in reading aloud, and oral expression skills. The listening comprehension exercises measure students' ability to understand spoken language through contextually relevant passages, which

requiring them to process and interpret information. Reading-aloud exercises assess fluency, accuracy, and expression, while oral expression exercises assess vocabulary use, verbal clarity, and the ability to articulate ideas effectively.

Social-emotional skills. These include *interpersonal skills* that combine measures of prosocial behavior and emotional perception among students. The prosocial component measures students' tendency to cooperate, help, and interact positively with their peers. Prosocial behaviors are essential for strong peer relationships and have been linked to higher academic engagement and fewer behavioral problems. Emotional perception refers specifically to a student's ability to recognize their own emotions (stress, joy, frustration, pride), identify the emotions of others (empathy), and understand the impact of these emotions on their own behaviors and learning.

Furthermore, *intrapersonal* skills are based on two dimensions: perceived control and self-discipline. Perceived control refers to students' beliefs regarding their own ability to influence their success, while self-discipline measures self-regulation, diligence, and discipline in their work. Together, these components reflect key factors in academic motivation and behavior.

Creativity. Researchers measured fluency, originality, and elaboration in creative tasks using the *Torrance Tests of Creative Thinking* (TTCT) (Torrance, 1968, 1998), which is administered during individual interviews. The TTCT is a widely recognized assessment designed to evaluate students' ability to generate ideas, think flexibly, and develop initial concepts.

Other Measures

School climate and well-being. Researchers also developed an index of school climate and student well-being, incorporating measures of belonging, bullying, and perceived stress, collected through paper-and-pencil individual interviews with students. The belonging scale, adapted from the PISA school climate module, assesses students' sense of belonging and inclusion in their school environment. The bullying scale, also drawn from PISA, captures experiences of peer victimization, with scores reversed to correspond to positive well-being outcomes. Finally, the PSS-4, a widely used psychological scale developed by Cohen et al. (1983), measures students' perceived stress and their ability to cope with challenges.

Extracurricular activities. The researchers collected data on students' activities outside of school. In particular, they obtained self-reported information

on students' extracurricular activities and time spent on homework after school. They focused on two binary variables (borrowed from PISA) indicating whether, during a typical school week, a given student reports spending at least 30 minutes per day on homework, and a similar question regarding time spent on extracurricular activities after school.

Adoption and quality of implementation. During individual interviews conducted with students at the end of the study, the researchers also collected data to determine (in both the intervention and control group schools) whether students knew their school's social specialist, had met with them, and had participated in a workshop with them.

6.3 Detailed analysis of the results

The study's main findings fall into four categories and include data on school dropout rates at the end of the 2024–2025 school year, overall exam scores (aggregated across the four subjects), measures of social-emotional skills, and creativity.

6.3.1 Impact on school retention and grade repetition

The program resulted in a 1.6 percentage point decrease in the overall dropout rate (-31.4%). It reduced the dropout rate at the end of the 2024–2025 school year by 1.6 percentage points (Intention-to-Treat, ITT)[17] instead of the usual (counterfactual) rate of 5.1% that might have occurred without the intervention of the pilot middle schools. This absolute reduction in the dropout rate corresponds to a **relative decrease of 31.4 percent in school dropout rates** (1.6% ÷ 5.1% × 100 = -31.4%).

The program also leads to a 1.2-point decrease in voluntary dropout rates (-31.6%) and a 0.4-point reduction in expulsions for poor academic performance (-30.8%). The overall effect of the program comprises these two components: a 1.2 percentage point decrease in the percentage of students who *voluntarily* drop out compared to the counterfactual value of 3.8% (1.2% ÷ 3.8% × 100 = -31.6%) and a 0.4 percentage point decrease in the percentage *of students who are expelled* (or
"excluded" due to persistent poor academic performance or behavior, rather than the counterfactual value of 1.3% (0.4% ÷ 1.3% × 100 = -30.8%).

17. *Intent-To-Treat* (ITT). The intent-to-treat (ITT) principle is used primarily in the analysis of randomized controlled trials (RCTs).

Table 1
Effects on retention

Indicator	Control level	ITT effect	Relative reduction
Overall dropout rate	5.1%	1.6 percentage points	31.4%
Voluntary dropout	3.8%	1.2 percentage points	31.6%
Exclusion (academic performance and behavior)	1.3%	0.4 percentage points	30.8%

Note. Table adapted from Beyond basics: *Whole-school reform and early adolescent learning in Morocco*, by A. De Barros et al., 2026, eScholarship (escholarship.org).

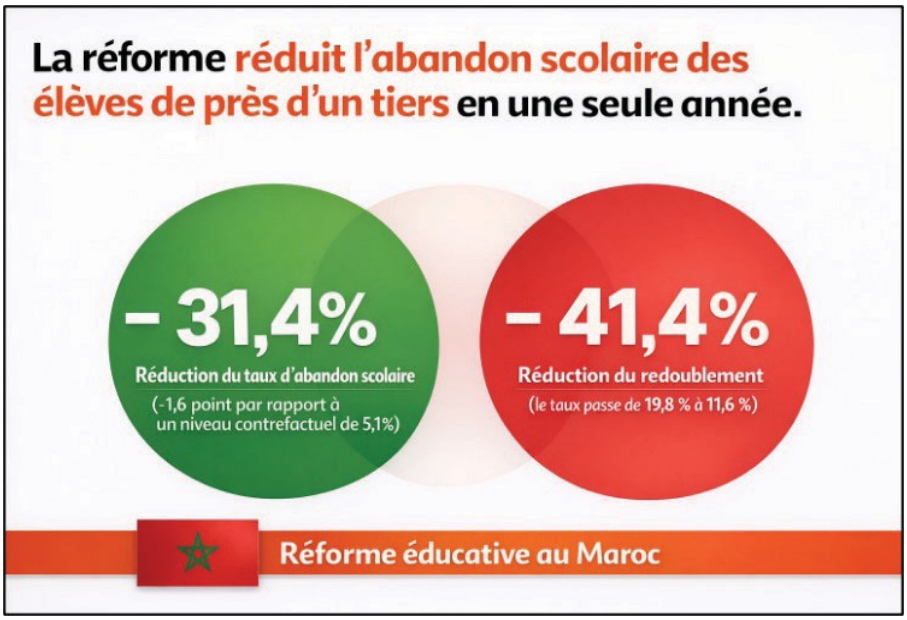
The program also leads to an 8.2 percentage point drop in the probability of grade repetition. Indeed, the rate falls from **19.8%** to **11.6%** after one year of implementation. Given that the initial grade repetition rate (without PEP) is **19.8%**, the observed absolute decrease is 8.2 percentage points. Furthermore, this decrease corresponds to a relative reduction of approximately **41.4**%.

$$\text{Relative decrease} = \frac{\text{absolute decrease (8.2)}}{\text{41.4\% of the initial rate (19.8)}} \times 100 =$$

Even though they are limited to a single year of the pilot program, these results already point to a profound transformation in school retention dynamics.

Figure 16

The Impact of Educational Reform on Dropout and Repetition Rates in Morocco



Note. Adapted from *The Effectiveness of Pioneer Middle Schools: Results of an Independent Impact Evaluation* [Presentation], by A. de Barros and F. Devoto, March 2026, Teachers' Forum, Rabat, Morocco. Morocco Innovation and Evaluation Lab (MEL).

6.3.2 Impact on Learning

The evaluation results show that, on average for Arabic, French, mathematics, and science, the program's impact on student learning is 0.52 standard deviations relative to the distribution of scores on end-of-year exams at non-Pioneer middle schools.

Since the general counterfactual growth in academic skills over the same period is 0.23 standard deviations—representing what students would normally learn in one year without the experimental program— this indicates that the Pioneer Middle School program more than doubled (2.26 times) the pace of student learning during the school year and represents a 3.3-fold acceleration (0.23 + 0.52 = 0.75 standard deviations). In Pioneer Middle Schools, students learn 3.3 times faster than in the standard system.

By subject, the program's effects are 0.24 standard deviations in Arabic, 0.31 standard deviations in French, 0.30 standard deviations in mathematics, and 1.24 standard deviations in science. These gains apply to both foundational skills and higher-order thinking skills.

Table 2

Effects on Learning

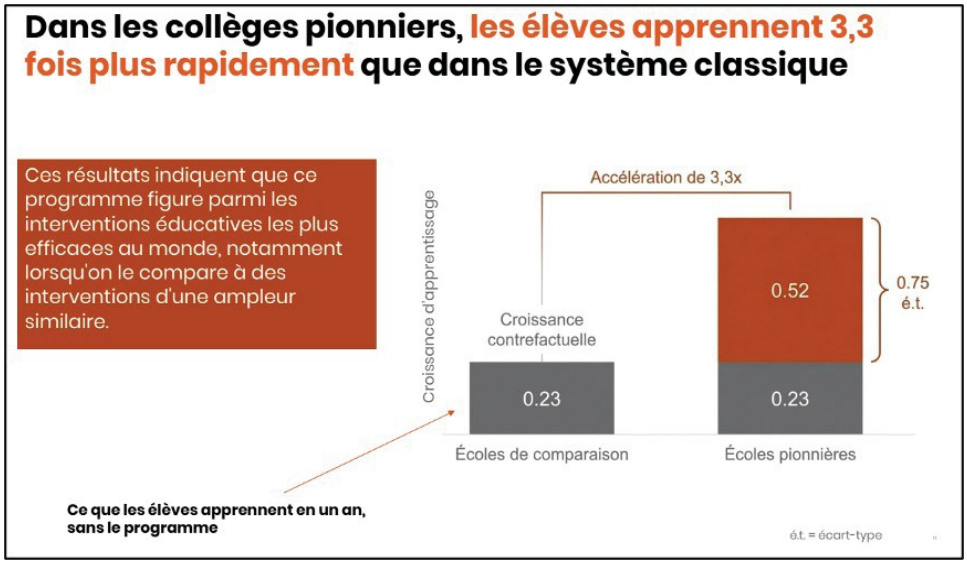
	Counterfactual Growth*	Results Overall ITT** effect
Average cumulative test scores	0.23	0.52
Arabic	0.26	0.24
French	0.21	0.31
Mathematics	0.03	0.30
Science	0.38	1.24

*What students learn in one year without the program ** What students in pilot middle schools learn in addition to those not in the program

Note. Table adapted from *Beyond basics: Whole-school reform and early adolescent learning in Morocco*, by A. De Barros et al., 2026, eScholarship (escholarship.org).

Figure 17

Comparison of annual learning growth between Pioneer Middle Schools and comparison schools



Note. Taken from *The Effectiveness of Pioneer Middle Schools: Results of an Independent Impact Evaluation* [Presentation], by A. de Barros and F. Devoto, March 2026, Teachers' Forum, Rabat, Morocco. Morocco Innovation and Evaluation Lab (MEL).

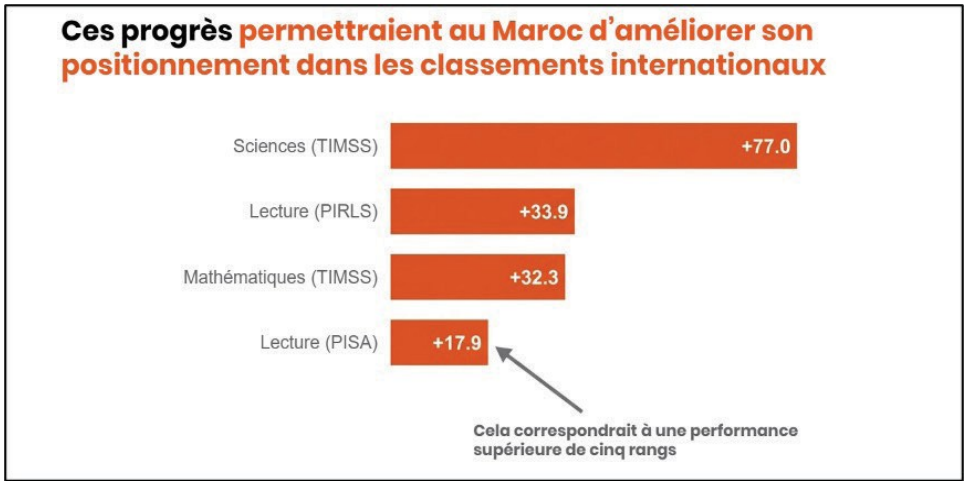
De Barros and the Morocco Innovation and Evaluation Lab (2026) note that:

> To enable international comparisons, the results were linked to international assessment scales such as TIMSS, PIRLS, and PISA. The

> The progress observed under the program appears to correspond to significant improvements in Morocco's relative position in recent international rankings, notably an estimated rise of about five places on the PISA scale for reading in Arabic. (p. 5).

Figure 18

Presentation of results related to international assessment scales such as TIMSS, PIRLS, and PISA



Note. Taken from *The Effectiveness of Pioneer Middle Schools: Results of an Independent Impact Evaluation* [Presentation], by A. de Barros and F. Devoto, March 2026, Teachers' Forum, Rabat, Morocco. Morocco Innovation and Evaluation Lab (MEL).

Furthermore, **the overall effect of +0.52 standard deviations is exceptional**, particularly for a large-scale intervention such as the one in Morocco. This score places the program in the top 1% of the most effective educational interventions documented internationally. Indeed, Evans and Yuan (2022) demonstrated, based on 234 studies conducted in 51 low- and middle-income countries, that educational interventions generally produce very modest effects: the median effect size is **0.10 standard deviations** for learning. Consequently, the effects observed in the pioneer middle schools far exceed the impacts typically reported in the international literature and rank among the highest results ever documented for a nationwide educational reform.

6.3.3 Social-emotional skills and creativity

It is worth noting that the pilot schools' experiment includes social-emotional workshops led by specialists in 84 (out of 200) schools for 7^{th} and 8^{th} grade students. These 84 schools were randomly assigned to test the impact of social-emotional support workshops and are led by specialists working in these areas. The remaining 116 pioneer middle schools serve as a control group for the analysis of this dimension.

The data show that, in addition to academic progress, the Pioneer Middle School Program improves several socio-emotional aspects of students' lives.

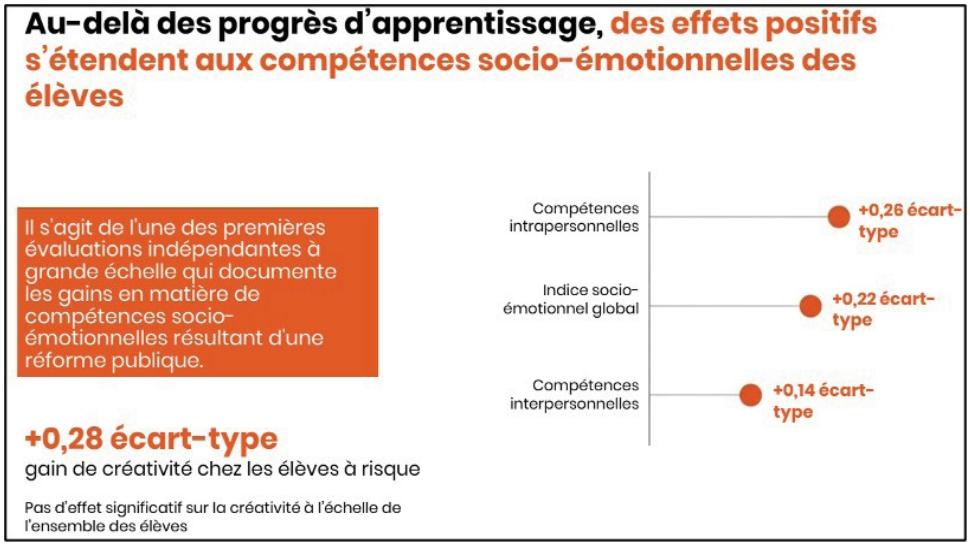
Table 3
Effects on socio-emotional dimensions

Dimension	Outcome Overall ITT Effect
Intrapersonal skills	+0.26 standard deviation
Overall socio-emotional index (Growth mindset, self-efficacy, prosociality, and emotional perception)	+0.22 standard deviation
Interpersonal skills	+0.14 standard deviation
Increase in creativity	No significant increase*

*Creativity does not increase significantly in the overall sample; however**, the result increases by +0.28 standard deviation among at-risk students**.

Note. Table adapted from *Beyond basics: Whole-school reform and early adolescent learning in Morocco*, by A. De Barros et al., 2026, eScholarship (escholarship.org).

Figure 19
Impact of the Reform on Students' Social-Emotional Skills and Creativity



Note. Excerpted from *The Effectiveness of Pioneer Middle Schools: Results of an Independent Impact Evaluation* [Presentation], by A. de Barros and F. Devoto, March 2026, Teachers' Forum, Rabat, Morocco. Morocco Innovation and Evaluation Lab (MEL).

According to the researchers, this is one of the first large-scale independent evaluations to document gains in social-emotional skills resulting from a public policy reform.

6.3.4 Analysis of at-risk students

Students in the bottom quartile or identified as vulnerable or at risk benefit from the Pioneer Schools Program at least as much as other students on all learning indicators, and even more so in terms of school dropout rates, social-emotional skills, and creativity. These results confirm the Pioneer Schools Program's ability to reduce educational inequalities.

Table 4
Effects on at-risk students

Domain	Impact
School dropout	3.9% (compared to -1.6% for the general population) **2.4 times higher**
Apprenticeship	+0.45 standard deviation (compared to 0.52 standard deviation for the average effect) **Almost similar**
Social-emotional	+0.34 standard deviations (instead of the average effect of +0.22 standard deviations) **1.5 times higher**
Creativity	+0.28 standard deviation (no effect in the general population)

Note. Table adapted from *Beyond basics: Whole-school reform and early adolescent learning in Morocco*, by A. De Barros et al., 2026, eScholarship (escholarship.org).

Analysis of the program's effects on students identified as at-risk reveals particularly significant results, both in terms of school retention and in academic and socio-emotional dimensions (see Table 4 above).

With regard to school dropout rates, the program leads to a **3.9 percentage point** decrease, compared to a **1.6 percentage point** decrease observed in the general population. The effect is therefore **2.4 times greater** among at-risk students. This result is particularly significant as it shows that the program has a targeted impact on the most vulnerable students, thereby helping to reduce educational inequalities.

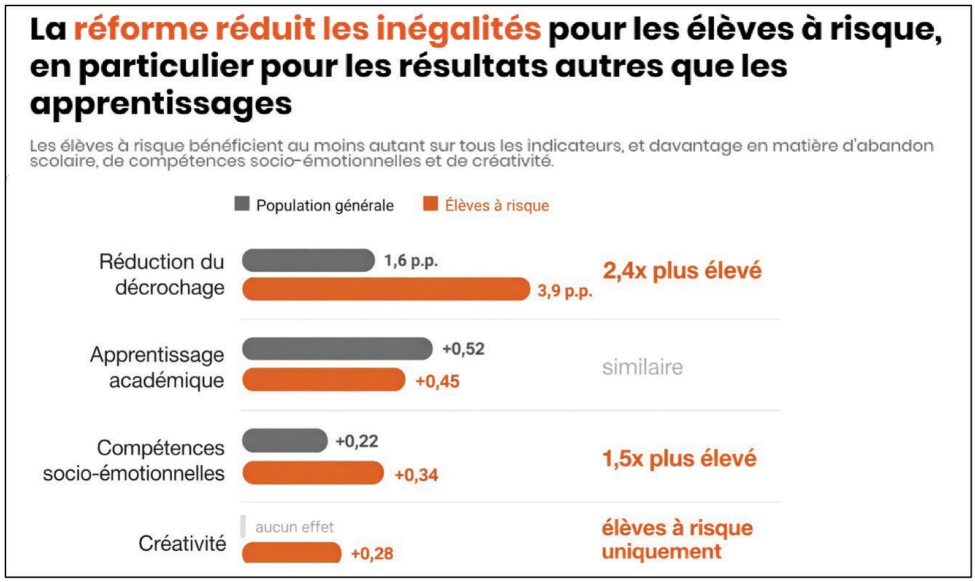
In terms of learning, at-risk students show a gain of **+0.45 standard deviations**, which is slightly lower than the average effect observed in the general population (**+0.52 standard deviations**), but remains nonetheless **very substantial**. This indicates that, despite their initial difficulties, these students benefit almost as much as others from the educational interventions implemented.

The effects are even more pronounced when it comes to social-emotional skills. At-risk students show an improvement of **+0.34 standard deviations**, compared to **+0.22 standard deviations** in the general population—an effect that **is 1.5 times greater**. This

suggests that social-emotional support programs play a particularly crucial role for these students by strengthening key dimensions such as self-discipline, self-perception, and social relationships.

Finally, a notable effect is observed on creativity, with a gain of **+0.28 standard deviations** among at-risk students, whereas no significant effect is measured in the general population. This result indicates that certain dimensions of the program appear particularly beneficial for the most vulnerable students, possibly due to a more structured and supportive learning environment.

Figure 20
Effects of the reform on at-risk students



Note. Figure adapted from *The Effectiveness of Collèges Pionniers: Results of an Independent Impact Evaluation* [Presentation], by A. de Barros and F. Devoto, March 2026, Teachers' Forum, Rabat, Morocco. Morocco Innovation and Evaluation Lab (MEL).

Overall, these results confirm that the program not only improves average performance but also helps **reduce achievement gaps among students**, generating particularly strong effects among those who need it most.

6.3.5 Quality of Implementation and School Climate

The researchers note that implementation fidelity of the program in the pilot schools was high for most of the program components examined.

However, as is often the case with large-scale, multi-component reforms, implementation cannot be perfect. Incomplete implementation or limited student exposure to interventions, they note, may mean that the observed ITT effects underestimate the program's effectiveness if it had been fully implemented across all its components. The ITT analysis refers specifically to the methodological strategy of including all participants in the groups to which they were initially assigned, regardless of whether they completed the study, adhered to the treatment protocol, or were lost to follow-up[18] .

Below, we present some data on the quality of implementation and potential mechanisms, based on administrative data regarding student participation in remedial courses and student reports collected at the end of the study.

- *96% of students participated in the TaRL remediation process* at the start of the school year.
- There was *a 66-percentage-point increase among students who received explicit instruction*. Among these students, *89% reported that their teacher had used a projector* and slides during the previous month.
- Participation in *extracurricular activities* increased by 20% and reached two-thirds of students in the pilot schools.
- *66% of eligible students reported participating in social-emotional workshops*; they mentioned having participated in a group session with the school social worker (an increase of 55 percentage points), compared to 11% of students in the control group.
- Among *at-risk students targeted for academic support*, tutoring increased participation by only 9%. It should be noted, however, that academic support rates are already high in the comparison group (60%).
- According to data collected from students, the program improved an index assessing *school climate and well-being* by 0.12 standard deviations.

The researchers' analyses suggest that the effects of the Pioneer Schools Program stem primarily from an *improvement in schools' internal productivity—the school effect*—rather than from a change in family practices; for example, the time spent on homework remained stable.

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18. This approach preserves the benefits of randomization and helps avoid biases that could skew the trial's results. The distinction between *ITT analysis* and *per-protocol analysis* is fundamental in clinical research. While *ITT analysis* aims to reflect real-world scenarios by including all randomized participants, per-protocol analysis focuses on those who adhered to the study protocol. This can lead to different conclusions regarding the effectiveness of an intervention, as per-protocol analyses may show more favorable results due to the exclusion of non-compliant participants.

6.4 Next Steps

The program entered an expansion phase in 2025–2026 targeting 535 additional schools, representing approximately 32% of the country's middle school students. These additions naturally generate new data to be collected and analyzed. Thus, the authors intend to continue analyzing the phenomenon of school dropout using additional data from the current year as students advance to the next grade level. The researchers also plan to conduct an analysis linking student test scores to the scales of major international assessments (e.g., PISA or TIMSS). It should be noted that the administered tests are already designed and aligned for this purpose. These two components seem particularly crucial to us. Other analyses concerning socio-emotional subcomponents will also be conducted.

6.5 Discussion

The evaluation study conducted by Barros's team (2026) is of very high quality. The reason the reform of the Moroccan school system seems so important to us is that the government chose from the outset to rely on evidence-based data and to ensure that rigorous measures would subsequently be taken to assess the effects of this change once it was implemented in the education system. *It is this meticulous evaluation conducted by Barros's team (2026) that has made it possible to observe the exceptional progress generated by the reform in middle schools*.

That said, for obvious reasons, the report cannot examine all aspects related to the middle school reform, and there are questions that still concern us. Rightly so, the focus has been on the effects on students, but certain variables have not been examined. We outline them in the following paragraphs, as they seem important to us and may also have an impact to varying degrees on the results.

First, we know that the teacher is a key factor in student success. However, with this reform, teachers have had to change some of their usual strategies and receive training accordingly through *continuing education* workshops. These workshops are led by school supervisors. *We would have liked to learn more about these workshops—their content, duration, and distribution across the country—and to hear the perspectives of both trainers and trainees on their content, relevance, and perceived effects*.

In connection with this first point, we know that *the curriculum* was revised prior to the 2024–2025 school year. The French program has been restructured to align with the Common European Framework of Reference for Languages (CEFR), placing greater emphasis on speaking and communication. For mathematics and science, the adjustments made aim for better alignment

with the standards of *the Trends in International Mathematics and Science Study* (TIMSS), a leading international assessment in mathematics and science.

It should be noted that at the elementary school level, the curriculum had to be rewritten to clearly identify the key concepts and learning outcomes for each subject and grade level in order to facilitate not only the creation of lesson plans for teachers but also the assessment of student learning.

Third, work on the socio-emotional dimension warrants consideration because, more often than not, it is at this level of education that major behavioral problems arise most frequently and most acutely among students. School dropout, whether voluntary or forced, does not occur without warning; it may be preceded by multiple and alarming behavioral signs. If a school has implemented collective strategies to identify these signs and intervene in time, it increases its chances of preventing more painful, irreversible decisions that have a major impact on the future of the young people involved.

Thus, it is essential to strengthen the socio-emotional dimension, and Moroccan middle schools have chosen to rely on their specialized staff—a logical choice given the results achieved. However, effective approaches also exist at the school-wide level, involving all teachers rather than specialists alone. **Positive Behavior Support** (PBS) is a well-documented example of this. Behaviors, just like learning, are also the responsibility of teachers, whose collaboration with psychologists, social workers, and other specialists would help amplify the effects.

In conclusion, as the report's authors aptly point out, the study's results clearly demonstrate that educational interventions fully funded by public authorities (and without support from international organizations or NGOs) can yield multidimensional benefits during the crucial years of lower secondary school. We would add the following caveat: indeed, to the extent that public authorities rely on evidence-based data and propose strategies validated by research.

Chapter 7. Discussion on the Effects of the Moroccan School Reform

Five evaluations, conducted by different external bodies and based on complementary methodologies, have documented the effects of the Pioneer Schools project at the elementary level as well as those of the first phase of the Pioneer Middle Schools at the secondary level. To our knowledge, it is extremely rare for an educational reform to be subject to such an extensive, diverse, and systematic evaluation system from its very first years of implementation. School reforms are generally implemented on a large scale without a rigorous evaluation system in place to measure their actual effects on student learning. The Moroccan case thus stands out remarkably for the central role given to research, ongoing evaluation, and evidence-based data.

The first evaluation was conducted by the Sindi association, which specializes in assessing the impact of the TaRL program. This study examined the effects of remedial interventions in Arabic, French, and mathematics among elementary school students. The results showed rapid and substantial progress in basic learning skills after only a few weeks of intensive intervention.

The second evaluation, of a qualitative nature, was conducted by the National Observatory for Human Development (ONDH). It aimed to gather the perceptions of various school stakeholders—inspectors, administrators, teachers, students, and parents—regarding the implementation of the Pioneer Schools Program. This survey documented the momentum generated by the reform, the general support of stakeholders, and several challenges related in particular to infrastructure, professional development, and pedagogical support.

The third evaluation was conducted by the Higher Council for Education, Training, and Scientific Research (CSÉFRS). This study examined the degree of compliance with the program's implementation based on several indicators related to students, teachers, and schools. Despite some criticisms raised in the report regarding the chosen pedagogical model, the evaluation nevertheless confirmed the high level of compliance among the pilot schools and the significant progress observed in student learning.

The fourth evaluation, conducted by the J-PAL consortium and its university partners, is undoubtedly the most rigorous impact analysis of the project at the elementary school level. Using a quasi-experimental methodology based on school matching and the differences-in-differences method, this study compared the results of students in pioneer schools with those of comparable control schools. The results obtained are exceptional and show very high learning gains in Arabic, French, and mathematics.

Finally, a fifth evaluation, conducted by de Barros and colleagues (2026), focused on the first year of the pilot program in secondary schools during the 2024–2025 school year. This study examined the reform's effects on student retention, learning, and certain socio-emotional dimensions. The results observed in secondary school are particularly noteworthy in a context where school dropout and learning difficulties pose major challenges for the Moroccan education system.

Considered separately, these five qualitative and quantitative evaluations are very positive in various respects, but when taken together, they also demonstrate the overall consistency of the results observed in the Moroccan reform. Although certain improvements remain necessary, particularly in terms of support, professional development, technological infrastructure, and the reduction of regional disparities, the available data point to a common conclusion: **the pioneer elementary and middle schools have achieved significant academic progress in a relatively short period of time, and avenues for improvement are easily identifiable**.

7.1 The challenge of evidence-based teaching has been met

In their famous 1986 article in *the Handbook of Research on Teaching* titled "Teaching Functions," Rosenshine and Stevens demonstrated that research-validated instructional strategies produce significant positive effects when rigorously implemented in schools. The results observed in Morocco largely confirm this hypothesis.

The gains observed in the pilot elementary schools as well as in the pilot middle schools are not the result of chance. Rather, they demonstrate the effectiveness of structured, evidence-based teaching practices. The Moroccan case thus serves as an exceptional real-world test for structured teaching approaches such as explicit instruction and TaRL.

To achieve these results, it was first necessary to identify, within the scientific literature, the teaching strategies that had undergone robust empirical validation. Experimental protocols, longitudinal studies, and meta-analyses enabled us to select the most effective practices. These strategies were then compiled into two key documents—a repository of validated teaching strategies and a teaching guide—which we produced and which played a central role in the Moroccan reform.

Almost all education system reforms fail, Ravitch (2000) points out, mainly because they are not based on evidence. They often propose pedagogical approaches that are ideologically appealing but have little scientific validation. Moroccan reformers made a different choice that has

proved successful: basing their reform on research-validated teaching practices and making this the core message to be conveyed.

7.2 Training the messengers

In addition to the quality of the pedagogical message, it was also necessary to adequately train the messengers—that is, the inspectors and teachers responsible for implementing the proposed pedagogical strategies.

The training of inspectors played a central role in disseminating the principles of explicit instruction and structured pedagogies. We facilitated in-person and distance training sessions, produced several instructional tools, and provided sample lesson plans to ensure a certain degree of consistency in implementation[19] .

Note. Meeting between inspectors and Morocco's Ministry of National Education, Preschool Education, and Sports (MENPS), 2023.

The transformation of the inspectors' role appears particularly significant. Whereas they were previously confined to a more administrative role, they now provide hands-on pedagogical support to teachers and schools under their jurisdiction. This new approach emphasizes pedagogical support over administrative oversight.

19. We have included in the appendix to this monograph a list of tools we have prepared for inspectors to help them prepare for teacher training.

Scripted lessons also played a major role in the implementation of explicit instruction. They helped ensure a certain degree of consistency in the implementation of instructional strategies despite the very large number of teachers involved in the reform.

7.3 Strong leadership and the establishment of an evidence-based culture

The leadership role played by those responsible for the reform also appears to have been decisive. Ministerial advisor Youssef Saadani played a central role in the rapid implementation of the reform, from 2022 to 2024, as well as in establishing a genuine culture of evidence-based practice.

This culture is particularly evident in the emphasis placed on research, ongoing evaluation, and rigorous monitoring of academic outcomes. Morocco has chosen to systematically measure the effects of the educational interventions implemented in the pilot elementary and middle schools.

The implementation of a computerized management system that tracks student performance in real time is also a significant innovation. Assessments conducted at regular intervals make it possible to quickly identify difficulties, pinpoint support needs, and adjust instructional strategies.

Note. Collaborative work with Mr. Youssef Saadani, advisor to the Minister of Education, Morocco, Rabat, 2023.

7.4 A Reformed Curriculum

The Moroccan reform was not limited to the introduction of new pedagogical strategies. The curriculum was also overhauled to clarify learning objectives, better structure content, and ensure a more coherent progression of knowledge.

The previous curriculum faced numerous criticisms: content overload, poor progression, unnecessary repetition, and overly vague objectives. The new curriculum has made it possible to better organize learning and ensure greater coherence between objectives, content, and assessments.

This curriculum revision has had a direct impact on the quality of the lesson plans as well as on the overall coherence of the learning experiences offered to students.

7.5 Material and financial support provided to stakeholders

Material and financial support from the government is also a key factor in the reform's success. The purchase of computers, improvements to school facilities, the implementation of digital systems, and incentives for teachers and pioneering schools have all helped support the program's rollout. While the selection of evidence-based data and validated pedagogical practices is essential, institutional support is a key requirement for ensuring the success of the organizational, technological, and administrative transformations associated with a reform of this scale.

In this regard, the World Bank is supporting the reform in Morocco through the $750 million Sector Support Program (PASE)[20]. (World Bank, 2026)

7.6 Contributions from international research

The educational choices made in Morocco are consistent with the findings of several international studies conducted in low- and middle-income countries. In particular, the work of Piper and his colleagues in Kenya (2018) shows that a combination of several factors—teacher training, pedagogical support, structured materials, and scripted lessons—has the greatest impact on student learning.

The Moroccan reform specifically incorporates several of these components: curriculum revision, a framework of effective teaching strategies, and the development of

20. PASE. The World Bank's PASE support program is not a single-purpose program; rather, it is dedicated to addressing the needs in various sectors (energy, water, education, communications, etc.) of the countries involved.

scripted lessons, training for inspectors, teacher training, and pedagogical support.

It was therefore reasonable to assume that the combination of these various elements would have positive effects on student achievement. The challenge was met with flying colors, and Morocco's reform ranks among the top 1% of the most effective educational interventions documented internationally.

7.7 The challenges of scaling up to primary and secondary schools

Despite the very encouraging results achieved at both the elementary and secondary levels, the process of scaling up the program now represents the main challenge of the Moroccan reform. Training several thousand teachers and hundreds of school supervisors each year, providing regular pedagogical support, maintaining the quality of scripted lessons, and reducing regional disparities require considerable human, material, and financial resources. For example, at the primary level, between the pilot phase in 2023–2024 and the 2025–2026 school year, the program expanded from 626 public primary schools to 4,626 schools, reaching more than 2 million students, supported by 75,000 teachers and 960 inspectors (World Bank, 2026). It is easy to imagine the massive deployment of human and financial resources required to carry out this task.

The issue of initial teacher training is also a major challenge. In several universities, constructivist approaches still largely dominate teacher training, which risks creating tension with the structured approach favored by the Moroccan reform.

Significant variations in results across regions, schools, and subjects taught are also to be expected. Continuous monitoring of learning data, combined with targeted support for the most vulnerable schools, will therefore be essential to maintaining the quality of the reform as it is rolled out.

For now, the initial results observed in secondary school remain particularly encouraging. The positive effects noted on learning, school retention, and certain socio-emotional dimensions show that structured teaching methods, accompanied by: targeted support at the start of the school year, an early warning system to identify students at risk of dropping out, additional academic support for these at-risk students, enhanced extracurricular activities, and social-emotional development workshops could help bring about a lasting transformation of the Moroccan education system, provided that the quality of implementation is maintained in the years to come.

Chapter 8. Proposal for a Roadmap for Evidence-Based School Reform

Sustainably improving student learning requires more than an increase in resources or a series of administrative measures. Recent research shows that investments in education have very little impact when they do not directly transform classroom teaching practices. Effective school reform must instead be grounded in evidence at every stage, from design through implementation. It must be grounded in a rigorous and well-documented assessment of learners' strengths and weaknesses, a curriculum structured around observable and assessable targets, research-backed teaching practices, as well as ongoing support for stakeholders and effective mechanisms for real-time assessment and monitoring of learning.

In this regard, the Moroccan school reform offers particularly valuable lessons. The remarkable successes achieved through the *Pioneer Schools* raise the question of what lessons can be drawn from this reform to guide other education systems. The value of the Moroccan case lies not only in the quality of the results achieved, but also in the way the reform was designed, piloted, supported, and evaluated.

This roadmap therefore aims to identify the key lessons from the Moroccan reform in order to determine the steps needed to implement an effective school reform at the provincial or national level. It highlights the importance of a clear educational message, structured pedagogy, targeted remediation, explicit instruction, training for stakeholders, student monitoring, and rigorous evaluation of outcomes. The goal is to propose a gradual, measurable, and realistic approach to improving the quality of education and student success

8.1 Conducting a National Assessment

Reform must begin with a rigorous assessment of the educational situation. It is necessary to measure students' actual learning, dropout rates, repetition rates, disparities between regions and between urban and rural areas, as well as differences among student groups.

The Moroccan experience demonstrates the importance of starting with a clear assessment: the country first documented what it identified as a major learning crisis in the nation's public schools, with a very high proportion of students failing to master basic skills by the end of elementary and middle school.

The deliverables to be produced for this purpose should include:

- A national assessment of learning outcomes;
- A mapping of learning difficulties by region, grade level, and subject;
- A public diagnostic report;
- An initial database to measure future progress.

8.2 Define a simple and measurable vision

The reform must be structured around a small number of national objectives. The Moroccan model is noteworthy because its 2022–2026 Roadmap targeted three strategic objectives: increasing the number of students mastering foundational knowledge, reducing school dropout rates, and improving participation in extracurricular activities.

For another country, four objectives might be selected:

1. Significantly increase proficiency in reading, writing, and mathematics in elementary school.
2. Reduce grade repetition and dropout rates in secondary school.
3. Reduce the achievement gap between advantaged and disadvantaged students.
4. Improve student engagement and the school climate.

The reform must therefore be guided by observable results, not by general intentions whose achievement cannot be measured.

8.3 Choosing the educational message of the reform

The pedagogical solution is the message of the reform. This message must be simple, consistent, validated by research, understood by all stakeholders, and rigorously implemented throughout the system.

The message to prioritize is that of **structured pedagogy**, consisting of two components:

The first component is **remedial**: it aims to address the learning gaps that have accumulated among students. It is based on instruction tailored to students' actual proficiency levels, such as TaRL.

The second component is **preventive**: it aims to prevent new gaps from emerging. It is based on explicit instruction, with specific objectives, modeling, guided practice, comprehension checks, feedback, and independent practice.

The Moroccan case has effectively combined these two pillars: TaRL for remediation and explicit instruction to prevent difficulties in new learning.

8.4 Shaping the curriculum

Educational reform cannot succeed if the curriculum remains vague, overloaded, or poorly organized. Common criticisms of curricula focus on content overload, inadequate progression, unnecessary repetition, and overly vague objectives.

The curriculum must therefore be restructured around specific end-of-year objectives: what students must know and be able to do in each subject, at each grade level, by the end of the school year.

Tasks to be completed:

- Clarify the objectives by grade level and subject;
- Prioritize content by order of importance;
- Prioritize key concepts;
- Organize a logical sequence of learning steps;
- Identify prerequisites;
- Link each objective to lessons, exercises, and remedial activities;
- Design assessments aligned with the objectives.

Artificial intelligence, when properly programmed to perform this task, can play a significant role in helping to formalize learning paths, generate scripted lessons, produce graded exercises, and verify alignment between objectives, instruction, and assessment.

8.5 Developing instructional tools

The reform must provide teachers with concrete tools. It is not enough to simply tell them to teach differently: they must be provided with precise guides, materials, and assessments that can be used in the classroom.

Moreover, it is essential to provide them with scripted lessons. Lesson planning requires in-depth mastery of the content, solid expertise in pedagogy, and considerable time. This is why this responsibility must be entrusted to a specially trained development team capable of designing reliable, coherent materials that can be used directly in the classroom

The case of Morocco shows that the explicit teaching framework and the practical guide played a central role in the reform. They were used to train inspectors and teachers and to guide the production of scripted lessons by dedicated teams.

Materials to be produced or procured:

- National Framework for Structured Pedagogy;
- Practical Guide to Explicit Instruction;
- TaRL Remediation Guide;
- Scripted lessons;
- Workbooks for students;
- Short assessments;
- Classroom observation rubrics;
- Tools for monitoring students with learning difficulties;
- Bank of graded exercises

8.6 Training the messengers of reform

The message is structured pedagogy. The messengers are the civil servants, inspectors, school administrators, and teachers who must disseminate and implement it.

The Moroccan experience shows that training inspectors was a major driver: 157 inspectors were trained, who then trained approximately 10,700 teachers in pilot schools. This cascade model yields good results.

Recommended sequence:

1. Train the ministry's core team.
2. Train inspectors and mentors.
3. Train school administrators in instructional leadership.
4. Train teachers in explicit instruction and remediation.
5. Schedule classroom observations and provide feedback.

It is important to start with the *professional development* of teachers already in the field. This ensures that we can rely on experienced stakeholders to initiate the reform.

Initial training within the institutions will then take over, and we need to plan to include them when the time comes.

8.7 Launch a pilot program

The reform must begin in actual schools, but on a controlled scale. It is necessary to select volunteer pilot schools that are representative of the regions and various socioeconomic backgrounds.

Morocco began with 626 pioneer schools covering the country's 12 regions, including urban, suburban, and rural schools.

Selection criteria:

- Voluntary participation by school administrators;
- Commitment from a large proportion of teachers (80%) and school administrators;
- Regional diversity;
- Representation of both affluent and disadvantaged communities;
- Inclusion of rural and urban schools;
- Minimum capacity for implementation;
- Willingness to undergo rigorous evaluation.

8.8 Evaluate before, during, and after

An evidence-based reform must measure its effects. Schools or classrooms must be evaluated at the outset, during the process, and at the end of the pilot phase before any scaling up.

Three dimensions must be evaluated:

- **Student learning**: reading, writing, mathematics, and science.
- **Implementation**: Are teachers actually using the intended strategies? Were support and technical resources available?
- **Broader educational outcomes**: dropout rates, grade repetition, school climate, engagement, and participation.

In the case of Morocco, the reform was evaluated using several qualitative and quantitative methods: perception surveys, external evaluations, impact assessments, and monitoring of student outcomes. These evaluations provided precise information, enabling specific and localized adjustments.

8.9 Correct before scaling up

Pilot programs should not be mere political showcases. They must help identify what works, what does not, and what needs to be changed.

Questions to ask after the pilot phase:

- Are students learning more?
- Are struggling students making progress?
- Are teachers applying the instructional strategies correctly?
- Are the tools clear and useful enough?
- Is the training sufficient?

- Are school administrators fulfilling their roles?
- Do inspectors truly support teachers?
- Do rural schools meet the minimum requirements?
- Are the results strong enough to justify expansion?

Generalization should not begin until the model has stabilized sufficiently.

8.10 Roll out gradually

Rollout should occur in successive phases, with new inspectors and teachers trained before each cohort.

Morocco has adopted this approach: following the 626 pilot schools, an additional 2,000 schools were added in 2024–2025, with a gradual ramp-up toward full coverage of primary education scheduled for 2027.

Principle:

We do not merely scale up tools; we also scale up the capacity for successful implementation.

Each new cohort must therefore receive:

- Prior training;
- Comprehensive teaching tools;
- Support;
- Results monitoring;
- An implementation assessment;
- Targeted support for vulnerable schools.

8.11 Establish a national system for identifying and addressing learning difficulties

The establishment of a computerized system to identify students in difficulty and facilitate their remediation and monitoring is essential.

This system must enable the rapid identification of students who have not mastered essential learning, provide them with targeted remediation, and then monitor their progress.

Essential components:

- Placement tests;
- Temporary groups based on actual ability;
- Intensive remediation sessions;

- Individual monitoring of at-risk students;
- School-specific dashboard;
- Additional interventions for students with persistent learning difficulties.

8.12 Provide greater support to vulnerable schools

Widespread implementation risks undermining the quality of the program if ongoing support is not maintained. Therefore, it is necessary to provide for continuous pedagogical support, material assistance, and targeted support for the most vulnerable schools.

This means that not all schools should receive exactly the same support. Where appropriate, rural, disadvantaged, or struggling schools should receive more intensive support.

Summary of the Roadmap

The reform can be summarized in twelve steps:

1. Assess the strengths and weaknesses of the system.
2. Set measurable national goals.
3. Select an evidence-based educational approach.
4. Develop the curriculum with learning objectives for each subject and grade level.
5. Develop lesson plans and teaching materials.
6. Train inspectors, school administrators, and teachers.
7. Select volunteer pilot schools that are representative of the student population.
8. Assess students and the implementation from the outset.
9. Refine the model after the pilot phase.
10. Roll out the program gradually by cohorts.
11. Establish a permanent system for identification and remediation.
12. Maintain enhanced support for vulnerable schools.

Key Principle

The proposed school reform could be guided by this statement:

Achieving sustainable improvements in learning requires combining a clear curriculum, structured teaching methods, trained teachers, practical tools, ongoing support, and rigorous evaluation of the effects on students.

Conclusion

Effective school reform cannot rely solely on increasing resources, expanding administrative structures, or providing general training without

a direct link to the teacher's actual work in the classroom. To produce lasting effects on learning, it must be based on a rigorous assessment, measurable objectives, a clarified curriculum, research-validated teaching practices, and ongoing support for all stakeholders.

The proposed roadmap focuses on two complementary levers: on the one hand, a remedial approach to address the gaps students have accumulated through instruction tailored to their actual level; on the other hand, a preventive approach based on explicit instruction to prevent new difficulties from arising. The Moroccan experience shows that such a combination can become a powerful driver of transformation when the educational message is clear, teachers are equipped, inspectors are trained, and student outcomes are systematically monitored.

The success of an educational reform therefore depends less on the announcement of a major change than on the quality of its message and its implementation by stakeholders. It requires rigorous experimentation, independent evaluation, continuous adjustments, and gradual scaling up. In this sense, reforming schools involves patiently building a collective capacity: the ability to teach more effectively, to quickly identify students in difficulty, to intervene precisely, and to steer the system based on students' actual learning. It is on this condition that a reform can move beyond political intentions to become a concrete, observable, and sustainable improvement in academic achievement.

Conclusion

We have had the privilege of collaborating on Morocco's reform from its inception and of playing a discreet yet significant role by facilitating the adoption of a framework of validated pedagogical strategies and an accompanying guide.

It is worth noting that Morocco's educational reform marks a significant turning point in how large-scale pedagogical change is conceived. In an international context where many school reforms struggle to produce lasting effects on learning, Morocco has chosen to base its educational transformation on a different approach: one grounded in evidence, gradual experimentation, rigorous monitoring of results, and support for school stakeholders.

The various evaluations presented show that the initial results obtained are particularly encouraging. After only a few years of implementation, the pilot elementary schools and pilot middle schools have shown significant progress in several areas: improved basic learning, reduced academic delays, decreased dropout and retention rates, increased engagement of school stakeholders, and positive effects on certain socio-emotional dimensions.

The value of the Moroccan experience, however, lies not only in the results achieved. It also stems from the coherence of the approach taken. The reform was not limited to the introduction of new pedagogical guidelines. It was accompanied by a curriculum revision, extensive training and support for inspectors and teachers, the production of structured instructional materials, and the implementation of monitoring and evaluation mechanisms rarely seen on this scale.

The decision to use structured approaches such as *Teaching at the Right Level* (TaRL) and explicit instruction is undoubtedly one of the central elements of this coherence. In an education system facing significant challenges related to mastery of foundational knowledge, these approaches have made it possible to refocus educational intervention on essential learning and on the concrete conditions that enable students to succeed.

Angrist and his fellow economists (2023) estimate that from 2000 to 2015, even though spending on primary education increased by approximately $137 per student—an 80% increase adjusted for inflation—it failed to produce a corresponding change in students' average learning outcomes. Indeed, traditional expenditures such as: 1) increased physical resources (laptops, textbooks), 2) cash transfers (salaries) without pedagogical training, 3) generic teacher training unrelated to classroom practice, and 4) indiscriminate reductions in student-teacher ratios, are measures that, if not

accompanied by research-validated pedagogical changes, have virtually no effect on learning.

In contrast, the educational approach adopted by Morocco is fully in line with the perspective endorsed by international research. Indeed, Angrist and his colleagues (2023) also show, in their cost-benefit analysis of low-cost interventions aimed at improving learning, that **two approaches stand out clearly: structured pedagogy and TaRL. If implemented on a large scale**
— among 90% of the 467 million primary school students in low- and lower-middle-income countries — **these methods would cost approximately $18 per student annually and generate $65 in benefits for every dollar invested**. These results confirm that structured pedagogy and tailoring instruction to students' actual learning levels are powerful levers for improving the effectiveness of education systems, particularly in contexts where learning difficulties are widespread.

The Moroccan experience also serves as a reminder that educational reform cannot produce significant results without strong leadership and a clear political commitment to making student success a genuine priority. The emphasis placed on ongoing assessment, data analysis, and results-based system management is particularly noteworthy here.

That said, several significant challenges remain. The main one now concerns the program's expansion to the entire province. Maintaining the quality of implementation on a large scale will be a considerable challenge. Training a growing number of teachers and school supervisors, providing regular support, maintaining the quality of instructional materials, and reducing disparities between regions will require significant resources as well as constant vigilance.

Secondary education also represents a major challenge for the next phase of the reform. The initial results observed are promising, but this level of education presents specific challenges related in particular to school dropout rates, behavior management, and the heterogeneity of student profiles. The coming years will provide a better measure of the model's ability to adapt sustainably to this more complex reality.

Despite these challenges, the data currently available allow us to look to the future with optimism. Morocco appears to have succeeded in creating conditions conducive to real improvements in learning by relying on research-validated pedagogical approaches, structured support for school stakeholders, and an emerging culture of evidence-based practice.

As the reform continues its rollout across all public elementary and middle schools in the country, documenting its story is an endeavor that must progressively track its progress. Already, the initial results obtained in

assessments show that it is possible, even in educational contexts marked by significant challenges, to significantly transform student learning when pedagogical, organizational, and policy choices are based on solid foundations.

In this regard, the experience of the pioneer elementary and middle schools extends far beyond the Moroccan context alone. It now serves as a major reference for those seeking to undertake large-scale, evidence-based educational reforms within their own systems that meet the necessary conditions for sustainably improving academic achievement.

Appendix – Tools provided by Gauthier and Bissonnette on explicit instruction

PDF Documents

1. Reference Guide to Effective Teaching Strategies for Use in the Classroom and School, 315p.
2. Teaching Guide on Explicit Instruction. A tool to accompany the Compendium of Effective Teaching Strategies for Use in the Classroom and School. 76p.

PowerPoints

1. Explicit Instruction. A teaching guide on explicit instruction for teachers in Morocco
2. Frequently Asked Questions (51) on explicit instruction

Webinars (6) and related PowerPoint presentations (6)

1. Research on Teacher and School Effectiveness
2. Explicit instruction: Nature and sources of validation
3. Curriculum Planning and Lesson Management in Explicit Instruction
4. Effective behavior management in the classroom and school
5. Strategies to Prioritize and Mistakes to Avoid in Explicit Instruction
6. Training and support in explicit instruction
7. All training provided to inspectors was filmed in July 2023

Quiz for discussion and review

1. Fundamental questions
2. Curriculum management
3. Questions on Instructional Management (Cross-Curricular Strategies)
4. Questions on Instructional Management (1.1–1.6)
5. Behavioral Issues

In-person training on the two submitted tools

1. Reference Guide to Effective Teaching Strategies for Use in the Classroom and School, 315 pp.
2. Teaching Guide on Explicit Instruction. A tool to accompany the Compendium of Effective Teaching Strategies for Use in the Classroom and School. 76 pp.

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Faced with a profound learning crisis, Morocco has launched an ambitious educational reform grounded in teaching practices validated by scientific research. This book chronicles the experience of the Pioneer Schools, implemented in Moroccan public schools beginning in 2023. By combining explicit instruction with targeted TaRL-style remediation, this reform has yielded remarkable learning gains in elementary school as early as the first year, as well as very encouraging results in secondary school.

Drawing on evaluations conducted by national and international organizations, the authors analyze the effects of this reform, the conditions that contributed to its success, and the challenges associated with its large-scale implementation. This analysis leads to a concrete roadmap to guide the implementation of evidence-based school reform.

Beyond the Moroccan case, this monograph demonstrates that it is possible to bring about lasting transformation in an education system when educational decisions are based on evidence rather than on intuition, tradition, or passing trends.