HUNDRED RESEARCH REPORT #026

Spotlight: Formative Assessment – Improving Learning for Every Child

Report

JUNE 2022

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JACOBS FOUNDATION

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SPOTLIGHT: FORMATIVE ASSESSMENT – IMPROVING LEARNING FOR EVERY CHILD

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JACOBS FOUNDATION

Foreword by Julia Wyss,
Jacobs Foundation

Know where you are and where to go: The importance of formative assessment for children to thrive

Worldwide, we see a growing need for methods of assessments that allow teachers to be reflective on how they are teaching and adapt their teaching activities accordingly if necessary to student's needs and progress. Formative assessments allow teachers to strengthen students' motivation and self-regulation through purposeful and regular interaction with students about their learning process. Furthermore, it includes students as owners of their own learning process.

With our overarching goal to understand and embrace learning variability we aim to support teachers as well as learners on their continuous path of development. To this end, assessment must be aligned with this core purpose of helping children learn and thrive together. Hence, there is a need to study innovations in formative assessments, which can identify the current learning gaps and cater to a child-centric and personalized learning approach. We see education innovations as crucial for renewing education systems around the world.

However, education innovations struggle to scale up and practices do not travel between classrooms easily. Unfortunately, most educators in the world do not know about best practices from outside of their local area. Therefore, there is a need to highlight innovations that are transferable to various contexts and are impactful.

For this Spotlight Report, HundrED and the Jacobs Foundation have identified 14 effective school practices on formative assessment. They include the use of EdTech in various contexts, focus on classroom practices and show the importance of teacher training. The selected innovations shed light on empirical evidence on how individualized learning and adaptive teaching can be implemented in schools and under what conditions they are effective and scalable.

It is our hope that the results of this Spotlight on Formative Assessment will reach

educators all over the world and inspire school leaders and policy-makers alike to take-up these insights and apply them to their own context.

We are looking forward to seeing these innovations spread and support the learning of each child to develop to their full potential and thrive.

Julia Wyss

Program Manager,
Jacobs Foundation

Photo taken by Jussi Hellsten, Helsinki, 2019.

Foreword by
Lasse Leponiemi, HundrED

Formative assessment builds competencies for lifelong learning

We often debate which are the most important skills and competencies we should master to thrive in the current and future world. Different education stakeholder groups gather the best minds to think about how we should plan our future curriculums, and what are the ways how we can measure their success.

During the last years we have seen thousands of innovations submissions on our HundrED platform. Only a very small portion of all those has been about assessment. We have been wondering what might have been the reason behind this – has it been because the assessment is seen as something very traditional with no room for innovation, or is it because educators feel that assessment is somehow out of their control?

Multidisciplinary subjects from social and emotional wellbeing to critical thinking, from cultural understanding to media literacy have been finding their way to official curriculums in many countries. As these new skills and competencies are widely accepted as important topical areas, we need to make the learning process visible with and within our students.

This is the moment when formative assessment comes into play. As we often acknowledge that the purpose of education is to make students lifelong learners, that also means that we need to equip them with skills for evaluating their own learning. All of us learn in different ways - therefore we can claim that learning has always been personalised, even though our system would not have recognised learning as a personal process, unique to each individual.

The value of formative assessment is that it makes the learning process of every learner visible, and it acknowledges differences between learners. When we look at this process from an individual point of view we are giving agency and empowerment to our learners. When we encourage the dialogue between learners and teachers already at school, we create competencies for lifelong learning that last well beyond the school years.

I want to thank the Jacobs Foundation for their progressive approach towards education to making this Spotlight possible. Simultaneously, I also feel relieved and happy that through this Spotlight on Formative Assessment we have been able to rule out our early assumptions. There are amazing educational innovations that

work in the field of assessment, and can open new opportunities for learners and educators to approach the assessment from different angles.

Our research team, accompanied by our reviewers, determined which innovations should be selected to be spotlighted. The selected innovations represent different contexts, and we hope that they can open up the possibilities of formative assessment in various settings. Just as learning is personalised, so every learning system has its individual characteristics. We hope that you find the selected innovations inspirational, and they encourage you to find out more about their work and possibilities of implementing formative assessment within your context.

Lasse Leponiemi

Co-Founder & Executive Director,
HundrED

Photo taken by Jussi Hellsten, Helsinki, 2019.

Introduction

There is a growing need for informal, regularly used methods of assessment without any external selection pressure that allow students to monitor and regulate their own learning. Such methods of assessment allow teachers to be reflective about how they are teaching and the possibility that they may need to adapt their instruction in order to improve learning processes and outcomes for each student. Additionally, assessment needs to allow children to be part of their learning journey, track their own progress, and set their own learning goals. Formative assessment is one of the approaches to answer this need, allowing teachers to develop students' motivation and self-regulation through purposeful interaction with students around their learning process.

The Formative Assessment – Improving Learning for Every Child Spotlight was launched in September 2021 by HundrED and the Jacobs Foundation aiming to identify ten to fifteen impactful and scalable education innovations that promote the systematic use of formative assessment to inform teaching and learning. This project contributes to the strategic goals of the Jacobs Foundation and HundrED's mission of helping every child to flourish in life.

After a robust selection process, HundrED and the Jacobs Foundation have selected 14 innovations across 12 countries spanning almost all the continents. These innovations highlight the focus currently being placed on formative assessment as an essential aspect for learning. In this collection there is a strong representation of EdTech tools for formative assessment, as well as classroom practices and school models that are scalable across different contexts. Innovations focusing on teacher professional development to implement formative assessment are also included in this collection, highlighting the importance of teacher training to make assessment formative.

In this report, we present a profile of each of the selected innovations. Data from the review process is included in this profile, along with samples from the advisory board reviewers' evaluations. At the end of the report, we share recommendations and reflections from the innovators themselves, collected from interviews with our research team. These insights provide a rich insight into the perspectives of the innovators that are driving the future of formative assessment in practice.

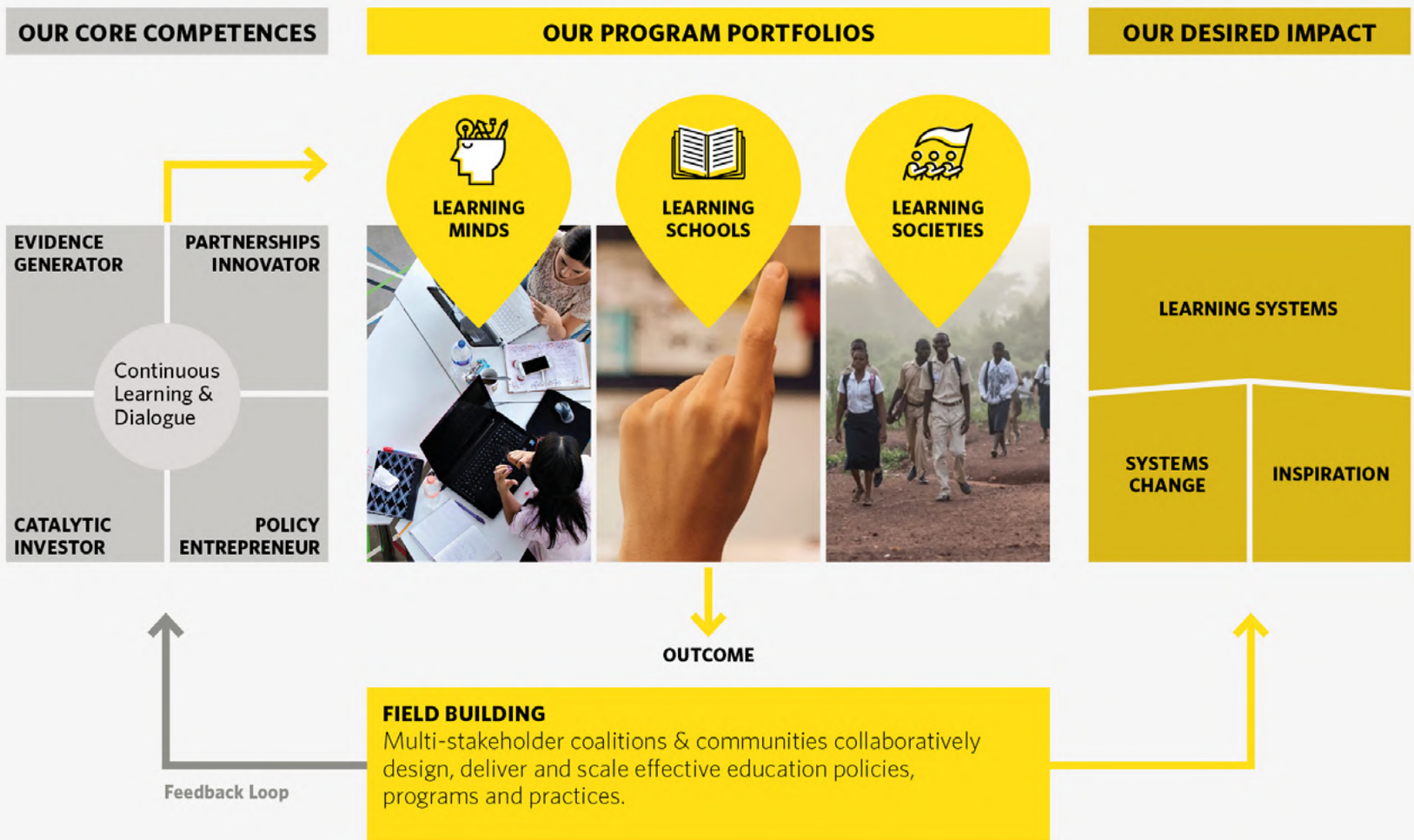
JACOBS FOUNDATION

The Jacobs Foundation is one of the world's leading foundations dedicated to facilitating innovation for children and youth. Established in 1989 by Klaus J. Jacobs and his family, the Jacobs Foundation commits an average annual budget of CHF 55 million to co-create evidence-based ideas for learning, support schools in offering quality education and sharing best practices, and to transform education systems around the world. The Jacobs Foundation's goal is to provide children and youth with effective knowledge, skills, tools, and equitable opportunities to reach their full learning potential and thrive together.

HUNDRED

Finland based, not-for-profit, HundrED, discovers, researches and shares inspiring innovations in K12 education. Their goal is to help improve education and foster a movement through encouraging impactful and scalable innovations to spread, mindful of context, across the world. HundrED Spotlights create unique opportunities for both educational professionals and independent organisers of the Spotlight to gain a thorough insight into the education innovations taking place in either a specific area of education, like literacy or sustainability, or within a certain geographic location, for example, India or London. For each Spotlight, HundrED selects the brightest education innovations, which then undergo a thorough study by our Research Team and an expert Advisory Board. HundrED Spotlights are organised with partner organisations, who help from their area of expertise.

Jacobs Foundation Theory of Change



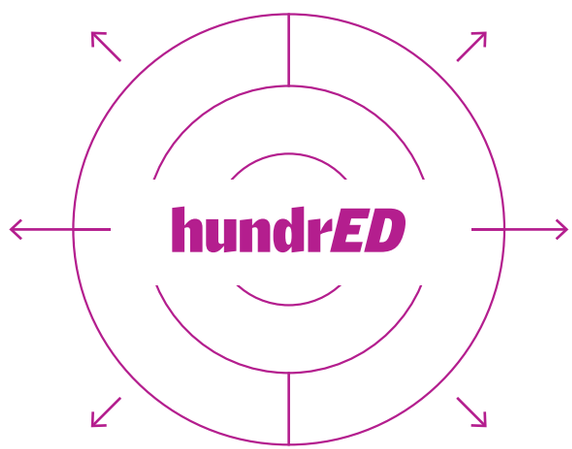
HundrED's Mission

HUNDRED'S MANIFESTO ON FORMATIVE ASSESSMENT

The purpose of education is to help every child flourish, no matter what happens in life.

In a fast changing world, focusing on traditional academic skills will remain important, but that is not enough. To thrive as global citizens, children must be equipped with a breadth of skills. Better cooperation between schools and families and engagement of parents in children's education will help develop these skills successfully. While we are advocates of a child-centric approach and personalised, passion-based learning, the relationship between an inspired teacher, a motivated student, and a supportive peer group will remain essential.

Assessment has to be aligned with the core purpose of helping children flourish, meaning that assessment cannot be only *of learning*, but also *for learning*. All of this should be reflected in the learning environments of the future. To make this happen, we need ways to develop leadership at every level of our education system and ambitious education innovations: innovative, impactful, and scalable approaches that are also effective in low-resource environments.



The world of education is full of hard-working specialists who are making this happen every day. Our mission at HundrED is to give them the recognition and visibility they deserve.

HundrED's Theory of Change

1 Innovations

To have the world's leading expertise on scalable education innovations

2 Promotion

To change the global education mindset to be solution oriented

5 Community

To build an active global community of education changemakers

6 Child

To help every child flourish in life, no matter what happens

4 Implementation

To match practical innovations with local needs around the world

3 Connections

To accelerate the pace of change through impactful connections

Chapter 1: **Background**

What is Formative Assessment?

Formative assessment is a powerful way to enhance student learning. All types of assessment form important aspects of the learning process. Formative assessment is a way of evaluating student learning as part of the learning process. The aim of formative assessment is to evaluate students' learning in a way that promotes the developmental aspects of learning and teaching.

Formative assessment refers to a wide variety of methods that teachers use to conduct in-process evaluations of student comprehension and academic progress during a lesson, unit, or course, in order to adapt teaching to the students' learning needs. In other words, formative assessment is *for* learning, while summative assessment is *of* learning.[1,2]

In terms of the wider purposes of learning, so that every child can flourish, an approach is needed which places the assessment in service of the child's learning rather than the other way around.

Photo provided by Siyavula.

1. Formative assessment (FA) is a child-centric and personalised learning approach.

    a. FA recognises the importance of student motivation, self-regulation, and metacognition for learning as a lifelong process

    b. FA is a movement towards students' increased engagement in their own learning in dialogue with the teacher

2. Formative assessment is distinct from standardised, high-stakes, summative assessment. Formative assessment can better inform teacher practice by providing a way to identify the specific gaps between what a student currently knows and the learning goal during the learning process.

3. Formative assessment takes into account the dynamic nature of the relationship between learning and teaching.

Formative assessment provides information to be used as feedback to modify teaching and learning activities in order to promote learning. As an iterative and continuous cycle to monitor students' learning, formative assessment goes beyond checking the students' level of understanding during the learning process, and is used to guide the modification of instruction and further assessment. The evidence of learning gathered in formative assessment is not simply about identifying the gap between the students' current and desired performance. The data or evidence collected from and with the student should also provide information about the types of pedagogical activities that are likely to improve the students' performance in a way that also engages the learner in actions that improve their learning.[3]

At the same time, formative assessment helps teachers not only evaluate where students are in the learning process, but also identify the sources of students' misconceptions. Formative assessment helps students to understand what they are learning, how they are learning, and how they can continue towards reaching a learning aim[4].

Formative assessment improves learning by putting the learner at the centre of the learning process. Learning can build on what the student already knows when the teacher gives more evidence about the students' previous learning and experience, and an understanding of where the student is currently in relation to where they need to go. In the long term, formative assessment can help students develop self-reflection, critical thinking and the capacity for self-directed learning.

Effective formative assessment should:

- Co-create learning expectations and learning targets with students, or at a minimum share these expectations with students
- Engage students in a process of discussion, questioning, and other tasks that produce evidence of what has been learned in terms of content, concepts, or competencies
- Generate feedback on learning to be used by the teacher and the students
- Use guided self-assessment and peer-assessment to improve learning
- Go beyond diagnostic assessment of students' learning
- Help students understand their own learning process, facilitating the students' learning how to learn
- Support students in recognising gaps in their understanding as they continue to formulate their understandings
- Activate students' congitive and motivational capacities
- Provide information on what activites are likely to improve students' performance

Photo provided by Qridi.

TYPES OF ASSESSMENT

Formative Assessment: A method of assessing students' learning used by teachers and students that generates feedback while instruction is ongoing, used to adjust teaching and learning for the purpose of improving students' achievement of the learning goals.[5]

Diagnostic Assessment: Assessments given at the beginning of the learning process to determine how much the student already knows.

Continuous Assessment: Assessments are given regularly throughout the learning process, a way of monitoring students' progress incrementally. Continuous assessments can document the pulse of the students' progression, but are typically used to communicate final student outcomes and justify grades to parents and other external stakeholders.

Adaptive Assessment: Nearly always computer-based, examination questions are adapted and tailored to the individual student. The test is adjusted based on the students' performance: subsequent questions can be harder or easier, and the test can be lengthened or shortened depending on the student.[6]

Interim Assessment: Also called "benchmark assessments," these assessments serve to produce data on student learning between yearly regional or national exams and day-to-day formative assessments. They can serve instructional, evaluative, and predictive functions for school level decision making, and are often commercial.[7]

Summative Assessment: Assessments are given once as a final examination to determine the students' knowledge. Summative assessments are typically graded against a standardised benchmark.

Standardised Assessment: Externally graded, state, national, or international level examinations. These high stakes tests are typically organised by (supra) national entities, state or corporate assessment boards. Standardised assessments help decision-makers understand students' competencies at a population level, and are a tool for informing education funding and resource allocation at the system level. Standardised assessments are also used to indicate student potential for success at the next stage of education, for example national exams for placement in high school, university, or professional and graduate education.

Classroom-based Assessment: Teachers design assessment based on classroom-level learning objectives. Assessments are tailored by the teacher to what the students have learned. Classroom-based assessments analyse student performance in terms of learning goals and instructional processes.[8]

School-based Assessment: Teacher-designed summative assessments based on school-level standards. School-based assessments have been used as part of school accountability, management and quality assurance measures aimed to bring assessment under local control.

A main difference between formative assessment and other types of assessment, such as diagnostic, continuous, and summative assessment, is that other assessments typically use a standardised rubric that facilitates sorting students according to their examination grades in relation to other students. In current education ecosystems, most students are required to take periodic high-stakes summative assessments. In most countries, these summative assessments play an important role for schools, districts and higher education institutions' decision making about how to allocate resources, including funding for teachers and school admissions. However, at the level of classroom teaching, summative assessments play a very limited role in supporting students' learning.

Formative assessment, on the other hand, is about the students' own learning journey. Teachers use formative assessment to develop processes for data collection and to scaffold learning according to what the student already knows, towards the intended learning outcomes. Formative assessment relies on the teachers' capacity to flexibly and creatively support students in developing their own agency as learners, including their meta-cognitive capacity. Formative assessment helps students learn to learn. It goes beyond making a judgement on a students' current knowledge, and towards an understanding of learning as a developmental process of becoming.

Hallmarks of Formative Assessment

Formative assessment is not a plug-and-play form of evaluating students. There are many aspects of formative assessment that can be curated together to meaningfully support the learning of each student, the class as a whole, and also to help develop the teacher's understanding of the students.

FORMATIVE ASSESSMENT IS PERSONALISED

First and foremost, formative assessment serves the students, rather than only providing time-delayed evaluation data for decision-makers outside of the classroom. Teachers are able to differentiate instruction and assessment according to the students' learning needs.

FORMATIVE ASSESSMENT PRODUCES DATA ABOUT WHAT STUDENTS KNOW

Students are the primary fund of knowledge about their own learning.[9] With formative assessment, the teachers use tools that help students to visualise and reflect on their learning journey. The teachers collect data in order to modify their teaching, but also to help the students' meta-cognition. Data is used in formative assessment to bring the students to a better understanding of themselves and their own learning.

FORMATIVE ASSESSMENT IS NOT USED TO GRADE STUDENTS

Formative assessment data is not used for summative assessment. Rather, the information gathered during formative assessment is used to guide the teacher to create additional learning opportunities or assessment activities.[10]

FORMATIVE ASSESSMENT REQUIRES OPENNESS TO THE LEARNERS' FUTURE GROWTH FROM BOTH THE TEACHER AND THE STUDENTS

What a child knows today is not a determination of their potential. Learning is understood as a developmental process which is not fixed, but is shaped by social and environmental factors, including pedagogical practice and the organisation of assessments.

TEACHERS HAVE THE CHANCE TO REVISIT CONCEPTS THAT WERE MISSED

Teachers have the opportunity to revise instruction based on the feedback from the students. This requires flexibility and a degree of autonomy on the part of teachers to determine the pace of instruction from day to day. Teachers also need to have time to understand the results of the formative assessments, and to consider what methods of instruction would address the specific gaps revealed in the students' learning by the formative assessment.

STUDENTS HAVE THE CHANCE TO DO THE ASSESSMENT AGAIN

Assessment can only be formative when there is time for students to revise their work.[11] When regular assessments are given, but neither the teacher nor the student is given time to make modifications, this is considered continuous assessment.

STUDENTS AND TEACHERS LEARN TOGETHER

Teachers learn about how the students are learning – they learn about their students. This disrupts the traditional dynamic in which the teachers know the content, the students learn the content and then the teachers assess the students' knowledge of the content at a predetermined date.

Why do Formative Assessment?

FORMATIVE ASSESMENT PROMOTES LEARNING

The primary purpose of formative assessment is to promote learning. Formative assessment focuses on the growth of the individual student, taking into account what they already know, and the learning aims that have been decided by or with the teacher.

FORMATIVE ASSEMENT PUTS THE STUDENT AT THE CENTRE

Formative Assessment improves learning by putting the learner at the centre building on what the student already knows, giving the teacher more information and data about what the student already knows and where they are currently in relation to where they need to go. In the long term, this can help students develop self-reflection, critical thinking and the capacity for self-directed learning.

FORMATIVE ASSESSMENT IS A POWERFUL APPROACH FOR TEACHERS TO ADDRESS HIGHLY HETEROGENEOUS CLASSROOMS

Students do not, nor should they be expected to, start every lesson at the same place and learn at the same pace. Ensuring that all students reach the learning objectives requires that teachers are able to use differentiated instruction and assessment. Formative assessment helps teachers to understand students' strengths and also where they are struggling. This can help teachers approach each student as a unique individual, each with their own diverse interests, experiences and understandings of the range of content and capabilities being studied in the classroom.

The Current State of Formative Assessment

Research about formative assessment as an instructional practice has developed alongside the expansion of assessment practices generally. As the ability to collect more comprehensive data from students has increased, the functions of assessment in education have evolved. Historically, assessment has been used internationally as entrance examinations for military and civil service, as well as for entrance to higher education. Large-scale assessments are often used for the purpose of sorting students according to resource needs. At the turn of the 20th century, intelligence tests, or IQ tests, began to be used in military recruiting and college entrance examinations to indicate capacity and potential for performance. One aim of these assessments was a more meritocratic determination of admittance, based on fair standards of individual intelligence, rather than the economic class or social station of the student or the bias of the examiner, although in practice the function of these examinations often served to reproduce social exclusion based on prevailing notions of intellect. The remnants of the logic of assessing a singular and static measure of an individual's potential remains an aspect of the assessment culture in many contexts.

In 1958 in the United States, technological advancements increased the capacity to administer large-scale assessment to students across the country.[12] In the

Photo provided by The Modern Classrooms Project.

context of the Cold War and the Space Race, the United States increased focus on science and maths education for the general public and moved towards more regular summative evaluation of students for the purpose of organising state- and national-level educational funding. By the late 1960s, reasearchers were publicly questioning the role of these assessments in learning, and in 1967 at the national American Educational Research Association's annual conference, the largest gathering of educators and education researchers in the United States, Michael Scriven questioned the roles and goals of evaluation, introducing the concept of "formative assessment" and distinguishing between formative and summative assessments.[13] In classrooms, educators have seen some of the unintended results of this shift towards standardised summative assessments and high-stakes exams, including that teachers are incentivised to teach to the test, rather than teach the children, narrowing the purposes of education, and also narrowing the view of the child to see only what is being tested. Feedback from summative examinations typically also is transferred upward, to administrators and decisionmakers, rather than back down to the students or teachers, and typically with a time-delay that makes it difficult to use these summative assessments to guide the teachers' daily practice.

Over the past decades, research on formative assessment has also developed as part of a change in methods of instruction, and the role of the teacher and student in the classroom. As the students' role in learning has been better understood, including student motivation, student agency, and how learning builds on the students' prior knowledge and experience, the dynamic of teacher and student should change from one where the child is focused on the teacher, and the teacher is focused on the content, to a model where the learning process happens as a relationship between the teacher, student and peers, and where teacher and students are co-learners about one another and the content in context.

As trends in assessment and instruction have evolved, national governments have taken notice and implemented various formative assesment reforms, with varing degrees of success. In 2009, Indian policymakers took note of the negative effects of the summative end of term examinations, including unhealthy competition, labelling of students, and general negativity.[14] As a response, India's Central Board of Secondary Education introduced the Continuous and Comprehensive Evaluation reform as part of the Right to Education Act, which mandated that assessments be formative.[15] In 2020, the new education policy again indicates that a key feature of assessment should be "assement for learning."[16]

In Indonesia, Malaysia and Vietnam, national policies have indicated the need to move towards a more student-centred approach, including formative approraches to assessment and school-based assessment.[17,18,19] The Southeast Asian Ministers of Education Organization, Innovation and Technology has indicated that there is a shift in the region to move away from assessment of learning and towards assessment for learning.[20]

In Ghana, Tanzania, and Zambia, the shift towards formative assessment came in a series of reforms mandating continuous assessment.[21,22] In many countries in sub-saharan Africa, the school leaving examinations are extremely high-stakes, and determine entry to the next level of schooling. In order to ameliorate the effects of these yearly high-stakes exams, national governments in countries like Malawi, Namibia and South Africa, have also introduced continuous assessment reforms. These reforms have met with varying degrees of success, as they have been implemented in a top-down fashion that requires a significant investment of time on the part of the teachers. Moving from continuous assessment to formative assessment also requires a reorientation of the relationship between the teacher and the student, in terms of the conventional hierarchical power dynamics in schools.

In Finland, the development of assessment practices has evolved significantly along with the changes in general education reforms, especially since the 1990s. Finland has not followed the accountability movement in education popular in the United States and United Kingdom, in which schools and teachers are held to account for the students' outcomes in publicly available league rankings, national exams, and school inspections.[23] Finland's approach to assessment gives teachers a wide degree of freedom to use classroom-based assessments as they see appropriate for their students. This results in a wide degree of variation in the use of assessment in the classroom, as the teachers' primary focus is on students' overall health and wellbeing.[24] Researchers have also found that Finnish teachers may associate the assessment with teachers' level of confidence in their own teaching: the less confident they are in their teaching skills, the more assessment of the students they will do.[25] It has also been shown that Finnish parents' views of the purposes of assessment align primarily with formative assessment, which is reflective of the overall low-stakes assessment culture in Finland.[26]

Major Challenges for Formative Assessment

INSUFFICIENT SUPPORT FROM SCHOOL LEADERSHIP

Without the support of the school leadership, it is hard to do formative assessment in the classroom. Formative assessment is not a plug-and-play option. It takes time for the teachers to rethink some of their fundamental assumptions - about how learning happens, about the role of the teacher, and about power in the classroom. That reorientation takes time. It also takes time to develop structures in the rhythms of daily classroom interaction that allow time to observe and converse with the students, to teach the students how to give peer feedback, and for students to learn how to do self-assessments.

TEACHERS FACE UNCERTAINTY IN HOW TO MANAGE THE POWER DYNAMICS OF CO-CREATION WITH STUDENTS

Teachers often see their role as being manager of the students, rather than as co-creators of knowledge with the students. Teachers can be unwilling to give students control in part because of accountability dynamics, in part because of how they themselves were taught, and in part because of the number of students. For formative assessment to work, the power relation between the teacher and student has to change.

SELF-REFLECTION AND PEER FEEDBACK ARE LEARNED SKILLS

Children do not innately know how to reflect on their own learning or provide meaningful feedback to their peers. It cannot be expected that students will already know how to do this. Like metacognition and self-regulation, reflection and the capacity to give and receive feedback are not fixed assets that the student either possesses or does not. Rather, they are skills taught to students in a developmental process. Students can learn these skills with proper guidance and practice over time. Children also have to be guided to understand that they themselves and their peers are resources for learning, while also holding space for themselves and their peers to be in a process of formation. This can be a particular challenge in classes with many students.

DATA IS USED INEFFECTIVELY

Teachers have many students, and over the years students have many teachers. Effectively using and communicating information about students' learning and competency development over time is often difficult between teachers, classes, or years. This means that the overall arc and trajectory of a students' formation, that is the longitudinal data, is often tracked with periodic summative or diagnostic assessments, rather than taken from a holistic and formative view of the students' learning needs.

Photo provided by VVOB, the Flemish Association for Development Cooperation and Technical Assistance.

Enabling Environments for Formative Assessment

One of the primary benefits of formative assessment can be creating a learning environment where the learning aims and objectives are clear and transparent to the student. When the students are aware of what they are supposed to learn and how they will be assessed, they can start to build confidence that their learning will be evaluated in such a way that they have some agency over the process. This transparency and possibility for agency in the learning and evaluation process can help students, especially students who are struggling, to be more engaged. Making assessment something that is not done to them, but done with them, creates an enabling environment for implementing formative assessment.

It is important that students do not feel that their formation will be used against them. Learning can be a vulnerable process, especially when students are frequently asked to demonstrate their (lack of) understanding. Anonymity can help in the implementation of certain formative assessment practices, for example when students can answer questions or quizzes anonymously.[27] The use of EdTech tools for formative assessment can be helpful for teachers not only to collect data, but also to ensure anonymity in the classroom, when appropriate for the learning aims.

At the same time, it is important to be able to connect assessment to individual progress, and the individual aims and learning pathway of each student. When students can revisit things which they had difficulty with before, they are also able to have more agency in their own learning. For formative assessment to work well, teachers need to be supported to create and use different types of data to inform their instruction and also to guide students in their individual learning paths.

Along with an environment that supports student agency and self-regulated learning, it is also important to create safe spaces for children to interact, learn from each other, and promote a culture of collaboration and peer-feedback. An environment that promotes peer-assessment without putting pressure on children to demonstrate their lack of understanding, and instead encourages students to collaborate and give constructive feedback, enables settings in which formative assessment can be implemented successfully.

Photo taken by Jussi Hellsten, Helsinki, 2019.

Chapter 2: **Collection of Voices**

Education systems also need to consider and integrate visions of change by those at a local grassroots level, for example: current leaders in schools and other organisations, teachers, and students from a diverse range of contexts.

In an effort to provide a small degree of perspective on this, we asked a number of education leaders, teachers, and students from different parts of the world two questions:

1. What would be at the top of your list to change education so that formative assessment is cultivated effectively in schools?

2. What do you see as the biggest barrier to this change and how can we best overcome this?

In the following pages are their answers.

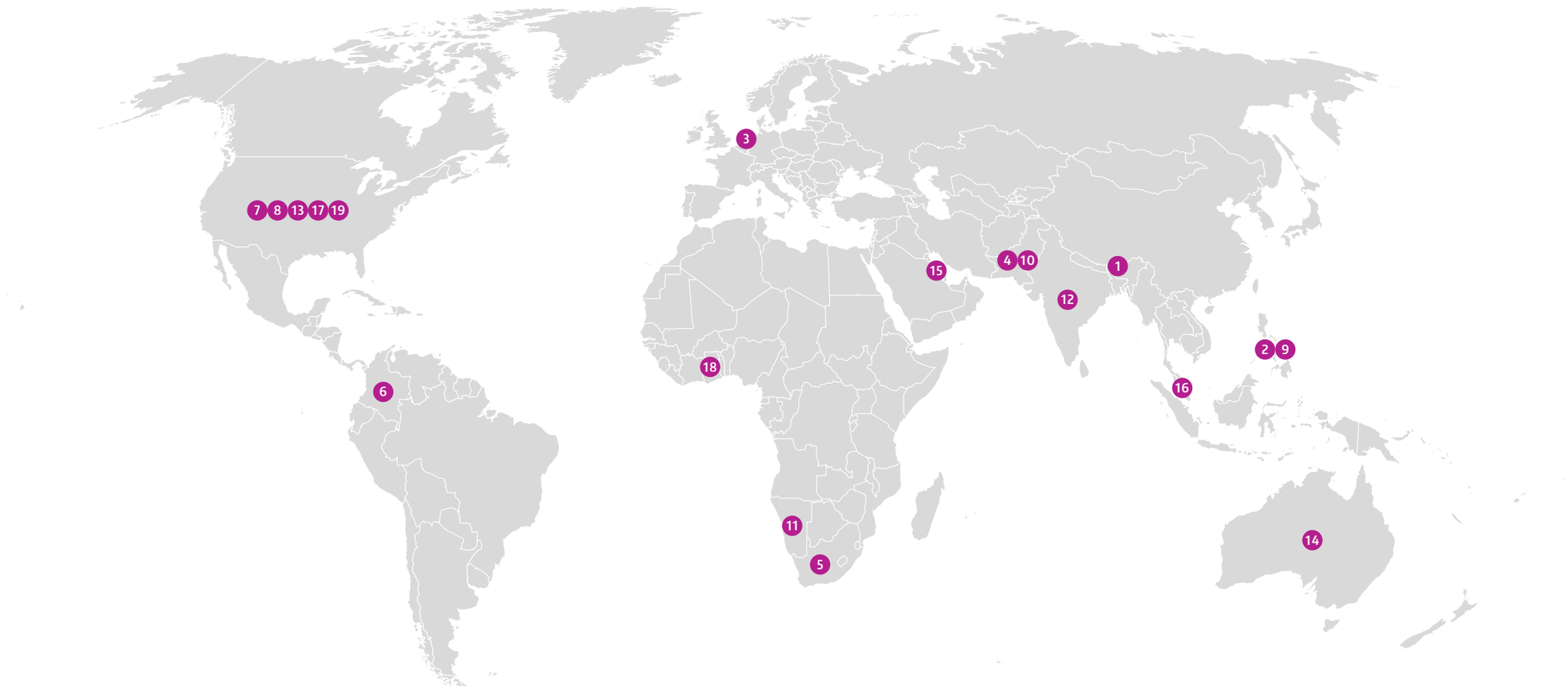


Figure 1. World map indicating the locations of participants in the collection of voices

Educators

1. What would be at the top of your list to change education so that formative assessment is cultivated effectively in schools?
2. What do you see as the biggest barrier to this change and how can we best overcome this?

1. DEKI PEM
Bhutan
Teacher, The Royal Academy, Paro

Q1 Holistic approach and involvement of learners in constructing the learning process, choosing the concepts and assessment approaches. Learners should be in the centre with different stakeholders – parents, community, educational stakeholders – being all part of the learning process of learners.

Q2 The biggest barrier is working in silos and leaving the ownership of teaching and learning to schools.

2. JANINE S. BUENROSTRO-JOCSON
Philippines
Professional Teacher and Disability Advocate

Q1 I think the ease of assessing one student. In my context, the student-teacher ratio is quite big so it is difficult for teachers to track down the progress of each student. That is why an innovation of creating an easy platform to assess the students is on my top list.

Q2 The biggest barrier would be the access to gadgets and a stable internet connection. For many countries like in the Philippines, internet access is not fully accessible unless one is in the main city/region. But in the provinces, internet connection is still a challenge.

3. OZGEN BAGCI CERVO
Netherlands
Instructional Designer, Educational Consultant & Trainer, Goal Testing B.V.

Q1 The perceptions on assessment and its place within education.

Q2 Strict educational systems and long-held beliefs about the role of assessment within these systems. The best way to overcome this might be to focus on showing best-practices and encouraging teachers to adopt and adapt these in their own context as well as to share their experiences.

Academics

1. What would be at the top of your list to change education so that formative assessment is cultivated effectively in schools?
2. What do you see as the biggest barrier to this change and how can we best overcome this?

4. QURATULAIN HUSSAIN
Pakistan
Lecturer

Q1 The first thing on my list would be to hire passionate teachers who have a flair for teaching by choice, this can be demonstrated by their love of teaching through various example activities exhibited such as demonstrating evidence of video recordings, lesson plans created on using formative assessment to actually gauge student learning, etc.

Q2 The biggest barrier is having good and genuine teachers and more importantly a proper mechanism to gauge their effective formative assessment techniques.

5. SAM RAMAILA
South Africa
Associate Professor, Head of Science Education Unit, University of Johannesburg

Q1 Development of teacher professional capacity to enact formative assessment to foster meaningful teaching and learning.

Q2 Lack of sustained opportunities for continuous teacher professional development. Encouraging teachers to share professional expertise on meaningful enactment of formative assessment within communities of practice.

6. JORGE ALBERTO MOLINA ESCOBAR
Colombia
Professor, Universidad de los Andes-Bogotá

Q1 To increase formative assessment in schools, a clear change in teachers is very important. Most of them were educated in the traditional way of teaching, and it is obvious that you will follow the only system you know. In addition, the traditional way of teaching always demands less effort in preparation and achievement.

Q2 The biggest barrier is not the teachers. I am sure most of them will appreciate applying formative assessment. For me, the main barrier is a lack of information and support to make the transition from a traditional way of teaching to formative assessment. Technological support with intuitive and easy-to-apply platforms or apps will for surely help to motivate teachers to make the transition.

Leaders

1. What would be at the top of your list to change education so that formative assessment is cultivated effectively in schools?
2. What do you see as the biggest barrier to this change and how can we best overcome this?

7. RYAN BURGESS
United States
Portfolio Manager, Primary and Secondary Education and TVET globally. Porticus.

Q1 Three inter-related areas I would highlight are: (i) improve teacher professional development on formative assessment from a holistic lens, including an increased understanding of how children (especially those in adversity) learn; (ii) strengthen school leadership to integrate formative assessment in the school culture; and (iii) ensure there is a close relationship with those in the system supporting schools or in policy.

Q2 In high risk or marginalized areas, teachers may not learn about how adversities can affect children and their learning or about active pedagogies that can incorporate formative assessments. Alignment is needed between schools and their education offices (whether local or national) to have the support needed to make change not only in schools but within the system. Working on that alignment within the system and understanding the system needs from the start can make a difference.

8. KESSON ANDERSON
United States
Managing Director of Partnership Development. Achievement Network.

Q1 In the US, there are lots of quality products available for formative assessment, including daily exit tickets and mid-unit formative assessments that are included in high-quality curricula. Teachers need more time to make sense of the data and adjust their instruction effectively. They also need more support in scaffolding instruction to support student learning once misconceptions or learning gaps have been identified.

We also need to ensure that district leaders protect the purpose of formative assessments and do not try to use them evaluatively.

Q2 Better coaching and development of teachers and leaders, more time for teacher planning and data analysis. Changing this will require changes at multiple levels - funding to schools, teacher pay, school day schedules.

9. ELLISIAH U. JOCSONA
Philippines
College Faculty, National Teachers College

Q1 Delivery and execution. The innovations mostly exhibited varied forms of delivery and execution, and most were able to do so efficiently without sacrificing the student tasks and increasing the teacher's load.

Q2 Synchronicity. With the varied forms and methods of formative assessment, schools also foster variations. The diversity of formative assessment methods construes the effort to increase the quality of formative assessment used globally.

Students

When you hear the word assessment, what comes to your mind?

10. AMNA
Pakistan

The traditional thought. A test paper and answer sheet that determines the future of an individual and only assesses based on how good the answers to the questions are memorised.

11. NDESHIMONA
Namibia

I immediately think about taking tests. Studying, memorising and summarising information, in an effort to get good grades. Sometimes it pays off, sometimes it doesn't.

What do you think is missing from assessments in schools?

12. APOORVA
India

Everyone is a genius, but if you make a fish climb a tree, it will live its whole life thinking it is stupid. Choice is what's missing in schools. And no, I'm not talking about choice as whether to answer part A first or part B. I mean letting kids choose which assessment they take.

13. MICHELLE
United States

There's little regard for what a student knows vs. what they get as a score. Especially for those who don't know how to study, it can be frustrating when one gets a low score on a test, while high ones on the other assignments.

Students

Have you had any successful experience with formative assessment during your studies?

14. OLIVIA
Australia

I believe that each of us has used formative assessment in evaluating ourselves. We don't create an exam for the end of each summer, but rather, a bucket list of all we aim to achieve. These experiences gradually compound until we're able to express them, in writing or art or song. Learning here is not focused on grades, but rather on passion - exploration for its own sake.

Why do you think formative assessment is important to change education? What do you think is the main barrier to this change and how can it be solved?

15. ISABEL
Bahrain

I think formative assessments are significantly important to change education for the better. For teachers, it allows them to immediately pick up on the understanding of their students in a non-pressured environment. For students, it makes learning more interactive, enjoyable and less tense. Unlike standardised/ summative assessments, it doesn't test one's ability to recall under timed conditions/competition but it tests the true understanding of a student and their level of progression in a subject. I think the main barrier to formative assessments is the reliance on summative assessments which hold schools accountable for student achievements. I believe this can be overcome by a global acceptance and a shift towards formative assessments – keeping students in a natural learning environment. More people need to realise that standardised testing only shows one side of a student and doesn't give a full-dimension portrait of an individual.

16. SHU XIN
Malaysia

Formative assessment is important to change education because it empowers us (students) to be leaders of our own learning by allowing us to take ownership of our learning. Through formative assessment, we as students develop a love for learning, track our personal growth, and learn useful skills that enable us to flourish in the 21st century. The main barrier to change is the lack of manpower because the teacher shortage is worsening. Formative assessment takes up a lot of teachers' effort to design and implement it. Hence, governments should invest more in teacher professionalism.

Scholars

At the end of October 2021, the HundrED Research Team and the Jacobs Foundation sat down with three leading scholars to discuss the importance of formative assessment as a way to prioritise children's learning and wellbeing over testing. You can find some of the main takeaways from the speakers below. View the full webinar here.

17. HEIDI ANDRADE
United States
Professor of Educational Psychology and Methodology, University at Albany

Formative assessment is useful for the teachers but also for students. Teachers are not the only source of feedback in the classrooms. Under the right conditions, students can learn more and become more self-regulated, engaging in peer and self-assessment. When students are empowered to do this in a formative way, the classroom will transform into a culture of critique and of thinking.

18. JOSEPH GHARTEY
Ghana
Professor of Science Education, University of Cape Coast

Feedback in the process of formative assessment is really important. For me, it should be three ways: teachers give feedback to children, children give feedback to peers and children give feedback to teachers. I think this is not happening in many schools, so formative assessment will create a bridge between teaching and assessment.

19. MARGARET HERITAGE
United States
Education Consultant

Formative assessment changes teachers to rethink what their role in the classroom is, and it also changes students as learners. Students are no longer passive learners, being actively involved in their learning and developing self-regulated learning processes. The idea of formative assessment is to think where the student is currently in their learning and reflect first what I can do as a teacher, and also what can the student do through their own self-assessment and with my feedback, to advance their learning.

Chapter 3: **Methodology**

Inspired from Everett M. Rogers book Diffusion of Innovations (2003), we use the following definition for innovation in education:

"Innovation in education can be defined as meaningful improvements considered within the place of implementation to a new or modified practice and/or technology that supports any part of the educational ecosystem (for example: skills, teachers, assessment, environment and/or systems, and leadership)."

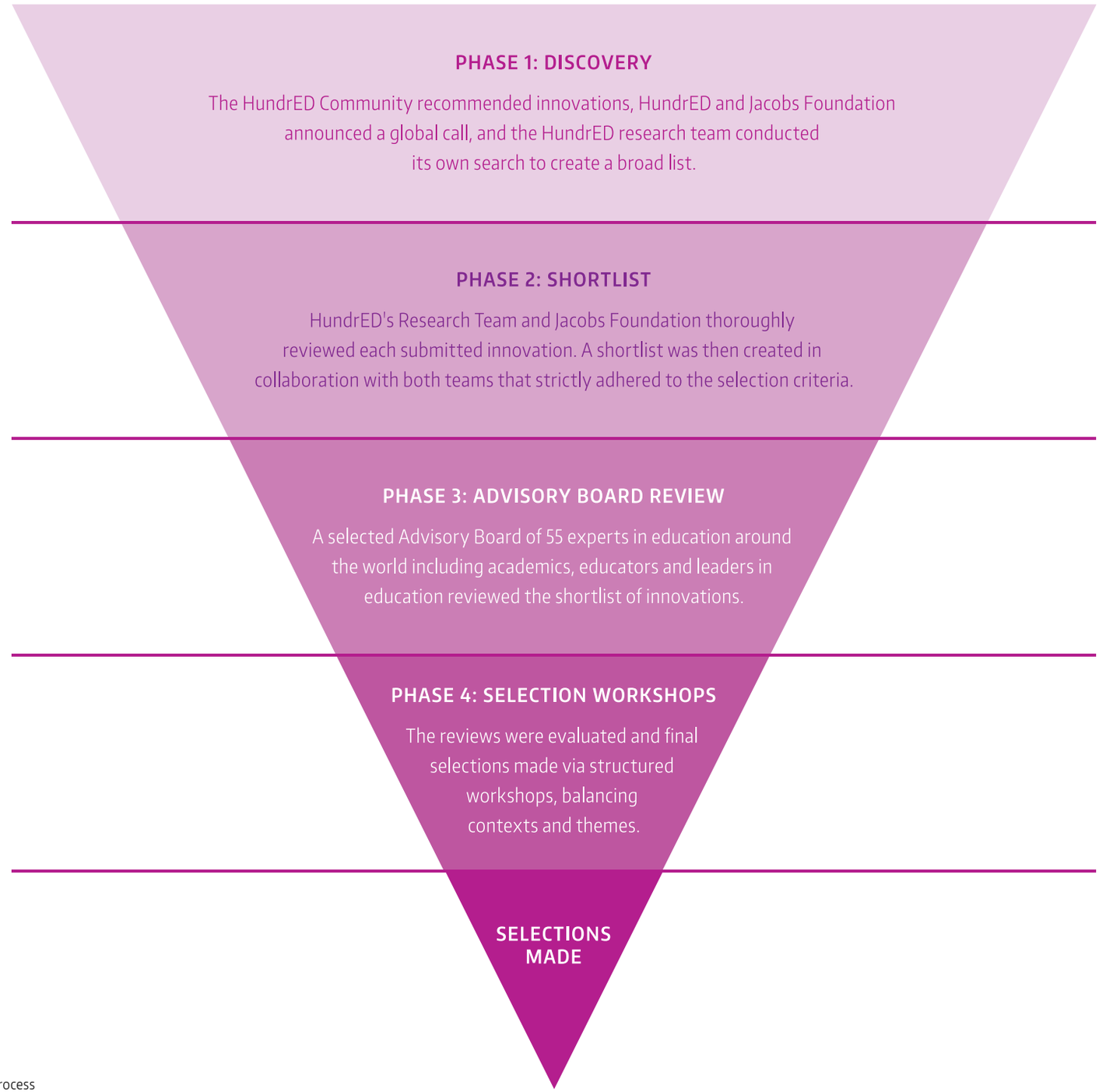


Figure 2. HundrED Selection Process

PHASE 1: DISCOVERY

The first phase involved discovering leading innovations by our research team with support of HundrED's Global Community, which include methods of: surveys, interviews, and in-depth searches online. The main areas of activity for HundrED's Research Team are outlined in the figure below.

Discovery activities by the HundrED Research Team include (1) personalised applicant support to potential submissions, (2) mobilisation of the HundrED Community (which is essential to be our local eyes and ears on the ground where they recommend and report about the best practices and solutions, especially in locations that are difficult to get access to, such as rural schools and regions with limited internet), (3) other research activities such as attending major education events and conferences, monitoring high profile innovation competitions from around the world, speaking with experts in and out of education, and studying academic and non-academic texts such as peer-reviewed journals and blogs.

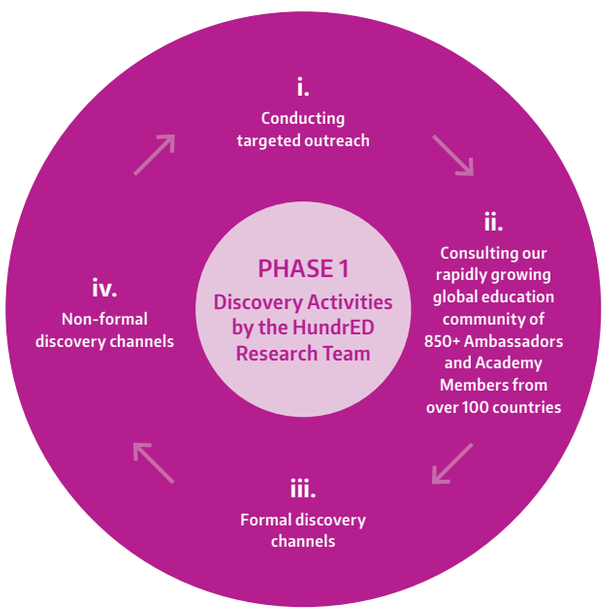


Figure 3. Phase 1: Discovery activities by the HundrEd Research Team.

PHASE 2: SHORTLIST

Phase 2 is where HundrED's Research Team and Spotlight partners thoroughly reviewed each innovation. To be selected for the shortlist, each innovation must have shown evidence for impact and scalability using the following definitions:

- **Impact:** Evaluated as a valuable improvement within the innovation's context. All innovations must have at-least 1-year of being implemented with its intended users.
- **Scalability:** Either the innovation is actively expanding to other contexts or has a high degree of transferability for others to adopt its practice/technology.

For this particular Spotlight, we shortlisted 27 innovations from 19 countries that were later reviewed by our Advisory Board. See list of shortlisted innovations in Appendix A.

PHASE 3: ADVISORY BOARD REVIEW

We believe that a diversity of experienced perspectives from a wide range of contexts is fundamentally important to our selection process. The Advisory Board for this Spotlight consisted of 55 experts in education from 30 countries across the world including current: academics, innovators, teachers, students and leaders (see Appendix B). They reviewed the shortlist of innovations over a two week period in January 2022.

The selection process of the Advisory Board was conducted carefully by both HundrED and the Jacobs Foundation. We ensured they supported HundrED's mission to help every child flourish in life and a careful balance for a range of experienced stakeholders in education that can offer a valuable perspective on parental engagement across the world. See Appendix B to see who was in the Advisory Board.

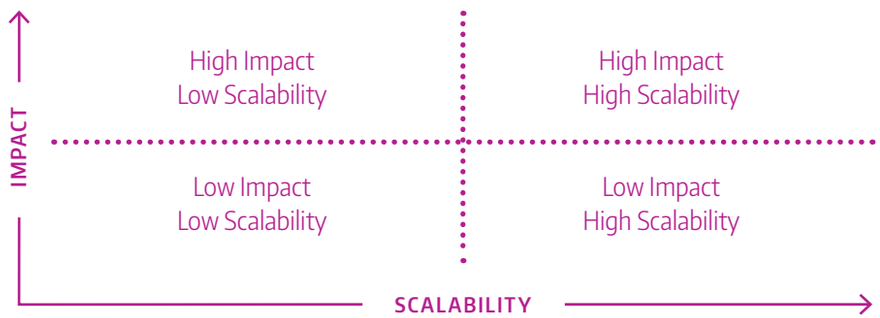


Figure 4. HundrED's evaluation tool.

The Advisory Board 3-step review tool:

Step 1: The factors of impact and scalability were plotted on a graph by each Advisory Board Member using HundrED's evaluation tool, which is divided into four quadrants. We were looking for innovations that the majority of Advisory Board members considered to be highly impactful and scalable in the top right quadrant.

Step 2: Each reviewer also provided specific comments about each innovation that explained their evaluation on our mapping tool.

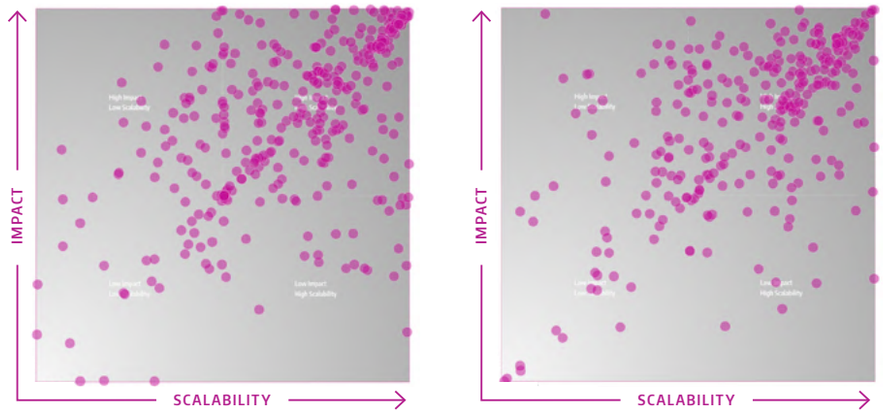


Figure 5. The 674 reviews by the 55 Advisory Board Members.

The 27 shortlisted innovations were divided into two batches to facilitate the review process of the Advisory Board. The plots on the graphs above represent a review for all the shortlisted innovations in this Spotlight. A total number of 674 reviews were done by the Advisory Board.

All shortlisted innovations were reviewed by the Advisory Board and were ranked from most favourable responses to the least. Any critical comments were seriously considered first as to whether the innovation should be excluded from the selection process (e.g. the innovation materials may promote ineffective pedagogy).

PHASE 4 - SELECTION WORKSHOPS

In Phase 4, the HundrED Research Team and the Jacobs Foundation participated in a structured workshop where they selected the innovations to be highlighted in this Spotlight. The challenge in this phase was achieving a balance of approaches and contexts in the final collection.

In the workshop, we considered the Advisory Board reviews while aiming to cover a diverse range of: (a) effective approaches to promoting formative assessment, (b) age levels, (c) educational contexts and geographical spread.

Chapter 4: **Selected Innovations**

Findings

OVERVIEW OF SUBMITTED INNOVATIONS

129 innovations founded in 42 different countries were submitted to this Spotlight.

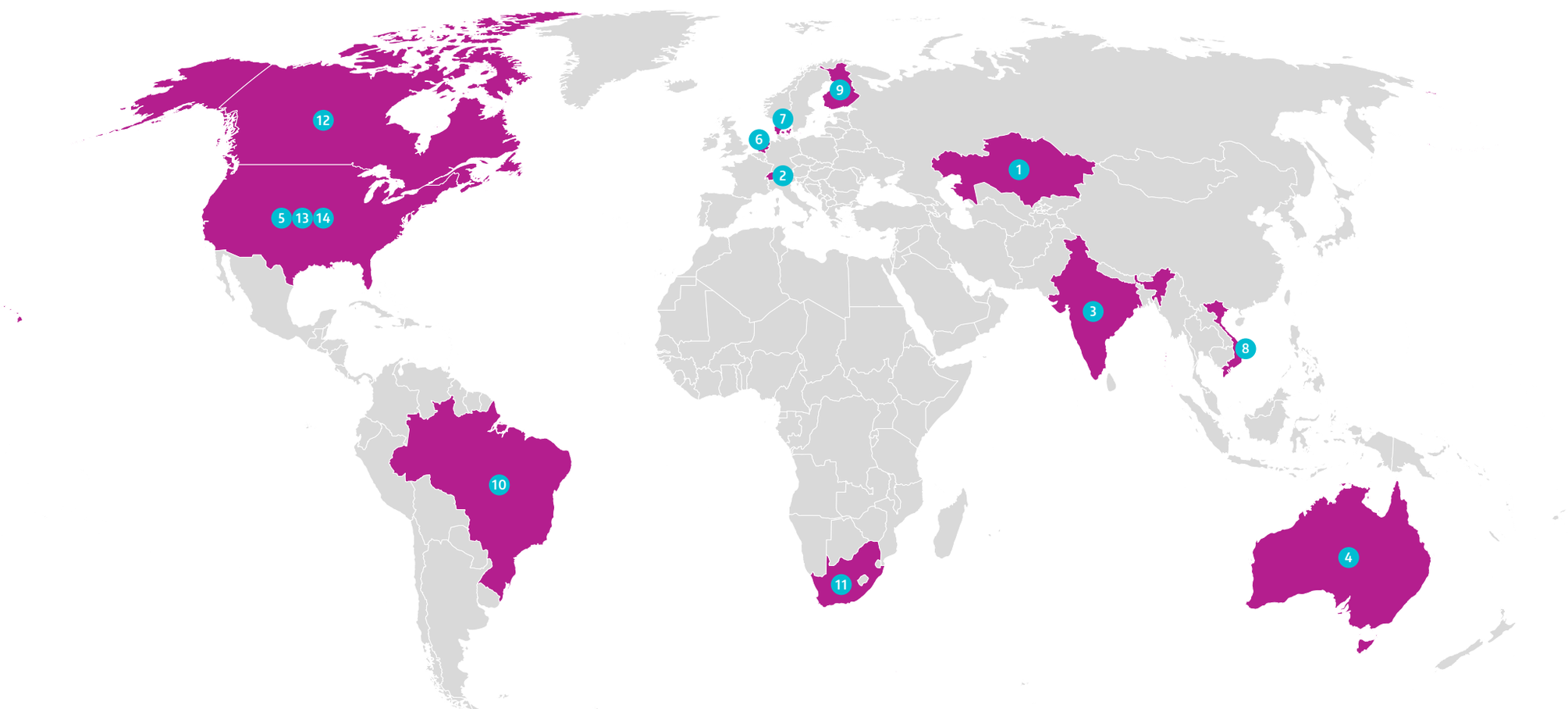
A great number from the 129 innovations submitted to this Spotlight were EdTech innovations. This was foreseeable, as formative assessment requires teachers to collect data and information on students' progress, and digital tools can play an important role in facilitating this process. However, while technology can assist in conducting assessments, the human side of teaching and learning is unquestionable. In other words, in order to make assessment formative, teachers need time to analyse the data produced as evidence of learning and reflect collaboratively with students about their learning journey. Therefore, from the vast plethora of digital platforms submitted to the Spotlight that help teachers collect data about student performance, we have chosen those innovations that build structures to intentionally facilitate formative assessment, enhancing student agency and supporting teachers in the implementation process of these innovations.

OVERVIEW OF SELECTED INNOVATIONS

With the help of the Advisory Board, HundrED and the Jacobs Foundation selected 14 innovations across 12 countries spanning almost all the continents. These innovations highlight the focus currently being placed on formative assessment as an essential aspect for learning. In this collection, there is a strong representation of EdTech tools for formative assessment, as well as classroom practices and school models that are scalable across different contexts. Innovations focusing on teacher professional development to implement formative assessment are also included in this collection, highlighting the importance of teacher training to make assessments formative.

Photo provided by The Modern Classrooms Project.

INNOVATIONS ON A MAP



1 BEING A PROACTIVE TEACHER IN FORMATIVE ASSESSMENT
2 CLASSTIME
3 KADAM – THE STEP UP PROGRAMME
4 MATHS PATHWAY
5 NAVIGATED LEARNING COLLABORATIVE
6 PEER FEEDBACK USING COMPARATIVE JUDGMENT
7 PEERGRADE
8 PROCESS-ORIENTED CHILD MONITORING (POM)
9 QRIDI
10 SAPIENTIA
11 SIYAVULA
12 SOCRATIVE
13 THE MODERN CLASSROOMS PROJECT
14 WESTED'S FORMATIVE INSIGHTS

Figure 6.
Selected innovations by continent of origin

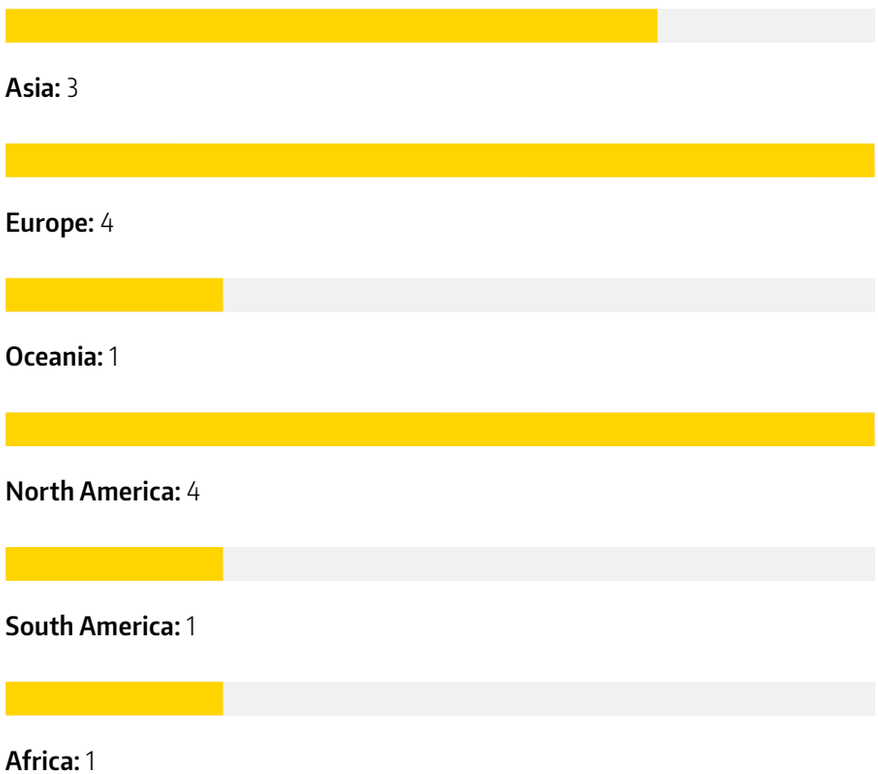


Figure 7.
Selected innovations grouped by income level according to The World Bank's Income Classification.

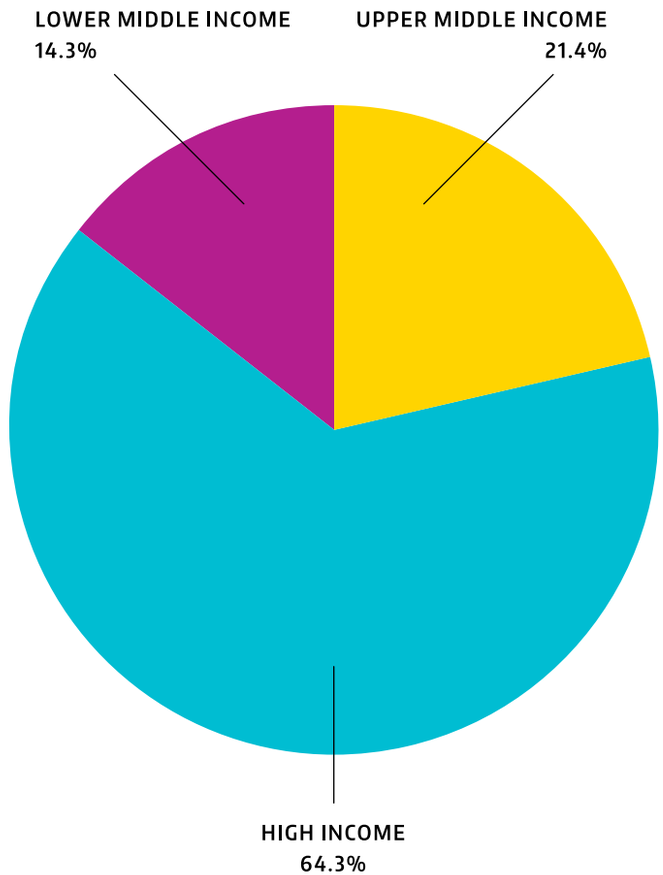


Figure 8.
Selected innovations by organisation type.

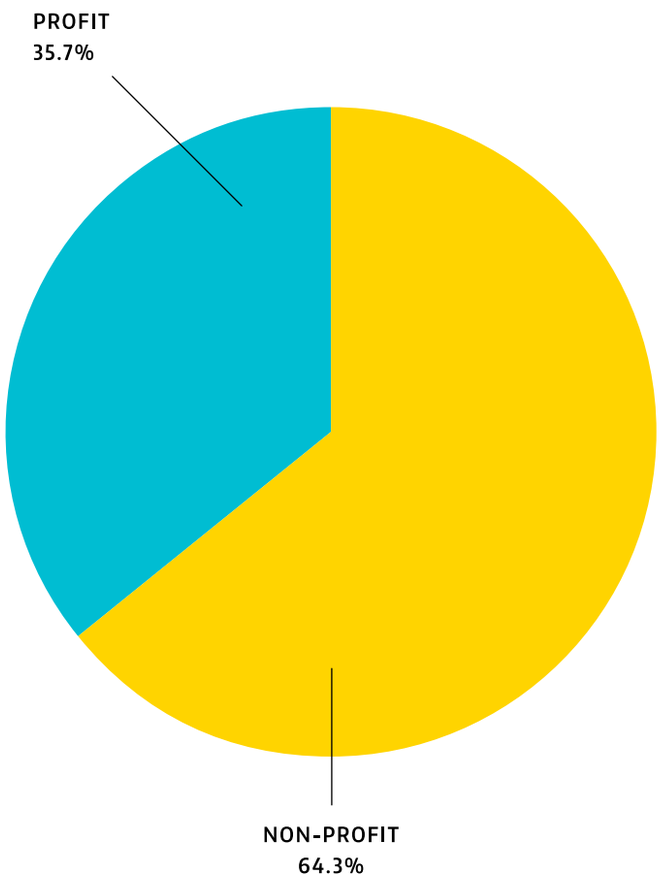
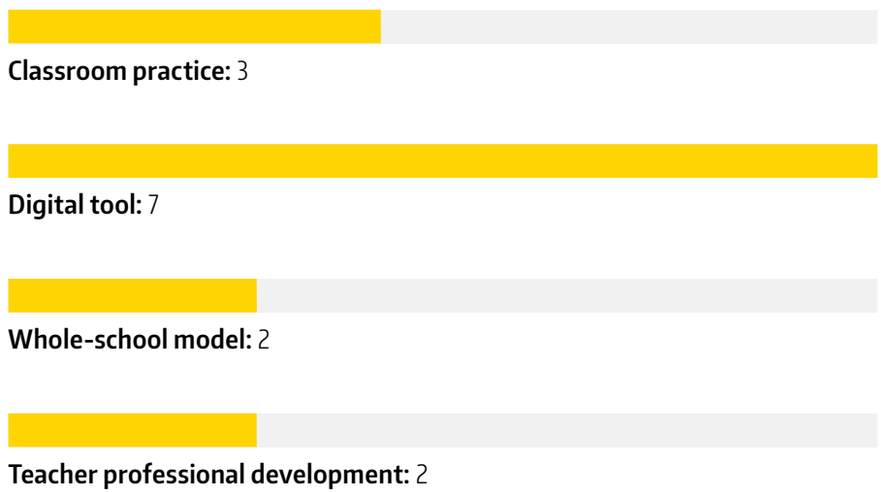


Figure 9.
Selected innovations by category



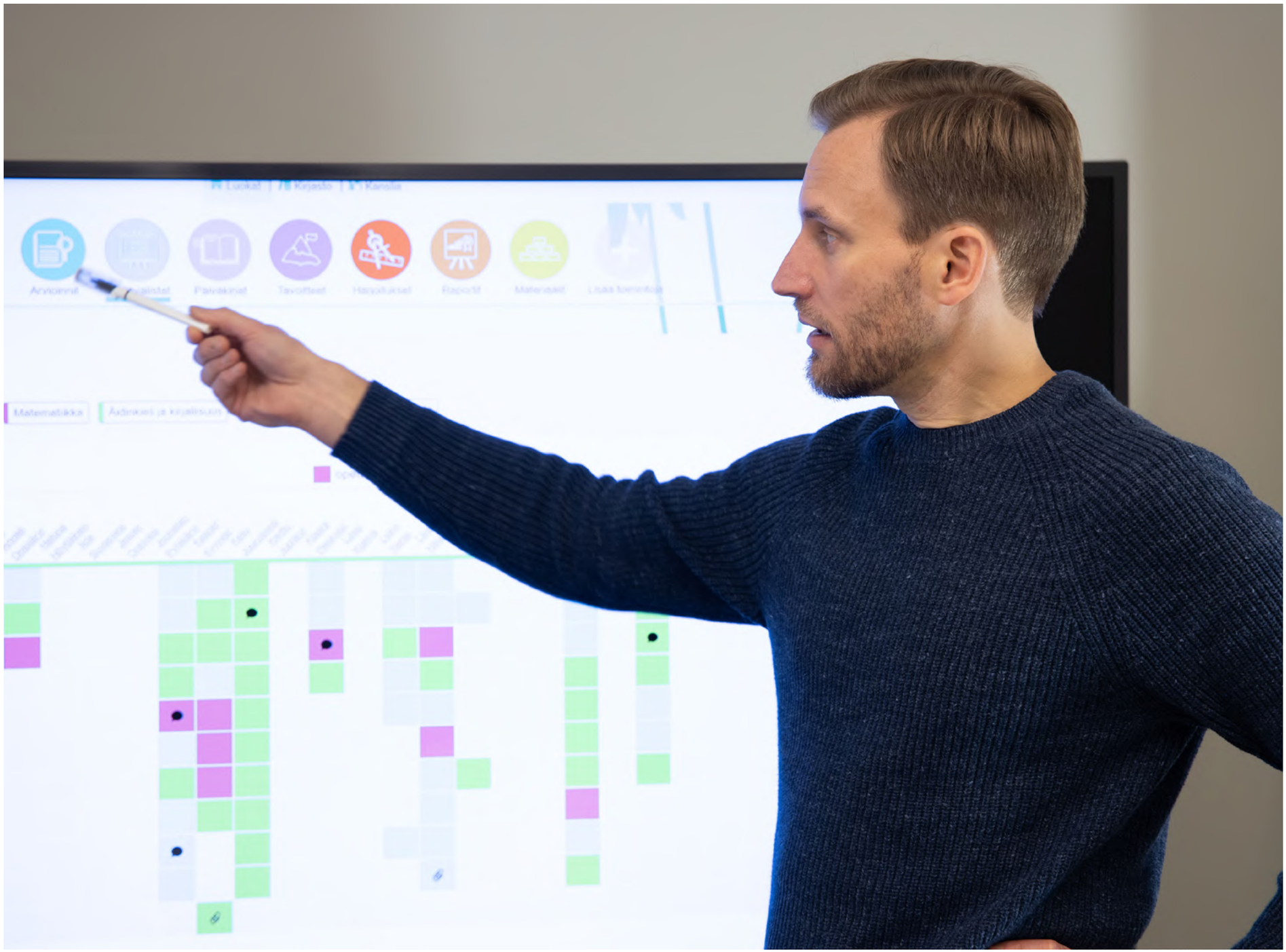


Photo provided by Qridi.

VISIT THE WEBSITE

Photo provided by Nazarbayev Intellectual Schools.

Developing proactive cards for teachers to implement formative assessment at the classroom level.

Being a Proactive Teacher in Formative Assessment

Kazakhstan

Nazarbayev Intellectual Schools have established an experimental platform for the development, research and implementation of modern education models by level. This innovation addresses teachers' knowledge on formative assessment into real action for the best interest of the child. The result of this initiative has led to the research of effective teacher resources for formative assessment, developing effective solutions to prepare teachers to plan and act in order to build a culture of classroom-based formative assessment.

2018	15 000	1
YEAR OF ESTABLISHMENT	CHILDREN / USERS	COUNTRY

WHY WAS THIS INNOVATION CREATED?

In the context of the curriculum reform in Kazakhstan for the implementation of a criteria-based approach to assessment, formative assessment has become an innovative practice for teachers. However, statutory formalisation of formative assessment in the country's education policy has not fully induced a substantive change in classroom-based assessment practices because formative assessment concepts often appear to conflict with the early beliefs and experience of teachers.

HOW DOES THE INNOVATION WORK IN PRACTICE?

A detailed framework and twenty-four proactive cards have been developed to help teachers plan and hold lessons focused on various elements of five formative assessment strategies, according to the theory of formative assessment by Black and Wiliam[28]. Each card is designed to ensure that when planning methods of working in class, the teacher begins to act more consciously and purposefully reflecting on conditions and outcomes of formative assessment implementation. Proactive cards consist of two sections. The first section 'Lesson Planning' is defined by the teacher, it includes learning goals, assessment criteria, levels of thinking, items and descriptors that allow to identify contextual materials for lessons. The second section 'Lesson Arrangement' covers planning activities in the classroom. The use of proactive cards is not oriented towards immediate short-term results; instead, teachers need to focus on potential long-term consequences related to building a culture of formative assessment where students become active participants in their learning.

HOW HAS IT BEEN SPREADING?

This project was created in 2018 based on the experience of 20 Nazarbayev Intellectual Schools across the country. Currently, the resource is publicly available to all Kazakhstani teachers in Kazakh, Russian and English.

RESEARCH

Academy review sample scalability

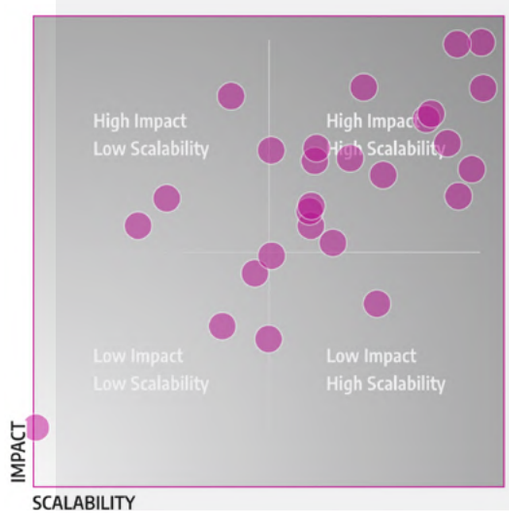
The tool seems highly scalable because it doesn't require digital devices or internet connectivity. I highly appreciate that the innovators have made the tool publicly available, enabling all schools in Kazakhstan to benefit.

Academy review sample impact

This approach gives teachers practical suggestions on how to incorporate formative assessment strategies, a choice in which strategies they'd like to try, a guidance on lesson planning that includes effective strategies and helpful feedback for adapting.

HundrED Review

Nazarbayev Intellectual Schools and their Centre for Pedagogical Measurements developed this excellent initiative to implement a criteria-based approach focused on formative assessment. The model is impactful and has proven to be scalable across different regions in Kazakhstan. In addition, it is accessible, free of charge and easy-to-use for every teacher across the world.



CONTACT: https://www.nis.edu.kz/en / saule_soltangazina@mail.ru

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Photo provided by Classtime.

Immediate feedback for more motivated students and critical thinkers.

Classtime

Switzerland

Classtime is a solution for teachers that complements in-class teaching with immediate feedback on every student's level of understanding by asking questions and validating answers. Furthermore, Classtime's Collaborative Challenges enable teachers to create a narrative around their lesson plan that motivates students to work together towards a common goal.

2017	10 000 000	86
YEAR OF ESTABLISHMENT	**CHILDREN / USERS**	**COUNTRIES**

WHY WAS THIS INNOVATION CREATED?

The classroom experience is core to the education path of every child, yet classroom learning delivers massively below potential. In many classrooms we observe kids that are not engaged enough, not everybody participates, learning is not actively applied. We believe that technology can play a strong role in addressing these issues, by introducing fun yet competency oriented formative assessments.

HOW DOES THE INNOVATION WORK IN PRACTICE?

Teachers create their own questions, collaborate on question banks, or import public or curated question banks from other teachers or publishers. They activate question sets tailored to their curriculum as sessions for the students. Sessions can come in various forms, e.g., classic formative assessments, pre-knowledge checks, exit tickets, homework, self-study or autonomous learning, digital exams, and more exotic use cases like collaborative games, digital escape rooms, sessions fostering discussion and debate, journaling, etc. Students then solve the sessions on their own devices or on a shared device. The results are generated in real-time and can be made available to the students. Teachers obtain a diagnostic on the learning progress of students in real time and can adapt their teaching to the level of understanding of the class.

HOW HAS IT BEEN SPREADING?

Classtime has reached 10,000,000 students and registered 170,000 teachers across more than 50 countries so far. The goals for the next 2 to 3 years include further improving the product by incorporating more detailed feedback (rubrics, more possibilities of free text), building content partnerships, and continuing to scale up, implementing the solution to numerous federal states in Germany, districts in the US, deepening the reach in Europe and other countries.

RESEARCH

Academy review sample scalability

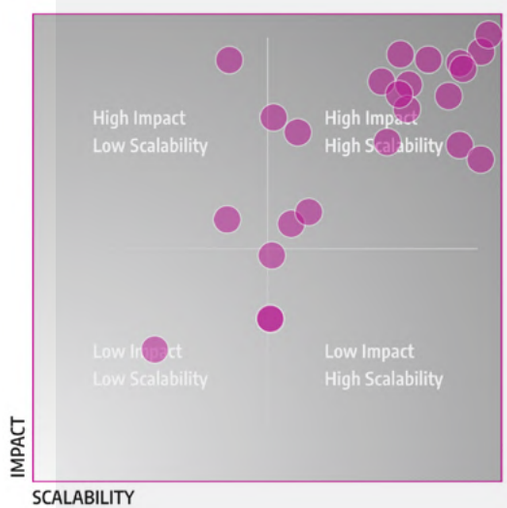
By offering immediate feedback and making learning visible, Classtime can complement both traditional and online teaching. The tool is carefully designed to enable teachers to administer various types of assessments and monitor progress.

Academy review sample impact

This innovation provides the teacher an easy tool for formative assessment. It has a user-friendly access to ready-made materials as well as an easy way to create your own questions. The teacher can follow the students' performance in real-time.

HundrED Review

Classtime is an interactive and easy-to-use assessment innovation in which teachers can track student progress through quizzes, games and other tasks. Students have access to their learner profile, where they can review their own results organised into formative assessment sessions. The Collaborative Challenges increase in-class interaction between students and teachers and promote the development of communication skills, teamwork and creative thinking.



CONTACT: https://www.classtime.com/en / team@classtime.com

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Photo provided by Humana People to People India (HPPI).

Letting children be the drivers of their own learning.

Kadam – The Step Up Programme

India

Kadam - The Step Up Programme is a comprehensive set of tools and techniques to enable children to close their learning gaps, and for teachers to guide and facilitate the learning process. Each child is assessed to determine their entry point with age as the determinator for achieving learning level goals. Continuous and formative assessments are integrated as a participatory part of the learning system.

2014	200 000	1
YEAR OF ESTABLISHMENT	CHILDREN / USERS	COUNTRY

WHY WAS THIS INNOVATION CREATED?

With the Right to Education Act 2009, schooling for ages 6-14 years became compulsory in India and required collective efforts from the state, communities and other organisations to bring out-of-school children under the umbrella of mainstream education. To address this, Kadam was developed by Humana People to People India (HPPI) as a learning enhancement program.

HOW DOES THE INNOVATION WORK IN PRACTICE?

The focus of primary education in India is multifold and Kadam helps in catering to a large number of children for age appropriate school integration and providing simpler tools to achieve learning progression taking into account limited internet accessibility in many areas. Kadam caters to multi-graded classrooms where children are at different learning levels, providing accelerated learning to bridge learning gaps wherein core competencies are addressed to build a strong foundation to further learning. Holistic development of children is key for their cognitive progression and socio-emotional well being, including experiential learning for real life and long lasting learning. Kadam provides adaptive assessments, which are individualised for every child.

HOW HAS IT BEEN SPREADING?

Since 2014, Kadam has been successfully implemented in 9 states of India, and catered to the learning needs of more than 200,000 children. Kadam's teaching-learning strategy has been adapted and adopted by primary school teachers to plug the learning gaps in children to achieve age appropriate learning. The flexibility in the Kadam model is instrumental in its varied implementation which has been found to be advantageous for children who have no access to education, have access to schools but are not enrolled, are enrolled in schools but do not attend regularly, have dropped out of schools, or are in regular schools but do not have age appropriate learning level.

RESEARCH

Academy review sample scalability

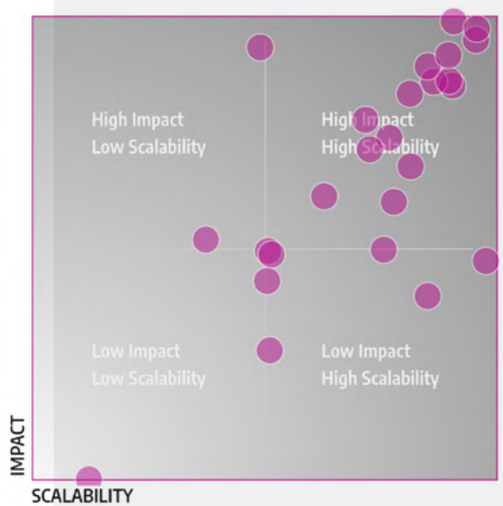
In my context (Bhutan), the education system also strives for education for all and the toolkit considering the age level, multigrade, and focus on holistic development would be a great help for many Bhutanese schools with shortage of teachers or resources.

Academy review sample impact

Well, no words to say - Education for all that can't access school due to poverty and other sociology-economic reasons. This Kadam program certainly carries the Act - Right to education.

HundrED Review

Kadam's Step Up Programme determines diverse learning levels for students and the corresponding learning gaps according to formative assessment methodologies. When students that have been out-of-school are included in the programme, their entire learning process is monitored on a regular basis. Therefore, formative assessment is a strong component of this programme and helps children receive education adapted to their needs.



CONTACT: https://www.humana-india.org / info@humana-india.org

VISIT THE WEBSITE

Photo taken by Jussi Hellsten, Helsinki, 2019.

Maths Pathway is a Learning and Teaching Model that is doubling the rate that students learn maths.

Maths Pathway

Australia

Maths Pathway is a holistic Learning and Teaching Model that leverages technology to enable teachers to target each student's point of need, and allows them to focus on practices that have the greatest impact on student learning. The model is currently available for Year 5 – Year 10 students, and has proven success in a broad range of school contexts.

2013	80 146	1
YEAR OF ESTABLISHMENT	CHILDREN / USERS	COUNTRY

WHY WAS THIS INNOVATION CREATED?

Maths Pathway was created from the vision of a world where every student experiences growth and success in maths despite their socio-economic background or current level. The model works by helping students from wherever they are in their learning journey as well as supporting teachers to deliver personalised learning.

HOW DOES THE INNOVATION WORK IN PRACTICE?

The Maths Pathway Learning and Teaching Model is an approach to structuring, teaching and learning mathematics. First, structuring: each school term is typically structured to include four fortnightly learning cycles, where students are learning different mathematics both individually and in small teacher-led groups. Learning cycles conclude with a formative assessment that identifies which parts have been achieved and which are yet to be achieved. Preparation for the next learning cycle forms an important bridge, including student-led reflection, teacher feedback and goal-setting. Second, teaching: teachers have access to student data, which informs how they can support student learning and provide targeted instruction. The data provides visibility of what students are learning, what they can work on next, and automatically groups students who are ready to learn new concepts together. Third, learning: in addition to helping students develop their mathematical competencies, Maths Pathway strives to help students become good learners. The model provides opportunities for students to develop soft skills such as collaboration, self regulation, creative problem solving. Discourse between students gives them the opportunity to articulate their mathematical ideas, challenge the thinking and understand mathematics from another person's point-of-view.

HOW HAS IT BEEN SPREADING?

Seven years later, what started from two teachers has now scaled to 3700 teachers and 363 partner schools around Australia. What was created was not just a Learning and Teaching Model but rather a movement to improve the quality of maths education for every student in Australia.

RESEARCH

Academy review sample scalability

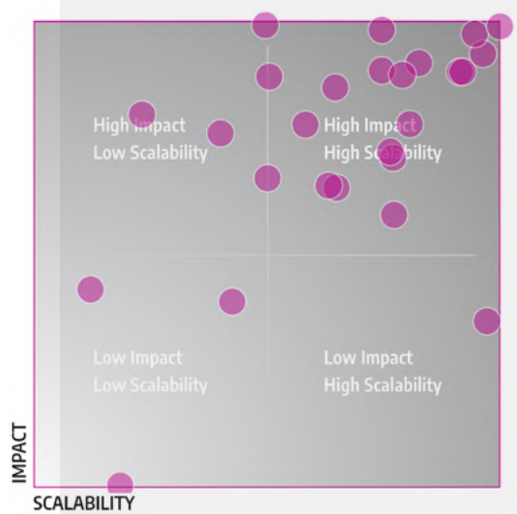
Given adequate professional development for teachers, technical prerequisites, and an educational environment open for data oriented approaches, this innovation could be sustainably adopted to a high standard in a great variety of contexts.

Academy review sample impact

The model has a clear path starting from teaching, followed by projects that are led by individual /pair/groups and followed by student-led reflection. In addition, keeping record of all these including formative assessment results as data is great.

HundrED Review

Maths Pathway is an innovative learning and teaching model that is helping change maths classrooms across Australia. This innovation collects data on student performance to provide a personalised learning experience to every student. Formative assessment is an important element in this process as it helps teachers adapt their practice and students monitor their own learning process and take ownership of their learning journey.



CONTACT: https://www.mathspathway.com / partnerships@mathspathway.com

VISIT THE WEBSITE

Photo provided by Navigated Learning Collaborative.

Enabling every child to learn at their own pace and attain mastery.

Navigated Learning Collaborative

United States

Navigated Learning Collaborative is powered by Gooru Navigator, which is a tech platform that enables all stakeholders in the education ecosystem to work together by providing access to continuous, real time student learning data, aligning their efforts backed by evidence on how learning happens. The platform gathers accurate data on every learner's needs and provides information and curated resources to chart adaptive learning paths.

2018	7 213 257	14
YEAR OF ESTABLISHMENT	CHILDREN / USERS	COUNTRIES

WHY WAS THIS INNOVATION CREATED?

The Navigated Learning Collaborative developed out of an understanding that the current education system does not recognise that learning is complex, learners are diverse and ecosystems are intricate. It was thus important to provide teachers with accurate data locating a student's current learning level to help them move on an individualised plan to reach their learning destination.

HOW DOES THE INNOVATION WORK IN PRACTICE?

Through collaborative learning networks, teachers are oriented on principles of navigated learning and the use of the Learning Navigator platform. All learning is broken down into its constituent building blocks; competencies. These are mapped to global standards and crosswalked between varying local standards so that there is a singular map of all competencies that can be used by anyone. Teachers can access assessments and learning resources tagged to competencies and assign them to students through either online or offline mode based on their access to devices and connectivity. Gooru Navigator enables teachers to analyse data in the moment and obtain information to tailor instruction to student needs. This helps the learners navigate from the competencies they have mastered to the competencies set in their learning goals.

HOW HAS IT BEEN SPREADING?

The collaborative combines the systemic approach to transformation of public education implemented by India Education Collective and Gyan Prakash Foundation, with the data science and AI enabled Learning Navigator developed by Gooru. The platform is being used by 7 million learners in 23 countries, with a focus on providing a foundational tool for anyone in the Navigated Learning Collaborative (NLC) to take it to the whole learning ecosystem. The NLC comprises 63 global organisations from early childhood, K12 to professional learning and skills training. In India, through partnership with state education departments, it is being scaled in rural public schools across 6 states.

NLC has led to the creation of a new initiative, Navigator Disha, which arose from the needs of working with public schools in rural India, enabling the navigator to function in an offline mode and contextualising the Learning Navigator to incorporate multiple local languages. Navigator Disha has been piloted in the states of Maharashtra, Goa with 150 teachers and 6000 students.

RESEARCH

Academy review sample scalability

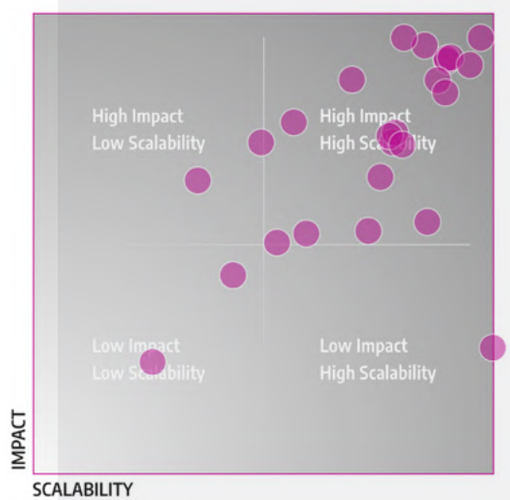
This innovation could be implemented in my context because both assessments can be accessed online or offline. The paid option is also affordable and the users receive continuous support.

Academy review sample impact

Navigated Learning Collaborative makes provision for the development of individualised plans to address learners' diverse needs. In addition, it assists learners to navigate learning and enables teachers to create helpful learner profiles.

HundrED Review

The Navigated Learning Collaborative is an innovative collective of practitioners using the Gooru education software to develop a comprehensive method of engaging teachers and learners in a process of formative assessment. They take a unique ecosystem approach to collecting student data, enabling the teacher to radically rethink the relationship between assessment and learning.



CONTACT: http://gooru.org / info@gooru.org

VISIT THE WEBSITE

Photo provided by IBO.

By International Baccalaureate and Harding High School.

Peer Feedback using Comparative Judgement

Netherlands

This innovation focuses on the pedagogical design of peer feedback using comparative judgement. Built on 4 years of research and design of effective practices in formative assessment at the International Baccalaureate (IB), the current study explores the impact of this approach on students' holistic learning and development. Teacher observations and initial analyses of student work have reported very promising findings.

2017	1 000	2
YEAR OF ESTABLISHMENT	CHILDREN / USERS	COUNTRIES

WHY WAS THIS INNOVATION CREATED?

How wonderful it is to be in a classroom full of curious, reflective and internationally minded learners whose way of learning is by inspiring each other to grow and develop through peer feedback? This formative assessment approach is designed to promote student agency and collaboration in the classroom and to develop students' evaluative judgement and understanding of "what is good".

HOW DOES THE INNOVATION WORK IN PRACTICE?

Comparative judgement is an alternative assessment method that draws on the principle that people are generally better at making comparisons between two pieces of work, rather than making absolute judgments on quality. This method is now adapted as a valuable peer assessment tool for sharing feedback and to develop students' tacit knowledge about "what is good".

This innovation focuses on the pedagogical design of peer feedback and the formative assessment cycle, rather than the technology or psychometrics of comparative judgement. Teacher observations and analyses of student work suggested that students taking part in this innovation have improved in their higher order thinking skills in literature. More importantly, teachers have reported higher levels of collaboration, student agency, motivation and international mindedness among their students.[29]

HOW HAS IT BEEN SPREADING?

With the lead of two wonderful DP Literature teachers, Erik Brandt and Andrew Pastor, this approach is currently being piloted at Harding High School, Saint Paul's Public Schools in Minnesota, United States, supporting over 70 Diploma students across grade 11 and 12. The findings of this study will inform the development of IB teacher support materials and the next stage of the project, with the hope to reach out to over 5000 IB World Schools located in 150 countries across the world.

RESEARCH

Academy review sample scalability

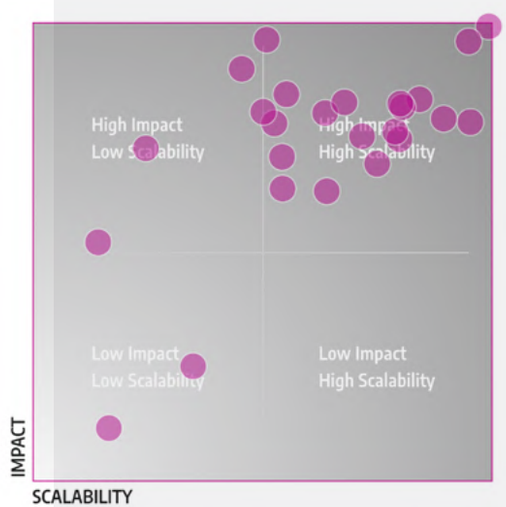
With the proper teacher and learner training, this is an innovation that can be put in place across an entire school district. From very young learners to seniors, all students, if led properly, could certainly benefit from this type of assessment.

Academy review sample impact

"Peer Feedback using Comparative Judgement" is an innovative methodology to promote peer assessment and peer learning which are very important for formative assessment and formative learning. It can help students to perform their tacit knowledge.

HundrED Review

Peer Feedback and Comparative Judgement are innovative methods that can be used for formative assessment. This practice is heavily impactful as students learn how to assess peers and themselves, enhancing their agency and increasing motivation.



CONTACT: https://ibo.org / https://www.spps.org/harding / wendy.choi@ibo.org

VISIT THE WEBSITE

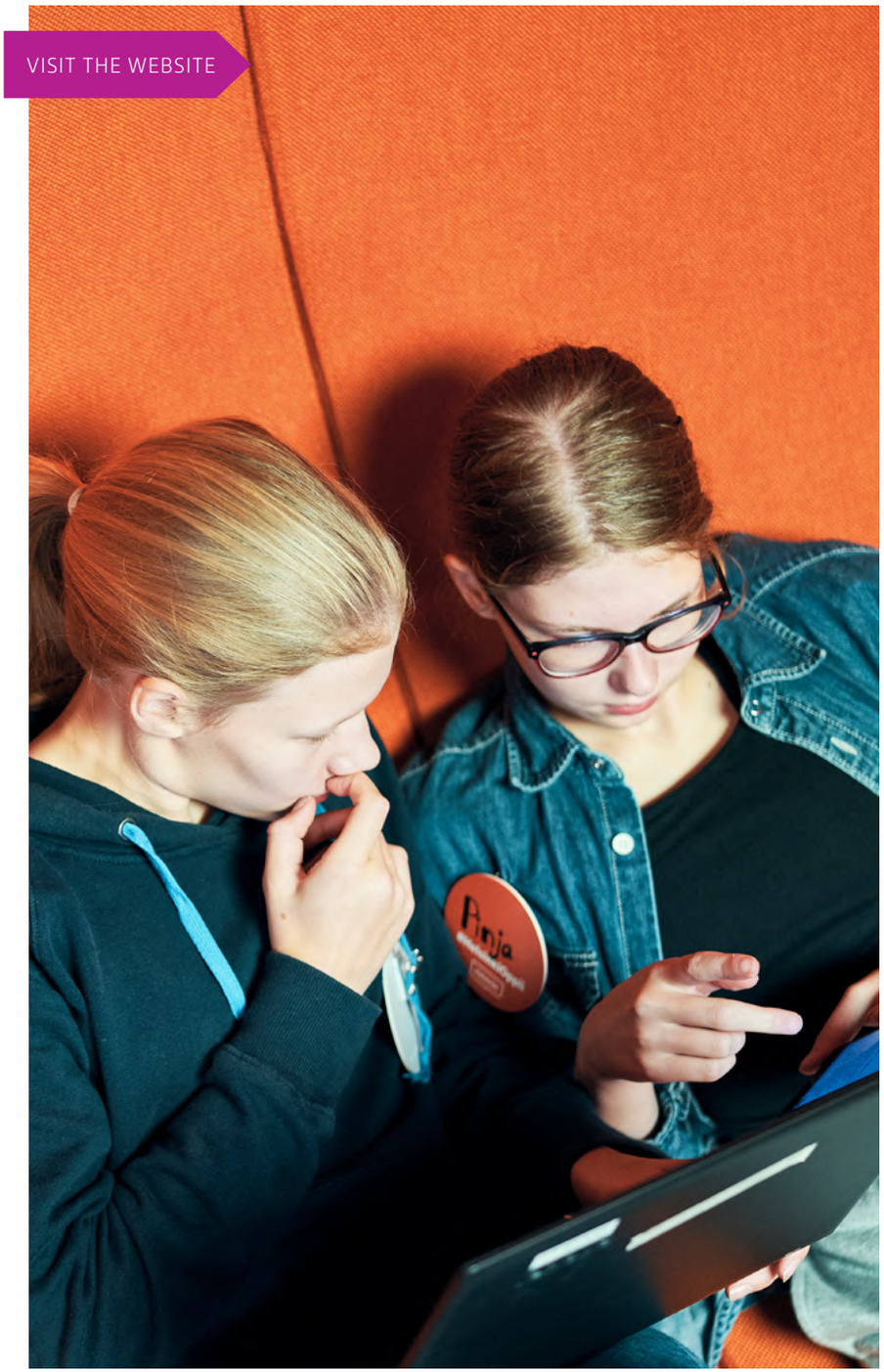


Photo taken by Jussi Hellsten, Helsinki, 2019.

Peergrade is a free online platform to facilitate peer feedback sessions.

Peergrade

Denmark

Peergrade is an online platform that facilitates anonymous peer feedback. With Peergrade students get faster and better feedback while engaging in higher order thinking. Features in Peergrade such as flagging and feedback rubrics ensure that students get the best feedback possible and scaffold the process of peer review. While teachers get a full overview of submissions, feedback, and results.

2015	9
YEAR OF ESTABLISHMENT	**COUNTRIES**

WHY WAS THIS INNOVATION CREATED?

Peer feedback is an impactful method for learning! It is an easy, accessible way to learn and build skills that will serve students long after they leave educational institutions. Students learn important communication skills and train their critical thinking through dialogue.

HOW DOES THE INNOVATION WORK IN PRACTICE?

Peergrade gives students an amazing learning experience with faster and more thorough feedback while saving teachers time. Peer feedback is a way to dramatically reduce the time spent on tedious grading while increasing the quality of feedback. At the same time, peer feedback is a great way to train critical thinking and get a deeper understanding of the subject matter. For teachers, Peergrade offers data about student performance on a class and individual level, including insights about the evaluation rubrics used and the quality of feedback provided.

HOW HAS IT BEEN SPREADING?

After the feedback received by teachers and students, Peergrade has evolved to a new EdTech tool that is now available for free at eduflow.com. Among other educational purposes, Eduflow can also be used for online peer review learning and formative assessment.

RESEARCH

Academy review sample scalability

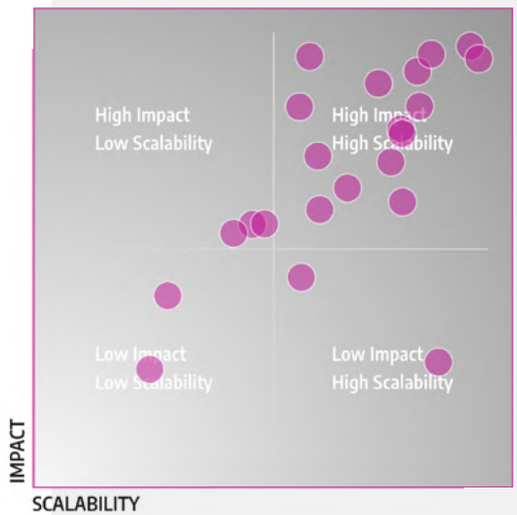
It has a huge potential for use in various stages of school education starting from primary to university and beyond. It could be a great tool also for teacher professional development.

Academy review sample impact

It is a valuable tool that can promote important skills beyond school such as collaboration, communication, critical thinking, and self-assessment. It is designed in such a way that it makes giving peer feedback easy and meaningful.

HundrED Review

Peergrade is an innovative digital tool that gives teachers an overview of student progress while students can self-evaluate their own progress. Both giving and receiving peer feedback are great methodologies for supporting student learning. This EdTech innovation is well-designed and easy-to-use, which facilitates implementation and makes it scalable.



CONTACT: https://www.peergrade.io / info@peergrade.io

VISIT THE WEBSITE

Photo provided by VVOB, the Flemish Association for Development Cooperation and Technical Assistance.

All it takes for a teacher is to know the children and respond to their needs.

Process-Oriented Child Monitoring (POM)

Vietnam

Monitoring children's wellbeing and involvement in class, identifying children at risk of not learning, allows early childhood teachers to reflect on their teaching and to adapt their methods of instruction. Empirical evidence from Vietnam shows that this leads to significant increases in a wide range of child development domains, including health behaviour and socio-emotional development.

2016	98 740	1
YEAR OF ESTABLISHMENT	CHILDREN / USERS	COUNTRY

WHY WAS THIS INNOVATION CREATED?

Promoting active teaching and learning is a key challenge in Vietnam's early childhood education (ECE) system. Teaching practice in ECE remains mostly teacher-centred and many ECE teachers fail to actively and meaningfully engage their learners, leading to low learning outcomes. School leaders and education officials are not equipped to provide adequate professional trajectories for teachers.

HOW DOES THE INNOVATION WORK IN PRACTICE?

Process-Oriented Child Monitoring (POM)[30] is a formative assessment system used by VVOB (the Flemish Association for Development Cooperation and Technical Assistance) in professional development programs for ECE teachers in Vietnam. Using two 5-point scales, ECE teachers systematically observe and assess all learners 'Wellbeing' (WB) and 'Involvement' (INV), with either a simple paper-based or app-based tool. Based on this assessment, teachers identify children at risk of not learning, reflect on their own teaching practice and on the possible reasons that might be withholding children from learning and meaningful participation. Teachers reflect both individually and as a team, and are supported by their school leaders as well as education officials. Using 8 action points based on experiential learning, teachers facilitate changes in teaching to increase children's WB & INV. Evidence from 3 provinces in Vietnam shows that using POM leads to increases in a range of child development outcomes, including health behaviour and socio-emotional development.[31]

HOW HAS IT BEEN SPREADING?

POM was developed at the Center for Experiential Education at Leuven University, Belgium and has been used by VVOB in Vietnam since 2016. Following a successful pilot in 2016, POM was initially implemented in 3 provinces of Vietnam as part of VVOB's 2017-2021 programme, titled Mitigating Preschool Children's Barriers to Learning in Disadvantaged and Ethnically Diverse Districts, or the BaMi programme, reaching 2,879 ECE teachers and 47,267 children. Recently, POM implementation in BaMi has been expanded to 6 additional provinces of Vietnam, reaching 104 teachers and 3,120 children.

RESEARCH

Academy review sample scalability

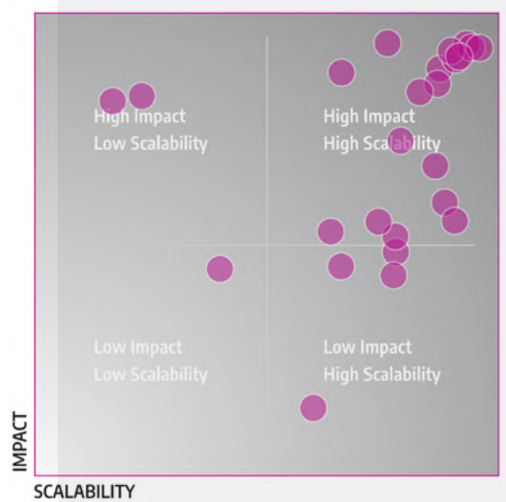
Through simple teacher training and use of accessible and rather quick to fill in questionnaires this innovation can be adopted by virtually any school interested in changing perspectives on how/what to evaluate.

Academy review sample impact

A nationally-implemented innovation focused on formative assessment of early childhood students' wellbeing and engagement is a good contribution towards a new paradigm in formative assessment as we know it.

HundrED Review

This innovation implemented by the VVOB team in Vietnam is extremely impactful for their strong partnership with state schools at the national level. Formative assessment is an important part of this model that adapts educational practices to the particular needs and interests of children, who become owners of their learning journeys.



CONTACT: http://www.vvob.org / hans.degreve@vvob.org

VISIT THE WEBSITE

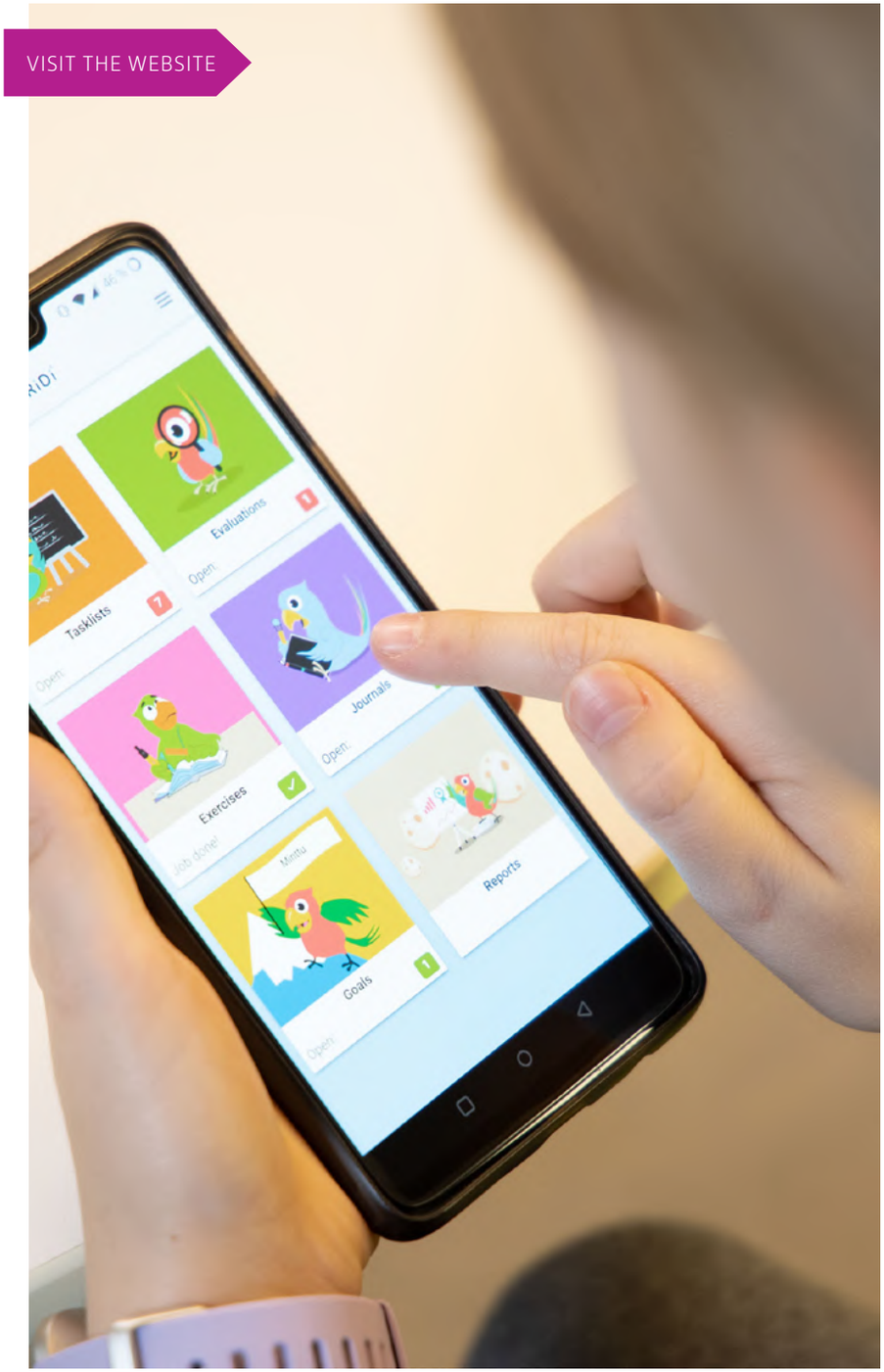


Photo provided by Qridi.

Qridi is an easy-to-use, learner-centred, inspiring digital platform for formative assessment and learning analytics.

Qridi

Finland

Qridi encourages learners and teachers to look at learning and progress as a group and as individuals. Learning is planned and monitored under the teacher's guidance, future skills are strengthened and personal strengths identified. The learning journey is recorded and made visible with the help of different functionalities. The resulting data acts as an instrument for dialogue in learning.

2015	65 000	10
YEAR OF ESTABLISHMENT	CHILDREN / USERS	COUNTRIES

WHY WAS THIS INNOVATION CREATED?

Qridi is a digital platform for learners and teachers, which helps schools sustain a new type of an assessment culture. Qridi was developed to create an easy-to-use tool that would enable students to plan and monitor their learning while using this journey as a means to motivate and inspire learning.

HOW DOES THE INNOVATION WORK IN PRACTICE?

From the very beginning, Qridi has been developed in close collaboration with teachers and learners at schools and universities. A factor common to all the tools available at Qridi is a visual approach that makes learning and progress visible. The resulting description of the learning journey helps students understand their learning better and target their efforts towards their goals. With Qridi, and under teachers' guidance, learners practice self and peer assessment, learning skills, and other important future skills to help every child find their strengths. For the teacher, Qridi is an excellent work organisation tool as it allows users to store and present data with a wide range of possibilities helping educators direct their efforts according to needs. For the work community, Qridi introduces a common language and operating principle, harmonising the school's assessment culture. There is also a management level user interface, which can be used by principals and heads of local education to implement different programmes in their municipalities or schools. This allows them to monitor impact and progress on a broader scale. Cooperation between the school and home is also promoted through a separate interface developed for parents.

HOW HAS IT BEEN SPREADING?

With the challenges caused by the COVID-19 Pandemic, Qridi proved to be an excellent tool to organise remote learning and the level of activity multiplied 30 times. A new task card function was developed to help teachers deliver tasks and learners submit their resources.

RESEARCH

Academy review sample scalability

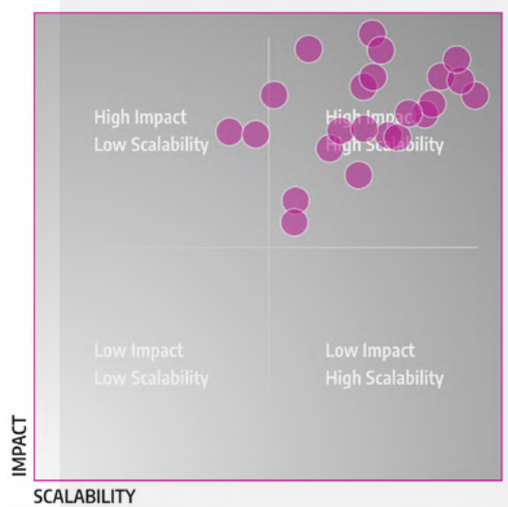
Perfectly applicable to any structure, as it tracks individual processes, it is adaptable to small or large schools and age groups. Qridi allows teachers to adapt to student needs and has the potential to involve all stakeholders too.

Academy review sample impact

Qridi is a powerful learner-centred formative assessment tool. It provides different functionalities that are essentially used for sustainable monitoring of learning to enhance learning trajectory.

HundrED Review

Qridi is an innovative digital platform that supports learners in driving their own learning progress. Qridi can be used by teachers and other education stakeholders to support the students' individual learning plan. Their approach to changing the overall assessment culture is a key aspect of their novel impact as a formative assessment tool.



CONTACT: https://www.qridi.com / henri@qridi.fi

VISIT THE WEBSITE

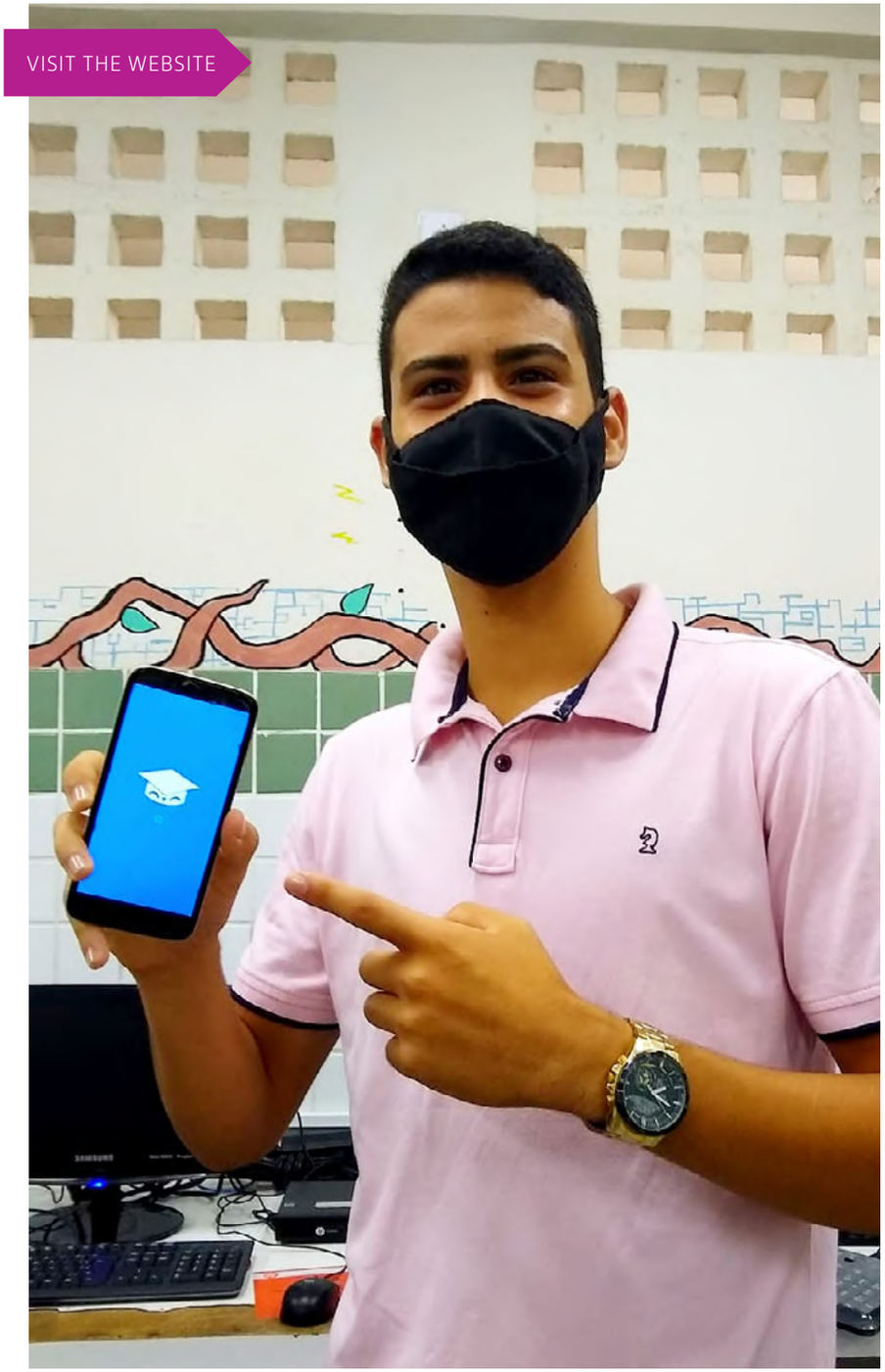


Photo provided by Sapientia.

The power of gamified learning and formative assessment to boost teaching and learning.

Sapientia

Brazil

Sapientia is a gamified application that allows the students to get involved in subject challenges, questions and problem solving, improving the learning process as a playful and engaging activity. It is a tool for formative assessment for teachers, which offers simple and customizable metrics, scores and tracks from students, to increase qualified teaching, learning and self-regulation strategies.

2018	1500	1
YEAR OF ESTABLISHMENT	CHILDREN / USERS	COUNTRY

WHY WAS THIS INNOVATION CREATED?

Sapientia was born from the need of public school teachers to overcome the challenges of keeping students engaged and enhancing formative assessment. The solution gave rise to a platform that enables users to: set out student personal projects; obtain performance metrics; check the progression of studies; promote classroom gameplay and launch challenges aligned with the Brazilian National Common Core Curriculum (BNCC).

HOW DOES THE INNOVATION WORK IN PRACTICE?

In Sapientia, formative assessment is developed through: (1) Setting out students' personal projects: with information about their personal life project. Allowing teachers to see the students' details and design personalised activities. (2) Getting performance metrics: allowing the teacher to "quantify" and "qualitatively analyse" students' action. (3) Checking the history and the progression of studies through the registration and monitoring of pedagogical actions. This data can be accessed by the teacher, student and parents.

Sapientia also includes some gamification functions such as: (1) Gameplay of classroom: As the scoring is recorded in the system, a ranking of the TOP 7 (top seven students in the class) is created as a reward, motivating students by achieving medals and the possibility of defeating a master of knowledge. (2) Challenges: the system allows the teacher to launch challenges, which are associated with the BNCC skills codes and training itineraries.

HOW HAS IT BEEN SPREADING?

It has already been used in tests and validations in schools from Esperança city (BRAZIL). Teachers from Mathematics, Chemistry, Geography, Portuguese Language, Art, History and Biology have participated throughout the years of 2019 and 2020. During the COVID-19 Pandemic, the tool proved to be effective, which also revealed the full potential of the platform in remote learning too. It has currently been used by over 100 teachers and over 1500 students. New features are being prepared, with plans to scale for 10.000 users in 2022.

RESEARCH

Academy review sample scalability

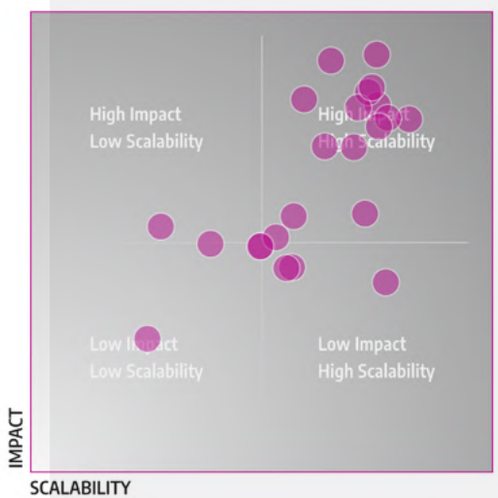
It can be used on a variety of subjects and to test a variety of skills by teachers as well as by students and administrators. This platform can be used for remote learning too which makes it highly scalable.

Academy review sample impact

The ability of students to self-report their success against their goals, macro analytics, gamified system etc. make it an impactful project. The most interesting part is how qualitative and quantitative aspects come together.

HundrED Review

Sapientia combines data analytics with gamification to create a platform that engages students in the social and developmental aspects of learning. The student is able to set their own goals, which is an important aspect of formative assessment. As a formative assessment tool, Sapientia allows students to see their progress and interact with their peers in competitive and collaborative dynamics. In addition, it gives teachers real-time data on the students' progress.



CONTACT: https://www.sapientia.education / sapientiaeduca@gmail.com

VISIT THE WEBSITE

Photo provided by Siyavula.

Technology-powered learning.

Siyavula

South Africa

Siyavula's online practice and open online textbooks answer the need to improve school results in Mathematics, Physics and Chemistry. Designed to work on any internet-enabled device, even low-end mobile phones, this innovation reaches secondary school students wherever they are.

2012	2 000 000	3
YEAR OF ESTABLISHMENT	CHILDREN / USERS	COUNTRIES

WHY WAS THIS INNOVATION CREATED?

Siyavula addresses the poor mathematics performance of secondary school students across Africa. OECD analysis has shown that improvements in Mathematics strongly correlate with economic growth. For African youth to thrive in the future world of work, they require access to effective and scalable interventions that will open the doors to post-school opportunities and in-demand careers.

HOW DOES THE INNOVATION WORK IN PRACTICE?

Siyavula's approach enables mastery-based learning through adaptive feedback and formative assessment over existing mobile infrastructure. This initiative provides access to pedagogically-sound content and instruction in class with practical STEM exercises. Siyavula's world-class software for secondary school Mathematics, Physics and Chemistry optimises a student's learning through practice using a bank of generative questions created by educational specialists. Siyavula's machine-learning algorithm sequences questions appropriately, and incorporates the latest research into cognitive science and motivation. Students are incentivised to take ownership of their own learning, develop a portfolio of their STEM skills, and acquire digital learning skills while in secondary school. The platform enables students to generate a mastery certificate, and connect their portfolio to bursary, internship, further learning, and employment opportunities. The online practice is delivered via any internet-enabled device. Partnerships with Pan-African mobile networks allow students access without needing mobile data.

HOW HAS IT BEEN SPREADING?

Siyavula provides more than two million secondary school students in Africa access to the adaptive learning software and open online textbooks, to develop their Mathematics and Science skills, and improve school performance. Siyavula presents a curriculum-independent structure for self-study, with localised curricula for South Africa, Nigeria and Rwanda. At the moment, Siyavula is mapping the curriculum in Uganda and Ghana as part of their growth.

RESEARCH

Academy review sample scalability

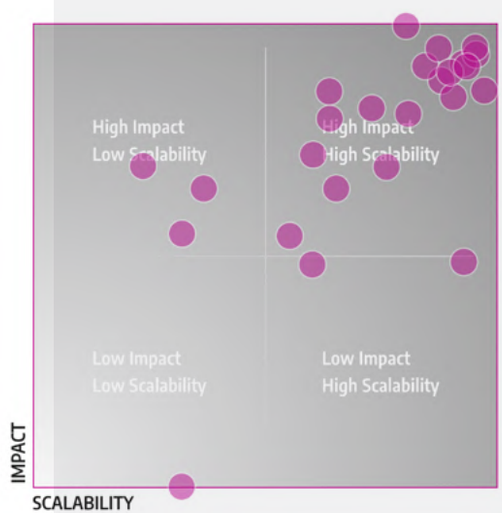
Highly scalable as it offers free/open-access, on mobile network and does not require students to have a data connection. Aligns with maths curriculum in 3 African countries to date; this alignment is essential for government buy-in and scale.

Academy review sample impact

An effective approach enhancing maths learning and structured self-study with adaptive learning software and open online textbooks. Continuous data analysis, assessment of learners' experience and external evaluation ensure a quality approach.

HundrED Review

Siyavula is an excellent digital platform for students to access STEM content and do practical exercises to master their skills. The immediate feedback that this tool offers helps students adapt their learning journey and become active participants of their assessment. This platform also offers students the possibility to set their own goals and define the steps to reach their own potential.



CONTACT: https://www.siyavula.com / alexandra@siyavulafoundation.org

VISIT THE WEBSITE

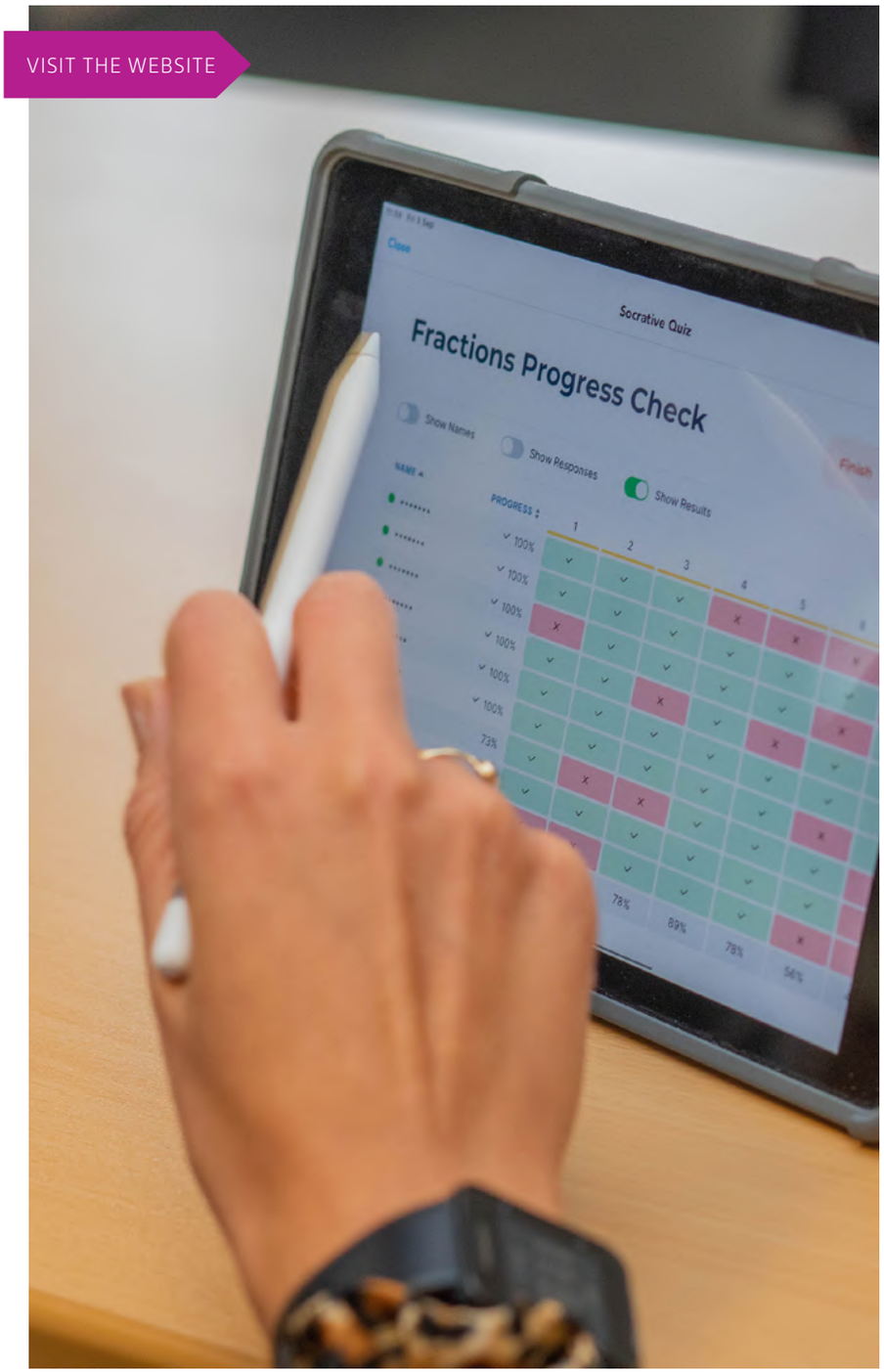


Photo provided by Socrative.

Your classroom app for fun, effective engagement, and on-the-fly assessments.

Socrative

Canada

Socrative is the classroom app for formative and summative assessments that allows teachers to quiz and grade at the speed of learning from any device. With this tool, teachers can analyse student understanding with prepared activities or on-the-fly questions with real-time reports to visualise learning.

2010	2 000 000	20
YEAR OF ESTABLISHMENT	CHILDREN / USERS	COUNTRIES

WHY WAS THIS INNOVATION CREATED?

Formative assessments are best when they are fast, fun and, above all, give useful insights into student progress. Socrative was created to visualize student learning to best equip teachers with the information they need to find learning gaps.

HOW DOES THE INNOVATION WORK IN PRACTICE?

Socrative offers quizzes, surveys, team activities, and content from educators around the world – all in one easy-to-use assessment tool. Teachers can view answers from every student's assessment, as they populate on-screen in real-time. These timely results allow teachers to better identify the needs of their class and close learning gaps. Teachers can then distribute automated reports to each student, helping them self-reflect and make improvements. In 2018 Socrative was acquired by Showbie, the hybrid learning platform for classroom workflow and personalised feedback. With this change came a strong integration between the apps, making it easy to launch a Socrative quiz from Showbie and share Socrative assessment reports back into Showbie, distribute to students, and use rich annotation tools for precise feedback and reflection to deepen learning. Socrative also offers unique time-saving features including the ability to share quizzes between teachers, as well as the ability to create Exit Tickets to gather feedback and student understanding on the day's lesson, so gaps in understanding can be found and addressed as they come up. Lastly, increase student engagement with fun activities that involve the entire class for collaborative learning, using the popular Space Race feature.

HOW HAS IT BEEN SPREADING?

Socrative is an extremely popular tool for formative and summative assessment, and is used by millions of educators across the globe. With updates and new features regularly being added to the platform, it has become THE classroom app for gauging student understanding and visualised learning. Socrative also has a team of educators whose role is to constantly support the success of Socrative in schools around the world.

RESEARCH

Academy review sample scalability

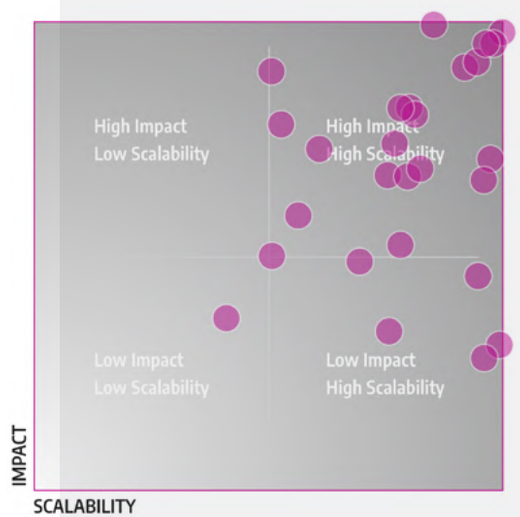
It has a high scaling score because it can be applied at any level of education for the purpose of conducting formative assessment.

Academy review sample impact

This innovation has a high impact score due to its usability for easy conduct of quiz which is an important aspect of formative assessment. Conducting quizzes during teaching can be made so easy with Socrative thereby enhancing formative assessment.

HundrED Review

Socrative allows teachers to create and modify content on the platform, facilitating flexible modification of teaching according to the students' current understanding. The ability to create and share quizzes and exit tickets helps teachers to gain real-time insights into student comprehension.



CONTACT: https://www.socrative.com / info@showbie.com

VISIT THE WEBSITE

Photo provided by The Modern Classroom Project.

We empower educators to meet every student's needs.

The Modern Classroom Project

United States

The Modern Classrooms Project empowers educators to build classrooms that respond to every student's needs. This initiative leads a movement of educators in implementing a self-paced, mastery-based instructional model that leverages technology to foster human connection, authentic learning, and social-emotional growth.

2018	40 000	145
YEAR OF ESTABLISHMENT	CHILDREN / USERS	COUNTRIES

WHY WAS THIS INNOVATION CREATED?

The one-size-fits all model fails to meet many students' needs. The Modern Classroom Project replaces it with a research-backed instructional model that helps teachers leverage technology to foster human connection, authentic learning, and social-emotional growth.

HOW DOES THE INNOVATION WORK IN PRACTICE?

The Modern Classrooms Project has developed a scalable, research-based instructional model built on three core principles:

1. Blended Instruction: Students access content through high-quality video lessons. Teachers are trained to create this content.
2. Self-Paced Structure: Students learn at their own pace within each unit of study.
3. Mastery-Based Grading: Students progress from lesson to lesson only when they have demonstrated true mastery of course material.

In this setting, teachers are continuously collecting formative assessment data. At the end of each lesson, teachers provide students with a formative "mastery check", that evaluates what each student does and does not understand; and use this data to tailor instruction to every students' needs. Besides this, a free online course and an intensive Virtual Mentoring Program are offered, through which experienced educators using the Modern Classroom model train teachers on how to use this mastery-based formative assessment approach in their practices, to ensure all classrooms are responding to what each child needs and knows.

HOW HAS IT BEEN SPREADING?

The Modern Classrooms movement began with 8 teachers in the Washington, DC area in 2018. Since then, over 40,000 educators from 140+ countries have enrolled in its free online course (learn.modernclassrooms.org), and nearly 6,000 educators have been empowered through its Virtual Mentorship Program. University researchers surveyed teachers and students using the Modern Classrooms model, finding "overwhelming positive support" for the approach. The Modern Classroom movement continues to grow by the day, as educators worldwide seek ways to respond to students' unique needs.

RESEARCH

Academy review sample scalability

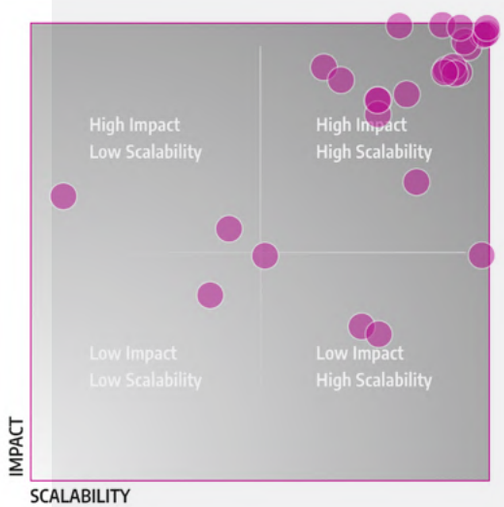
Its self paced structure, blended instructions and mastery based grading system could prove to be high on scalability. Moreover they provide free trainings and support to the teachers that are going to help the teachers and students equally.

Academy review sample impact

This innovation is impactful because it offers a learning environment that can be flexibly tuned to the needs of individual students, encourages independence and allows teachers to play an active role in coaching their students through material.

HundrED Review

The Modern Classrooms Project is a highly innovative formative assessment practice that can be implemented with minimal resources. Students' work is self-paced through a structure of blended instruction, giving teachers more class time to work with individual students. Both instruction and assessment are differentiated based on the students' own progress.



CONTACT: https://modernclassrooms.org / info@modernclassrooms.org

VISIT THE WEBSITE

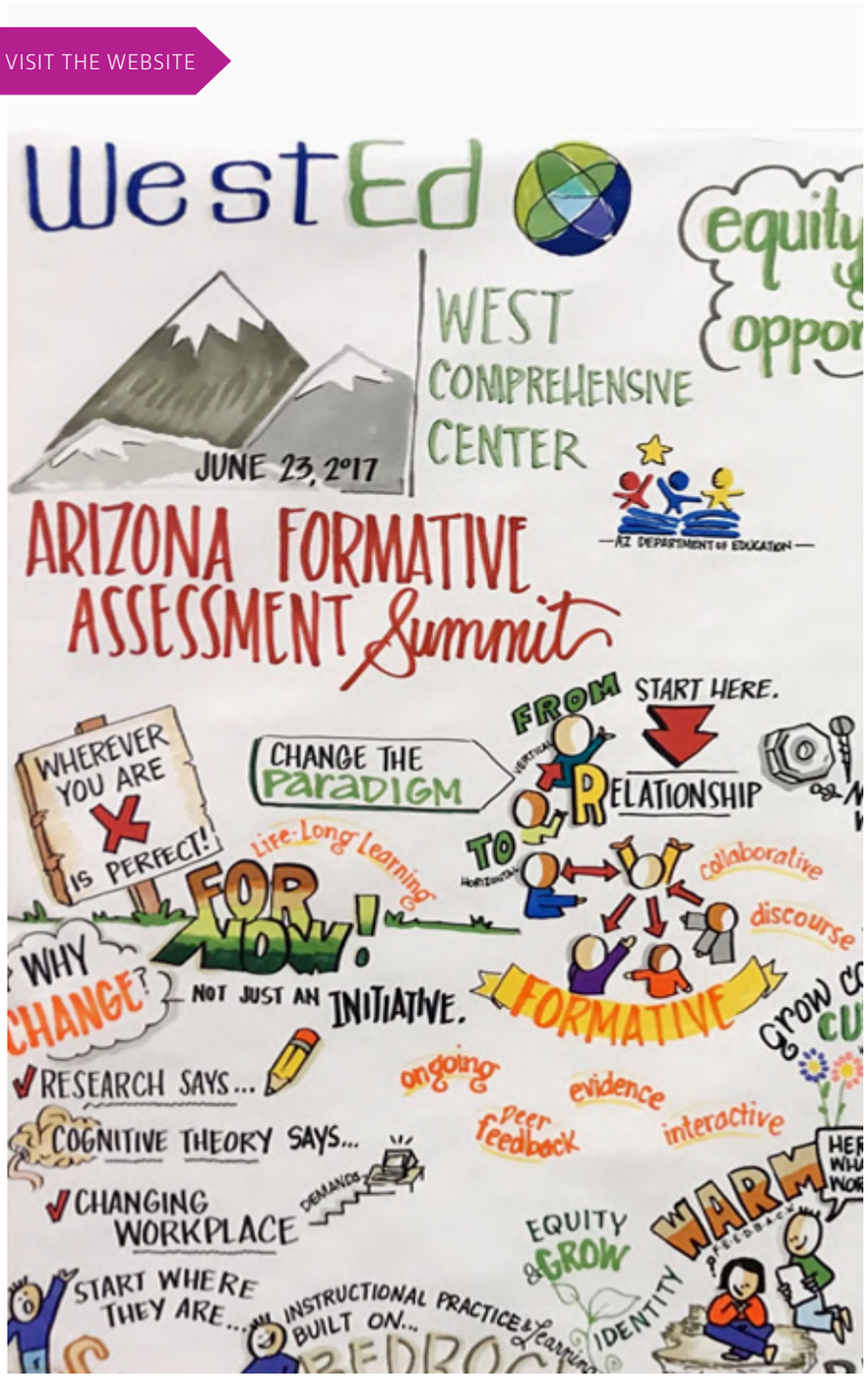


Photo provided by WestEd's Formative Insights.

Reimagine the student role in assessment to improve agency, promote learning and advance equity.

WestEd's Formative Insights

United States

WestEd's Formative Insights team leads transformative, scalable, professional learning with teachers, leaders and policy makers. Rooted in current research, this initiative enables dramatic shifts in the student role by supporting teachers and leaders to strengthen students' self-regulation skills and develop systems that sustain deep learning.

2009	7 500	2
YEAR OF ESTABLISHMENT	CHILDREN / USERS	COUNTRIES

WHY WAS THIS INNOVATION CREATED?

Equity requires learner agency. Learner agency manifests when students learn skills of self-regulation and metacognition. More than any other strategy, formative assessment strengthens these skills during daily instruction. To achieve equity goals, ways to scale formative assessment must be developed, so that students, teachers and leaders learn skills that strengthen learning, agency, and equity.

HOW DOES THE INNOVATION WORK IN PRACTICE?

WestEd specialises in developing transformative professional learning in formative assessment at scale. They have achieved scale through innovative professional learning that situates adult learning in local contexts, using application and reflection cycles rooted in current classroom practice. Learning for leaders addresses cultural and system-level shifts to deepen teacher and student agency. Advanced courses focus on peer review, in which teachers reflect on current lessons to strengthen students' use of evidence to guide learning.

Data from a range of WestEd courses highlight significant changes in teacher and student roles, including improved use of evidence and feedback, and learning from peers. In 2020, a peer-reviewed study examined survey results from 1,200 teachers and 24,000 students engaged in WestEd's online professional learning, showing that increased use of formative assessment led to increased self-regulation by students.

HOW HAS IT BEEN SPREADING?

With vital support from foundations, and through ongoing dialogue with national networks, WestEd's team shifted its focus from formative assessment as a set of technical skills, to formative assessment as an essential instructional practice to strengthen the student role in learning in order to advance equity. WestEd has spread this work through participation in regional and national networks, state-level initiatives, and district partnerships. These relationships have created new opportunities for field-building, bringing students, teachers, leaders and policy makers together to inform this work. These multiple entry points enable partners to explore the instructional changes, cultural practices and policy shifts to enable formative assessment as a core equity strategy.

RESEARCH

Academy review sample scalability

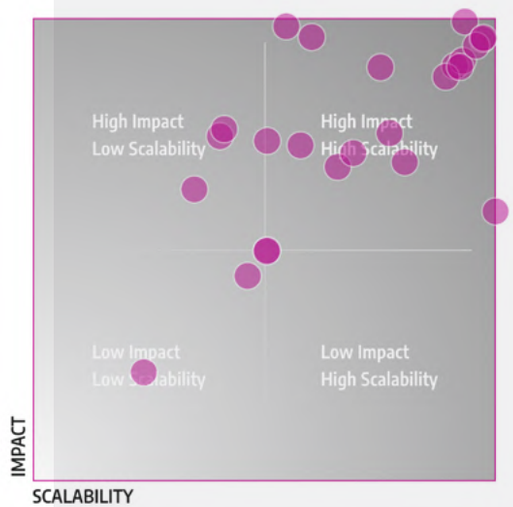
It is based in a well designed / structured framework that the targeted student and teacher self-assessment outcomes measure change related to the student's identity, learning culture, formative assessment and student organisation.

Academy review sample impact

WestEds approach to building teacher capacity in order to leverage the power of formative assessment with the ultimate aim of building student agency is outstanding and what all schools and educators should aspire to.

HundrED Review

WestEd's focus on student agency places the child at the centre of the learning process. Teachers, schools and districts are given ample support to modify their practices in line with formative assessment. In addition, WestEd is developing a research base around the implementation of formative assessment practice in schools.



CONTACT: https://csaa.wested.org/formative-insights / NGerzon@wested.org

Chapter 5: **Reflections and Conclusions**

The innovators selected for this spotlight have developed and spread their innovations in ways that demonstrate a tremendous amount of thoughtful work and iterative learning about how to do formative assessment. The formative assessment methods, tools and processes they have developed go beyond technical implementation strategies. It is clear that these innovations have been developed also by being attentive to the possibilities for the role of assessment in education, and the wide potentials for the purposes and aims of education more broadly.

For this report, we interviewed the selected innovators to understand more deeply their perspectives about formative assessment. The research team sat down (virtually) with each innovator and members of their team to discuss their perspectives on formative assessment and their hopes for how they see their work continuing in the future. Our hope is that bringing their voices and experiences into this report will provide a richer picture of how formative assessment is approached in classrooms around the world.

In this section, we synthesise themes from our discussions with the innovators and present some areas for further reflection based on these themes. Many of these innovators are, or were, teachers themselves. Through these innovations, they hope to share the methods of formative assessment developed and implemented in their own classrooms. We also reflect on some of the challenges that are shared

across contexts, as well as some of the shared approaches to making sense of why formative assessment is needed in the classroom. Shared between these innovators is a concern that learners are able to make meaning out of their education.

In this section, we present some reflections on the wisdom of these innovators.

"People learn by building on what they already know. We believe that formative assessment mirrors this construct, and it is one of the reasons why it can be so powerful in schools. If teachers know their students really well, if they are open to listening deeply to how students explore ideas and are able to help students bring that back to the key concepts in the curriculum, that's the frame we use to understand how learning happens. In our work, when we think about how people learn in formative assessment, we would say that learning is a continuous process that is rooted in understanding, noticing and making sense of evidence. So it is all about understanding what is the evidence of learning, how are we interpreting that evidence based on a certain scheme, and then how do we help individuals take the next step."

– NANCY GERZON

Formative Insights Project Director at WestEd

Photo taken by Jussi Hellsten, Helsinki, 2019.

Assessment culture matters

The role of assessment in learning mediates the ways that formative assessment is understood and accomplished. That is to say, in places where assessment is primarily high stakes, summative assessments are of most use to the schools and decision makers, rather than serving the student in their learning process or aiding the development of teacher practice.

"It is also shifting the teachers' mindset. It is not about understanding the potential of the student, but rather understanding where the student is. Because if you know where the students are, you can take them wherever you want them to. Understanding that process takes time so that is where the teachers' collective is really important. And using the navigator has been very important for us because the teacher from day 1 can see that data and they understand where the students are and that brings a huge mindset shift".

– AKANKSHA AGARWAL

iec, part of the Navigated Learning Collaborative, India

Photo provided by Classtime.

Teacher agency matters

Formative assessment can be really helped with models, practices and tools. Exit tickets, individual self-paced learning, goal setting discussions with individual students are examples of practices that can help teachers implement formative assessment. In addition, tools like real-time analytics, aggregate longitudinal student performance data and learning journals can help teachers and students. In both cases, the teacher's practice is the key to formative assessment because the teacher will determine how the assessment data is used as evidence of learning. The teacher can decide the pace of the lessons, allow for re-tests, and allow students to skip ahead or revisit concepts. The teachers' discretion is key, and this requires a degree of professionalism and autonomy that is facilitated by allowing time for differentiated instruction.

"While we are teaching the teachers how to implement the scales in the classroom, and how to measure children's wellbeing and involvement, what we end up creating is also teachers who are more reflective and observant in the classroom. Formative assessment becomes a habitual practice because wellbeing and involvement is something that you cannot measure in one look at a child."

– KELSEY ANNE CARLTON

Strategic Education Advisor, VVOB,
Process-oriented child monitoring (POM) in Early Childhood Education

"The most precious resource we have in education is teachers' time. We need to re-orient the classroom environment to ensure that teachers are maximizing their time in 1-1 and small-group discussions. To do that, educators need to constantly look at live formative data and then use it to determine which students they should work with and the type of support they need."

– KAREEM FARAH

Co-founder and CEO of Modern Classrooms.

Formative assessment can increase student motivation

For many of the innovators, formative assessment became part of the conversation when trying to answer the question of how to enhance student motivation.

Giving students more complete access to curated data about their progress towards meeting the learning goals supports student engagement in learning. When students have more information about their learning, and are guided to understand how to interpret this data, a fundamental power shift happens in the classroom. No longer are teachers the sole owners of both content knowledge and the means to legitimately assess learning. Students are able to reflect on their own learning processes, set their own goals and build their own understanding of the world through dialogue and collaboration with teachers and peers. This data can help the students make choices about how to engage with the learning process, influence the teacher's pedagogical decisions and develop their own informed opinions about the content and the learning process. Such engagement in learning works to develop student agency.

Moreover, when teachers and students co-create and share information about the students' learning process, this can help the students develop their capacity for self-reflection. The student's ability to understand themselves, to be able to express their own identities, and to exercise self-awareness are important life-long skills.

"One of the changes in the behaviour of students we have observed during the implementation of this project is that students are no longer afraid of receiving feedback from their teachers. They are not afraid of receiving a bad mark. They are more participative, if they have questions they just talk to the teachers and ask in order to improve their learning. That's what we see from students, but we also got feedback from parents. At first, it was very difficult for parents to accept the new assessment system and they were quite against that. And now they understand the idea of this assessment, that it actually helps students. I think the culture of formative assessment is changing in Kazakhstan in a better way."

– SAULE SOLTANGAZINA

Head of Criteria-based Assessment Department at the Centre for Pedagogical Measurements at AEO, Nazarbayev Intellectual Schools

Photo taken by Jussi Hellsten, Helsinki, 2019.

"We try to promote as much agency as possible, and tangible links for motivation. In high school, in many contexts, learners have low levels of motivation and low levels of expectation because they have a lack of career guidance, their parents never went to university, etc. So no one is giving them advice on what to do when you have good grades in maths, how do you apply for internships, scholarships, jobs. To promote agency, we try to use mastery-based practice linked to a comprehensive motivational framework, and try to get learners to select goals. So for the learners, we want them to understand that the goals set in the platform are tangible and linked to real-world opportunities through the same platform. That formative assessment data is a crucial component. They set their goal to achieve certain milestones, they track their progress, they create a portfolio, and when they choose to opt for specific partners, that information is automatically shared with those partners."

– MARK HORNER

Chief Executive Office at Siyavula Education.

"One headmaster said that it is fantastic when the children know where they are going, so they really put their mind and energy into going there.When the goals are very clear and they can see the competencies in front of them, and they can see the roadmap to reach their age appropriate level, then they work."

– SNORRE WESTGAARD

CEO Humana People to People India

"When this year began and we were making students ready for the literature assessment exam, we increased the instruction we were giving students at the beginning. But what we actually found out along the way using this methodology (peer feedback using comparative judgement) was that we did not really have to give them as much instructions, because through their peers, students were seeing what quality was without us (teachers) really needing to say much about it. Because they could see that "Oh! That student is using a literature convention and it is citing evidence in a way that is more effective than in the way I do. I want to try that next time! And us (teachers) didn't really need to say anything about it, it was beautiful! They improved a lot along the way, and it was mostly done on their own."

– ERIK BRANDT

teacher at Harding High School in Saint Paul, Minnesota

Formative assessment can improve teaching

All of the innovators who developed tools emphasised that it is the teacher who plays the key role in the successful implementation of these innovations. When teachers have good data and information about where students are, they have more information that can help them adapt their teaching. These innovations can also foster dialogue between the teacher and student about how the learning is going.

Formative assessment can also support teachers to differentiate instruction according to learner needs. Many of the selected innovations were created to address the significant workload associated with differentiation and individualised learning plans for teachers with large classes, or with multiple classes over the school day.

"Our system does not replace what the teacher does, but rather it gives the teacher the data to make their teaching very effective, to know where each student is and plan their instruction and feedback accordingly."

– LAURA MARINESCO

Director of Sales and Marketing at Maths Pathway

"Classtime can be transformative in the teacher-student relationship in the sense that it increases interaction. The teacher does not give the feedback directly because it comes from the system, so the teacher can stand shoulder to shoulder with the kid, and discuss the results together, recognising students' progress and fostering a dialogue around learning strategies."

–JAN RIHAK

Founder and CEO of Classtime

Photo taken by Jussi Hellsten, Helsinki, 2019.

Benefits of technology

A key piece of formative assessment is the creation and collection of data about the students' learning - where they are, where they have been and mapping out where they want to go. In addition to helping teachers, students and even parents make visible the child's learning trajectory over time, formative assessment can help teachers better understand the pacing of each individual student's progress. Learning does not always happen at a steady, linear pace; understanding progresses at times in leaps and spurts and at other times after long rumination.

Formative assessment technologies can be a tool to provide longitudinal and real-time feedback on students' learning, allowing learners to receive immediate feedback and exercises adapted to their level.

Seven out of the 14 innovations in this collection are Edtech tools, and the rest of selected innovations also make use of technology in less direct ways. Digital tools have proven to be effective in monitoring students' learning journeys. Many of these Edtech innovations also incorporate adaptive practices, which allow students to receive immediate feedback about their learning and focus on those areas in which they need more support.

Formative assessment technology was also innovated as a response to the need to lessen the burden and workload on teachers for keeping track of students' individualised learning and progress. Technology can make the documentation process easier for teachers, as well as for students, freeing up more time for the teacher to focus on adapting their pedagogy and discussing with students.

"This method of formative assessment combined with gamification can provide to both the teacher and the student a way to understand the students' progress in a timeline. If the student was creative, or if the teacher realised that the student was participating more, these are aspects you cannot measure with just a traditional test. At Sapientia, we think about how to catch those little soft skills. When the students have a more complete profile, the teacher can get a more holistic and humanised view of the student."

– ROBERTO NASCIMENTO
Technical Team, Sapientia

"(In Finland) a lot of people understand that formative assessment is important, and that in the future you have to have all the information in your pocket on your phone. And a lot of people understand that 21st century skills are needed, and thus need to be taught. But the practical thing is that teachers didn't really have the tools for that. It is about how to do self-assessment in a practical way. If you have a digital tool for it, you don't have piles of paper anymore. Piles of paper are a good tool, but how do you look at the data and how to solve the problem of showing the impact, so that is when Qridi comes in a practical way."

– JUHANI KATAJAMÄKI
International Sales and Learning at Qridi

"Any technology that is not simple and reliable will not get used. That's why it's a big priority when it comes to technology in the classroom. It's easy to build something complicated, but our team puts a lot of effort into simplifying the Showbie and Socrative tools to make sure simplicity and reliability are always a focus making them easy for educators and learners to use."

– ABDUL CHOHAN
VP of Learning at Showbie

Photo provided by Classtime.

Scaling up

Many innovators said that the most effective way for them to scale formative assessment practice is from bottom-up. When a teacher uses an App, classroom practice or assessment framework and they see positive results, they typically pitch it to their fellow teachers. If they all are convinced that an innovation is impactful, they will advocate for it to their principals, districts and other stakeholders. That's how these innovations have been scaling more effectively.

"We scaled Classtime through a grassroots approach working with schools and understanding what teachers need. Incorporate teacher feedback into the product, what they wish for is crucial. And we have this way of growing bottom-up, basically a teacher tries it and then it grows and multiplies to other teachers."

– JAN RIHAK

Founder and CEO of Classtime

Conclusion

This report brings together the different perspectives and approaches from 14 formative assessment innovations across 12 countries around the world, displaying the diverse needs that promoted the creation of these innovative practices. Although there are clear differences in the way formative assessment is approached or implemented across contexts, the common idea that brings all these innovators together is the belief that formative assessment can be a powerful tool for learning. Formative assessment contributes to the overall improvement of education quality as students develop self-regulation skills, increasing student agency and improving motivation. Creating a continuous feedback loop helps students and teachers self-reflect on their learning journey and create environments in which there is room for mistakes because they lead to learning and growth.

Photo taken by Markus Kontiainen, Helsinki, 2016.

Do you want to organise a HundrED Spotlight?

HundrED Spotlights are an opportunity to gain a thorough insight into the education innovations taking place in either a specific area of education, like literacy or sustainability, or within a certain geographic location, for example, India or London.

HundrED Spotlights are organised by HundrED and a Spotlight Partner. Together we select the location or theme of focus and will encourage applications from innovators for this Spotlight. In-depth research will be conducted together into these innovations and 10-20 will be selected by HundrED, partners, and an advisory board. Spotlighted innovations will be packaged and shared on the HundrED platform.

HundrED Spotlights are non-profit but rely on funding from Spotlight Partners. If you are interested in becoming a HundrED Spotlight Partner please contact us.

We believe that these selected innovations deserve to be spread across the world. And there is a lot more good innovations just like them waiting to be discovered.

If you want to support further research in education, please contact us.

Photo taken by Petri Anttila, Helsinki, 2020.

Contact information

info@hundred.org
hundred.org
facebook.com/hundredorg
twitter.com/hundredorg

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Appendix A: Shortlisted Innovations

For more information read our Shortlist Article here.

Innovation Name	Country
Assessment for Learning Accelerator	Kenya
Aula Global	Colombia
Being a Proactive Teacher in Formative Assessment	Kazakhstan
Blueprints - MUSE Global Schools	United States
BOOK-IT LMS	Zambia
Classtime	Switzerland
Formative pedagogy	Slovenia
Kadam - The Step Up Programme	India
Kindiedays	Finland
Mahara	New Zealand
Maths Pathway	Australia
Navigated Learning Collaborative	United States
Peer Feedback using Comparative Judgment	Netherlands
Peergrade	Denmark
Process-oriented child monitoring (POM)	Vietnam
Project Breakthrough	India
Qridi	Finland
Sapientia	Brazil
Siyavula	South Africa
Socrative	Canada
Teachers Collective	India
The Modern Classrooms Project	United States
Transfer Week	Spain
Two Rivers Performance Assessments of Critical Thinking	United States
Unio By Harness	United Kingdom
WestEd's Formative Insights: Assessment for Learning	United States
Writer's Block	United Kingdom

Appendix B: Advisory Board

Full Name	Country	Occupation	Organisation
Alina Lipcan	UK	Director of Impact & Innovation	Global Schools Forum
Andrea Vuilliomenet Bendixsen	Switzerland	Teacher, Head of Department	Ecole Eden Geneva
Anil Kanjee	UK, South Africa	Coordinator: Postgraduate and Research Programme of the Department of Primary Education	Tshwane University of Technology
Anisa Fejzo	Albania	English Teacher	Junior High School
Anupam Sharma	India	Coordinator	Indirapuram Public School
Ashok Kumar Veerasamy	Finland	University Lecturer cum Researcher	LUT University – Lahti, Finland
Bilim Baekesh	Kazakhstan	Project Manager	LLP Bilimland
Bronwen Magrath	UK	Global Programme Manager	Aga Khan Foundation
Bryan Dinner	USA	CEO and Founder of CS	
Cathy Box	USA	Director of the Center for Teaching, Learning, and Scholarship	Lubbock Christian University
Christian Sunday Ugwuanyi	South Africa	Postdoctoral Fellow	University of the Free State
Danny Gotto	Uganda	CEO	Innovations for Development (I4DEV)
Deki Pem	Bhutan	Teacher	The Royal Academy, Paro
Devyani Pershad	Ivory Coast		TaRL Africa
Divine Kpe	Ghana	Research Fellow	Africa Education Watch
Eddie Brummelman	Netherlands	Researcher	University of Amsterdam
Elizabeth Anthony	USA	Consultant	
Ellen Rusman	Netherlands	Associate Professor	The Open University of the Netherlands
Ellisiah Jocson	Philippines	Department Head	CereCare Philippines
Enung Hasanah	Indonesia	Lecturer	Universitas Ahmad Dahlan
Gabriela Romero	Panama	Teacher, Reading and cultural accessibility promoter, Co-founder	Libros Compartidos
Huyen Nguyen	Viet Nam	Director of Program	Teach For Viet Nam
Jaime Camacho	Mexico	Researcher	Centro Educativo Apatzeo ac
Jamie Jirout	USA	Researcher	University of Virginia
Janine Buenrostro-Jocson	Philippines	Teacher & Department Head	CereCare Philippines Foundation
Janna Pahnke	Germany	Scientific Director	"Haus der kleinen Forscher" Foundation

Full Name	Country	Occupation	Organisation
John Kleeman	UK	Director ATP, also EVP at Learnosity/Questionmark	Association of Test Publishers (ATP)
Jorge Alberto Molina Escobar	Colombia	Full Professor	Universidad de los Andes-Bogotá
Julia Moeller	Germany	Researcher	University of Leipzig
Kağan Büyükkarci	Turkey	Associate Professor, Ph.D.	Suleyman Demirel University/Faculty of Education, Department of Foreign Language Teaching
Katherine McAuliffe	USA	Researcher	Boston College
Kesson Anderson	USA	Managing Director of Partnership Development	Achievement Network
Lorena Ortega	Chile	Researcher	Universidad de Chile
Marc Kleinknecht	Germany	Professor	Leuphana University of Lüneburg
Marta Figueiredo	Portugal	Occupational Therapist / Profesor	Private Practice / Escola Superior de Saúde do Alcoitão
Medha Tare	USA	Director of Research for the Learner Variability Project	Digital Promise
Miguel Ángel Herrera Vivar	Ecuador, Germany	Educator	Instituto Superior Tecnológico Quito
Mugdha Gupta	India	Academic Consultant	Ministry of Education, Govt of India
Ozgen Bagci Cervo	Netherlands	Instructional Designer, Educational Consultant & Trainer	Goal Testing B.V.
Panagiota Argyri	Greece	Phd Candidate & Mathematician (M.Sc, M.Ed)	Department of Educational Studies of National Kapodistrian University of Athens & Model High School Evangeliki of Smyrna
Peter-Sam Hill	UK	Consultant	MeasurEd
Rabia Saqib	Pakistan	Chief Executive Officer	The Brighton Schools
Rachel Outhred	UK	Director	Oxford MeasurED
Ram Chandra Dahal	Bhutan	Teacher	The Royal Academy, Paro
Rebecca Akinyi Migwambo	Kenya	Professional Learning Community Coordinator	Kenya Connect
Ryan Burgess	USA	Portfolio Manager, Primary and Secondary Education and TVET globally	Porticus
Sam Ramaila	South Africa	Senior Lecturer: Head of Science Education Unit	University of Johannesburg
Santosh Mahapatra	India	Assistant Professor	BITS Pilani Hyderabad Campus
Sehr Tejpar	Portugal	Founder & CEO	Bold Philanthropy
Marie Selene Dominique Estaris	Philippines	Social Studies teacher & EdTech coach	Xavier School
Tea Saarivuori	Finland	English teacher	City of Helsinki
Tuba Gezer	Turkey, US	Postdoctoral Researcher, Institute of Education Policy	Johns Hopkins University
Tzu-Hua Wang	Taiwan		
Vinye Bagnato	Brazil	PYP Educator	The American School of Campinas
Vittoria Burton	Italy	Pedagogical Coordinator & Educator	Consorzio Copernico, Ivrea

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