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SABIO

Early Warning System Based on Timely Information
(*Sistema de Alerta Basada en Información Oportuna*)

Cynthia del Aguila | COP Basic Education Quality and Transitions (BEQT)



Foto: RTI

— OUTLINE

1. RTI – Educational Technology
2. Approach
3. Drop Out: A Problem?
4. Elements of an Early Warning System
5. Guatemala's Pilot - Implementation

EDUCATION TECHNOLOGY @ RTI INTERNATIONAL

Approaches, Activities & Impact

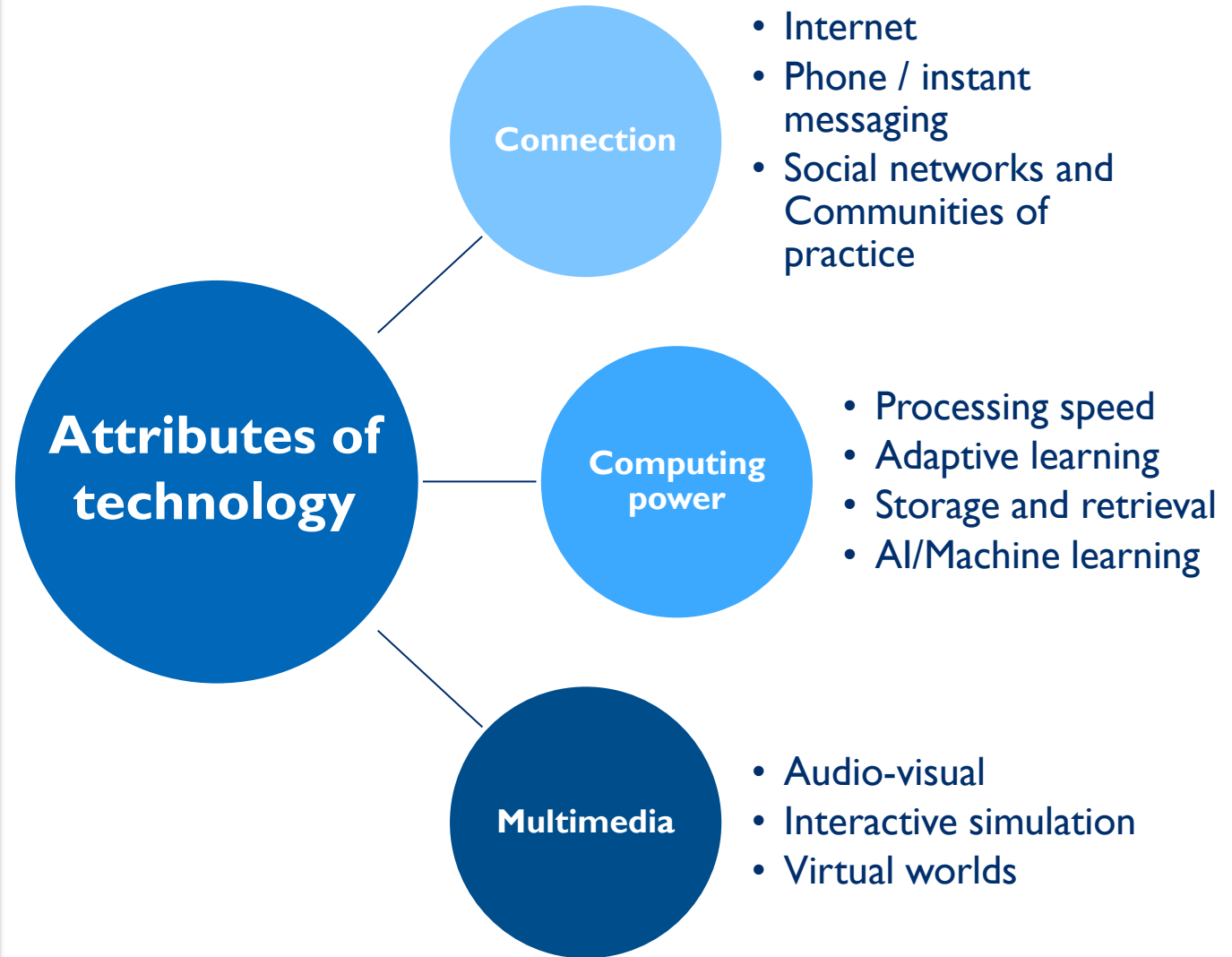
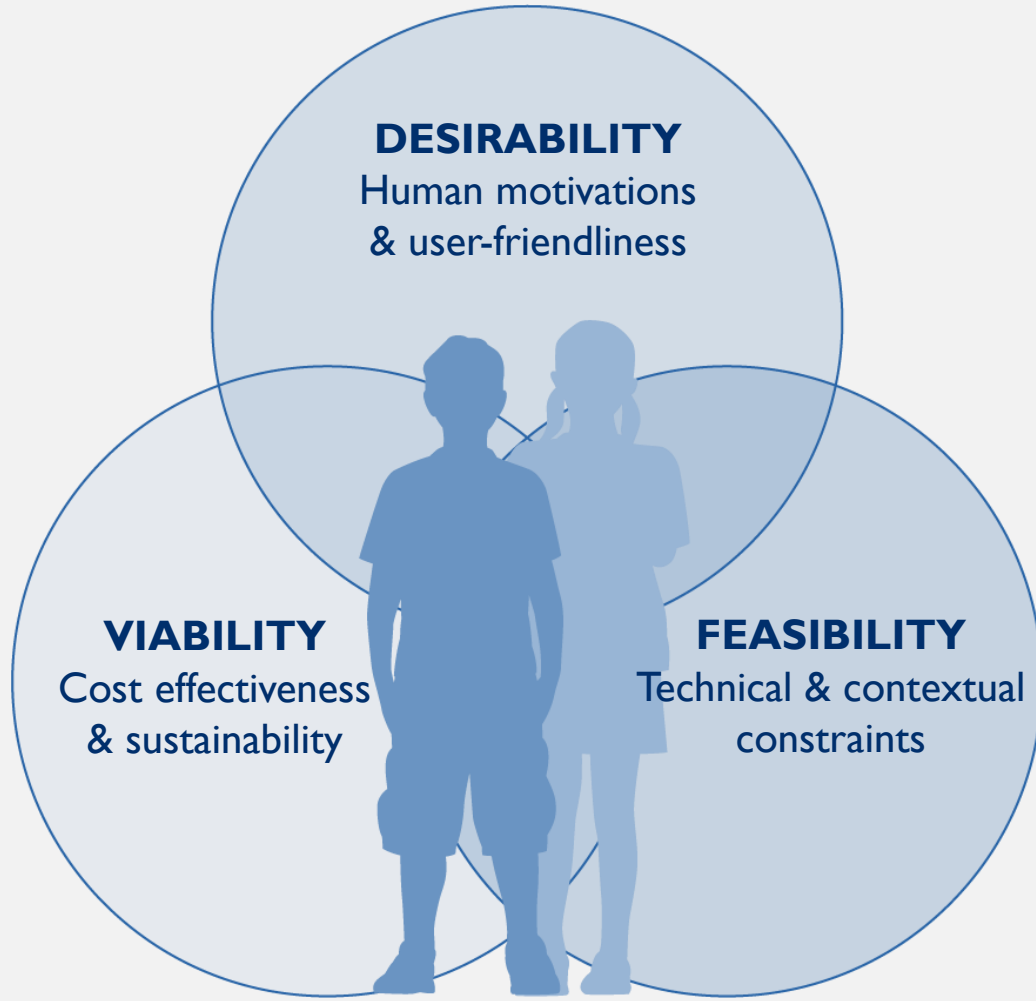
Team Mission and Objectives

“To provide focused, practical and evidence-based interventions that improve access to and quality of education and training; to conduct and publish research and reviews of current trends that contribute to understanding, applying, and generating evidence-based approaches in technology for education and training; to connect the International Education Division to other technology-related efforts across the institute; and promote innovation around technologies for all aspects of learning”.

We aim to:

- Offer the “**right technology in the right place for the right reason**”;
- Generate information for education that is relevant and actioned on;
- Communicate that information such that it improves policy and practice; and
- Design and implement technology that supports human processes and interactions.

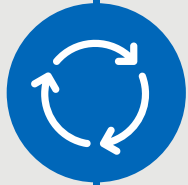
APPLYING HUMAN-CENTERED DESIGN



APPROACH



Step 1: Understanding the Opportunity (Problem + Context)



Step 2: Drawing on (or generating!) the Evidence Base



Step 3: Identifying Technology Options



Step 4: Developing/Customizing, Prototyping, Testing, and Revising



Step 5: Performance Monitoring and Evaluation and Adapting

DROP-OUT, A PROBLEM?

- In **Guatemala** only 66% of students transition from 6th grade to *primero básico* (7th grade) but net rate is 40%
- Evidence shows that students with problems in attendance and behavior and course performance (ABC) have between **10 to 20%** chance of finishing school. (Balfanz 2009)
- Appropriate intervention assigned **on time** could help students to get back on track. (Heppen & Therriault, 2008; Jerald, 2006; Kennelly & Monrad, 2007; Neild, Balfanz y Herzog, 2007; Pinkus, 2008; Rumberger et al., 2017)



DROP OUT PREVENTION

HONDURAS & GUATEMALA JOINT EFFORT



- **ENTRE** (Guatemala) and SART (Honduras) and other models' analysis
- Research on **factors affecting drop out**
Regional Educational Laboratory (2010), Coleman (2021), Isphording, Ingo y Raabe, Tobías (2019), Berens et, al. (2019)
- Selecting our **own model: simple**
 - Integral
 - Functional
 - Availability and timeliness of data
 - Closer to the source
 - Optimization of available resources
- **Indicators ABC** (**Attendance, Behavior and Course Performance**)
 - Thresholds
- Adapting **Tangerine:Teach** to collect data
 - Data available
 - Reports

PREVENTING / INTERVENING DROP OUT

- **Drop Out:** A dynamic process that results overtime where different factors intervene in the students' life. (Dálessandre, Vanesa & Mattioli, Martina 2015)
- **Factors**
 - Expulsion: ABC (Attendance, Behavior and Course Performance)
 - Drag: Refers to factors within the student that divert him/her from completing school. Finances, sickness, family needs, etc.
- **Not on track.** Refers to when the student does not show academic progress, is apathetic or disenchanted with school. Secondary result of lack of support (Doll, Eslami & Walters (2013))
- **Student's successful trajectory** - Specific support
 - Reduce factors of expulsion
 - Reduce “not on track” factors

ELEMENTS OF AN EARLY WARNING SYSTEM – **CULTURE**

EARLY WARNING SYSTEM

- A **SYSTEM** (a sequence of deliberate procedures and processes that are recognized and shared by all personnel involved) that allows the education sector (authorities and school) to **identify at-risk students in a timely manner**, identify their needs and provide them with the appropriate support in a timely manner.
 - A **tool** that by itself cannot improve school success, but it is a useful tool for that effort.
- **Objective:** Promote the school success of students through early identification of at-risk students and the development of actions to reduce that risk.
 - **School success:** Finish school on time.
 - Reduce dropout
 - Reduce non-promotion

GENERAL ELEMENTS

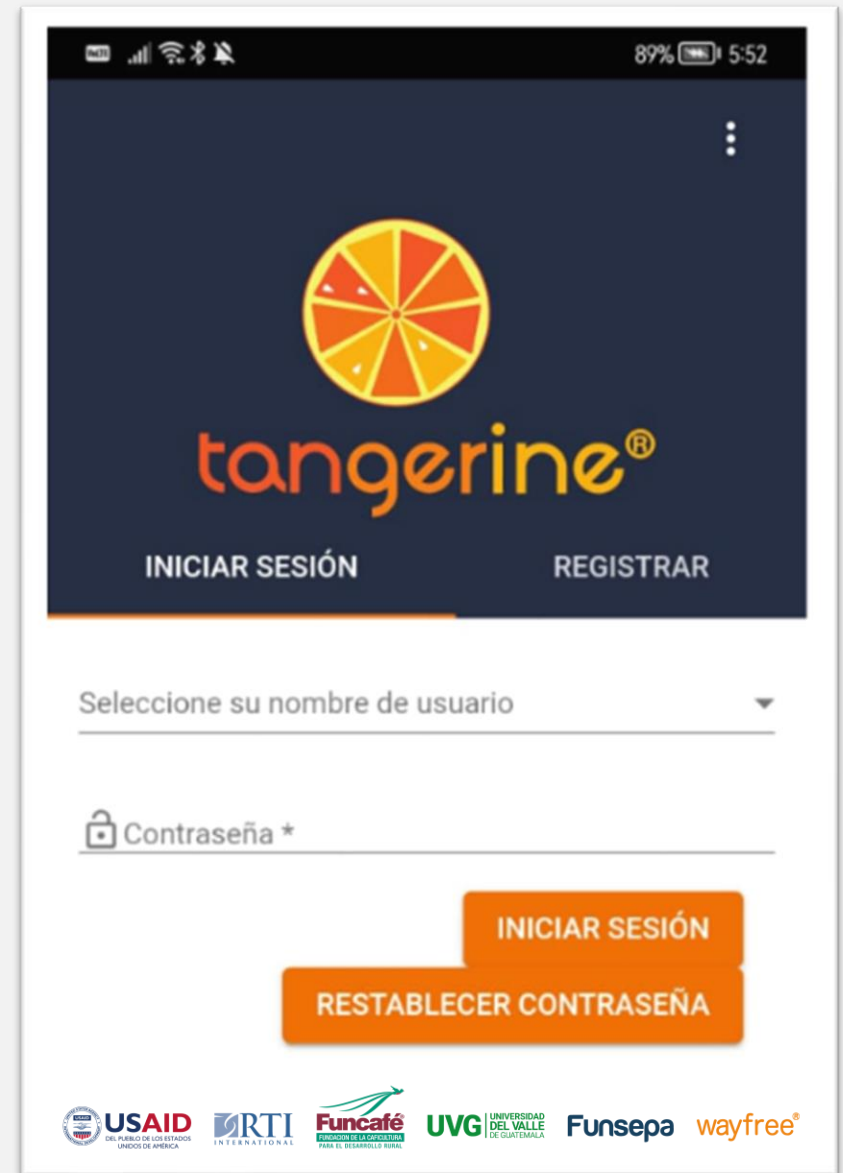
- Guidelines for the system
- Application /Software
- Monitoring & Evaluation
- School Level – Committee

SYSTEM ELEMENTS

- **Indicators**
 - Attendance
 - Behavior & SEL
 - Course Performance
 - Root causes
 - Interventions – map
 - Teacher help desk, nudges using WhatsApp

PILOT

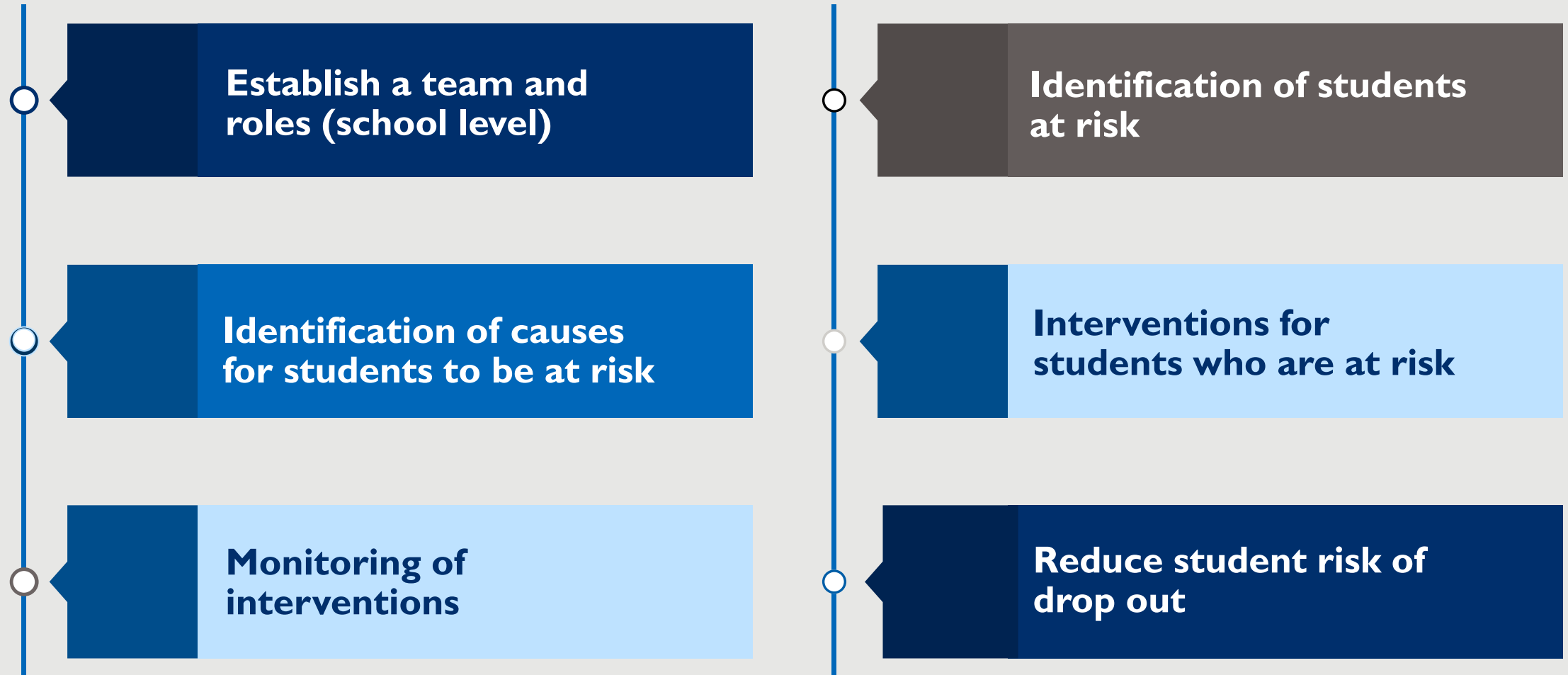
- **Tool:** Tangerine
- **Users:** teachers
- Training
- Privacy
- Intervention



SABIO

OUR SYSTEM

Early Warning System (SABIO)



ESTABLISH A TEAM & ROLES

- **At the school level, there must be a working team that promotes the successful development of all activities: Early Warning Committee.**
- **The committee is responsible for:**
 - Verifying the registration of early warning information by classroom teachers.
 - Analysis of the information generated.
 - Assigning interventions to students who require it according to the alerts generated.
 - Following-up on these alerts.
- **The composition of the committee is:**
 - Leadership: The committee should be led by the person holding the position of principal or a teacher with leadership.
 - Teachers and other school personnel who are responsible for supporting students.
- **Regular meetings: Should meet on a monthly basis.**

STUDENTS AT RISK IDENTIFICATION



FOTO: RTI

- **Attendance**
- **Behavior:** conflicts with classmates and teachers and social & emotional interactions
- **Performance:** math and reading as predictors
 - Bimonthly
 - Scale 0-100

ROOT CAUSE ANALYSIS

- We use the **5 whys**:
 - Problem and details of the problem
 - For each detail we ask why
 - This leads to the root cause

Problem	Explanation	Root Cause
Detail 1: not attending school	Why he/she is not coming	
Detail 2: doesn't want to come	Why	
Detail 3: afraid and scared	Why	Root cause: bullying

INTERVENTIONS

1

LEVEL 1

- Its objective is to provide fundamental support to each student, ensuring the provision of quality educational services.
- It is at this level that the majority of students can be prevented from being at risk, and therefore should be the first area of focus for schools.
- If we focus on Level 1, we can prevent the majority of students from becoming at-risk (about 80%).

2

LEVEL 2

- These are interventions that are delivered to 10-20% of students.
- These interventions are designed for small groups of students who exhibit common needs.
- They seek to address specific challenges that are not sufficiently addressed by Tier 1 interventions.

3

LEVEL 3


- These are provided to no more than 10% of students.
- These interventions are tailored for individual students who demonstrate the highest level of need.
- They are highly specific and are intended to address complex or acute challenges that require individualized support.

INTERVENTION PLAN

Intervention plan						
Name	Alert	Root cause	Responsible	Intervention plan		
				Objective	Intervention	Time

SABIO PILOT

- Three types of alerts will be automatically generated based on the ABC indicators: attendance, behavior, and math and communication and language grades.
 - **Green** (on track)
 - **Light green** (good) do not require intervention but continue supervision
 - **Orange** (at risk) specific support needed and need interventions.



Estudiante	Asistencia	Conducta	Matemáticas	Comunicación y Lenguaje
Estudiante 291 Apellido	0%	56%	65%	
Estudiante 292 Apellido	100%	61%	75%	
Estudiante 293 Apellido	100%	50%		
Estudiante 294 Apellido	0%			
Estudiante 295 Apellido	100%			

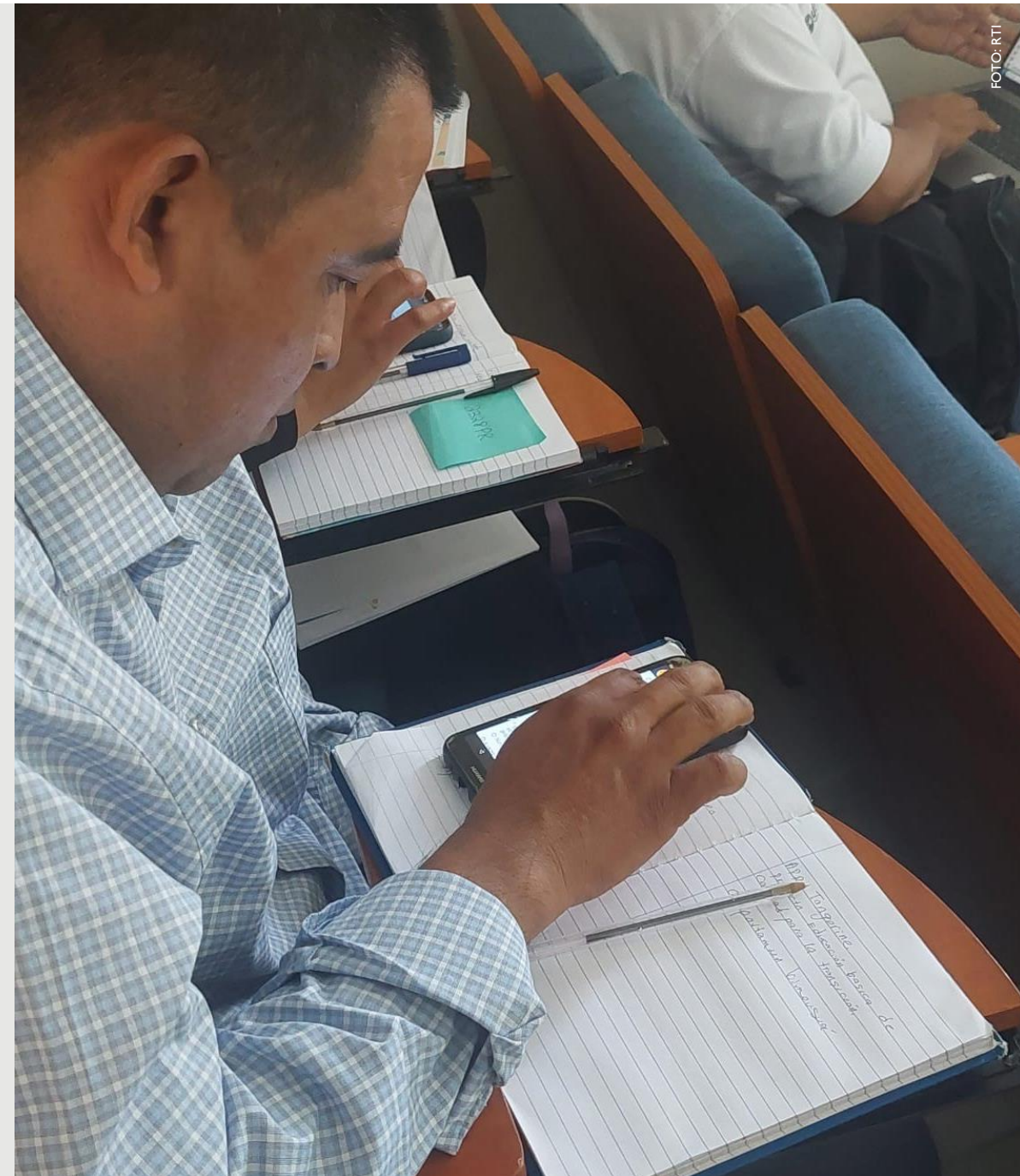
PHASES

- **User test**

- BEQT & Progresa personnel
- Teachers and principals from projects' schools

- **Information**

- Usability
- User understanding
- System functionality
- **Relevance:** information, alerts, timelines
- Risks





SABIO: PILOT IN GUATEMALA

- **Implementation in 12 schools**

- ✓ – Technicians
- ✓ – Teacher and principals training
- ✓ – Organize the school committee
- ✓ – Develop the map of interventions
- ✓ – Use the application to determine students at risk
 - Identify root causes
 - Assign interventions
 - Monitoring interventions
 - Accompaniment in all stages
 - Systematization of the lessons learned



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Thank You!

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Learn more about RTI's work:



www.rti.org/idg_education

shared.rti.org

