About the iZone and the Short-Cycle Evaluation Challenge (SCEC)
The New York City Department of Education’s Office of Innovation (iZone) helps New York City public schools to personalize student learning using technology.

With financial support from the Bill and Melinda Gates Foundation, the iZone leads the Short-Cycle Evaluation Challenge, an innovative initiative to help educators and administrators make decisions on buying educational technology using evidence from 90-day pilot tests of products in schools. Based on challenges in instruction and administration identified by teachers, the iZone matches schools with new products that show promise in helping overcome the challenge.

During the short-cycle pilot, educators and company representatives are in communication regularly to share information about how the product is being used and how it might be improved to address the challenge.

About EDC|Center for Children & Technology (EDC|CCT)
Education Development Center’s Center for Children & Technology in New York City is the iZone’s research partner. A non-profit research, development, and evaluation organization, we investigate the roles that technology can play in improving teaching and learning within classrooms, schools, and communities.

How to Use this Report
This report is one of nine produced by EDC|CCT for the 2015 Short-Cycle Evaluation Challenge. It is intended to provide future users and those in positions to make decisions about school technology procurement with: (1) information about how NYC-public school educators used this product to address a specific problem of practice; (2) an overview of the product’s features, as well as pricing and licensing information; and (3) the product’s overall “evidence of educational promise.” “Educational promise” means the likelihood that the product will help address a specific challenge in this school in a larger implementation study. We made this determination through the analysis of various data sources, modified by a researcher’s knowledge of the specific context in which the product was used, when appropriate.

While the first four pages of the report are designed to provide a “snapshot” of product features and a summary of the scores for evidence of educational promise, we strongly encourage you to scan the entire report before reaching any conclusions about the product’s potential as a solution for your own school. It is impossible to make judgments about a product’s promise as an educational tool without understanding the context in which it is used.

Information on our method for scoring the product’s educational promise is included at the end of this report. Evidence of “impact” on student learning is unavailable. The technology pilot tests during the 2015 SCEC did not include pre/post tests on changes in student knowledge and skills. EDC worked with school-product teams to develop such measures, but the implementations were not robust enough to justify them.
School Challenge At-a-Glance
To help teachers at Crossroads Academy (a pseudonym) address the individual needs of all their students by checking to make sure they understand what is being taught in the classroom. Additionally, teachers wanted to be able to instantly check for student understanding by accessing data in real time.

About the Product
Formative enables teachers to check student understanding by conducting on-the-spot formative assessments. When students complete assignments or assessments, their work is immediately visible to the teacher. The teacher can comment on or score the work and send students comments instantly.

About the School
• Crossroads Academy Middle School: Queens, NY; Grades 6–8
• Approximately 1,606 students; 100% eligible for free or reduced-price lunch
• 40% Hispanic; 36% Asian/Pacific Islander; 18% Black; 5% White; 1% American Indian/Alaska Native
• Grades in pilot: 7
• Number of teachers in the pilot: 2 (average 3.5 years of service)
• Number of students in the pilot: approximately 56

Pilot Classroom Activities in Brief
• Middle school students worked individually on wireless Chromebook laptop computers as they answered short questions or solved math problems using Formative
• Teachers generally used the tool at the beginning of class to check for understanding of the previous day’s lesson, or as a review for an upcoming quiz, and then as a closing activity so that students could review that day’s lesson
• As students worked on their laptops, teachers were able to supervise students’ work simultaneously, from their own computer screen or SMART Board, keeping tabs on the whole class at once while providing instant feedback

Figure 1: A Formative test editor
Indicators of Effectiveness

EDC\CCT collected data on five “meta-indicators” that explain a product’s effectiveness for addressing a school’s challenge during the 90-day pilot. Pilots received an overall rating of Low, Moderate, or High on each indicator, based on a set of sub-indicators. Evidence of Educational Promise provides an overall, qualitative measure of the likelihood that the product will successfully address the challenge in a fuller implementation study. Evidence for these indicators is described more fully beginning on page Error! Bookmark not defined.. “Product Rating” indicators refer broadly to the product’s usefulness for addressing the challenge, given the presence and design of specific features. “School Context” indicators provide information about the environment in which the pilot test was carried out.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Score</th>
<th>Summary Statement</th>
<th>Based on these sub-indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Evidence of Educational Promise</strong></td>
<td></td>
<td>Formative demonstrated high promise as a tool to help teachers instantly check for student understanding by accessing data in real time.</td>
<td>Researcher Observations: H Teacher Assessment: H Student Assessment: H Administrator Assessment: H</td>
</tr>
<tr>
<td><strong>Product Design</strong></td>
<td></td>
<td>The design of Formative was highly engaging and usable for students and teachers.</td>
<td>Student Engagement and Appeal: H Student Ease of Use: H Ability to Personalize: M Teacher Ease of Integration: H</td>
</tr>
<tr>
<td><strong>Implementation</strong></td>
<td></td>
<td>Teachers made moderate use of Formative during the pilot.</td>
<td>Amount of Teacher Use: M Teacher Planning: H Professional Development: L</td>
</tr>
<tr>
<td><strong>School Environment</strong></td>
<td></td>
<td>The school environment at Crossroads Academy was highly supportive of the technology pilot.</td>
<td>Administrative Involvement: H Technology Infrastructure: H</td>
</tr>
<tr>
<td><strong>Alignment to School Challenge</strong></td>
<td></td>
<td>Formative was highly aligned with Crossroads Academy’s challenge of monitoring student learning.</td>
<td>Researcher Assessment of Fit: H</td>
</tr>
</tbody>
</table>

Product Promise
Indicates the likelihood that the product will improve educational practices and learning outcomes in a fuller study

Implementation Context
Indicates how robustly teachers and students used the product during the 90-day pilot

School Environment
Indicates the level of administrative and technical support for the pilot test

Alignment to School Challenge
Indicates the “goodness of fit” between a product’s features and affordances and the school challenge
Formative At-a-Glance

- http://goformative.com/
- A web-based tool that allows teachers to create assignments and assessments, deliver them to students’ devices, and provide individualized feedback in real time.
- Grade range: K–12
- Subject areas: All
- Platform: Website
- Devices: Laptop; desktop; tablet
- Compatibility/Integration: Google Apps for Education
- Requirements: Works on any Internet-connected device; ideal for Bring Your Own Device (BYOD) classrooms or 1:1 computer/tablet programs

Product Features

- Formative assessment
- Data management
- Common Core-aligned content
- Opportunities for teacher differentiation
- Grade book
- Teacher dashboard
- Data export
- Data import

Pricing and Licensing

- Premium license fee that includes virtual and in-person professional development services

Pilot Evaluation Summary

<table>
<thead>
<tr>
<th>What Worked?</th>
<th>What Needs Improvement?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product</strong></td>
<td></td>
</tr>
<tr>
<td>• It is easy to create assignments and assessments for groups of students</td>
<td>• Teachers would like access to a question bank or repository of standards-aligned assessments at teachers’ fingertips</td>
</tr>
<tr>
<td>• Teachers liked the ability to provide instant feedback</td>
<td>• Dashboard redesign and reorganization would make accessing features more logical and easy to find</td>
</tr>
<tr>
<td>• Teachers can monitor student responses in real time</td>
<td></td>
</tr>
<tr>
<td>• Students were engaged when using the product</td>
<td></td>
</tr>
<tr>
<td><strong>School Implementation</strong></td>
<td></td>
</tr>
<tr>
<td>• The product integrated seamlessly into the way teachers already teach</td>
<td>• No changes are necessary</td>
</tr>
<tr>
<td>• Teachers were enthusiastic users</td>
<td></td>
</tr>
<tr>
<td>• Teachers were willing to work with their peers and support them in learning to use it</td>
<td></td>
</tr>
</tbody>
</table>
Summary of Pilot Findings

Below we summarize our findings about each of the five indicators for this pilot. It is important to note that the findings are never based on an evaluation of any one individual. Rather, the score for each indicator is an aggregate of largely qualitative data collected from a variety of sources (described in the Appendix).

In general, EDC|CCT has found greater overall evidence of promise in those products whose features were tightly matched to the school challenge, and that had strong implementations in a supportive environment.

Indicator 1. Evidence of Educational Promise — H

Overall, Formative demonstrated high promise as a tool for monitoring student learning and checking for student understanding by accessing data in real time.

The score is based on four sub-indicators: Researcher Observations; Teacher Assessment; Student Assessment; and Administrator Assessment.

1. Researcher Observations — H
   Based on three school visits between 9/2015 and 12/2015

Researchers observed that:

• Teachers created and assigned assignments and assessments easily.

• Students were actively engaged and stayed on task during class time.

• Teachers were able to monitor student responses in real time, and provide timely and appropriate feedback.

2. Teacher Assessment — H
   Based on teacher interviews and two teacher surveys

• Both teachers agreed that Formative met their need to check for student understanding and then to plan their next instructional moves based on the data.

Teacher quotes:

We want to do checks for understanding, so that we can differentiate instruction more effectively.

It is very simple. The tool does exactly what we wanted it to do.

3. Student Assessment — H
   Based on 60 student surveys

• 78% of students strongly agreed that Formative helped them to learn (n=60).

• 68% of students indicated that Formative made them more interested in the topic they were learning about in class (n=60).

Student quotes:

I feel like Formative gives me a better understanding of what we do in class.
I like Formative because we can answer some questions based on what we learned or are going to learn in class.

4. Administrator Assessment — H
   Based on administrator interview

   The principal was very supportive of the teachers’ use of the product, saying he was pleased with what the product and its development team had to offer his students and teachers. Additionally, he observed that the product was very easy to use and it did what the teachers wanted it to do.

Indicator 2. Product Design — H

   A product’s appeal and usability for teachers and students, as well as the relative ease with which teachers were able to begin using it, affected the overall implementation. The design of Formative was highly effective for students and teachers.

   The score is based on four sub-indicators: Student Engagement and Appeal; Student Ease of Use; Ability to Personalize; and Teacher Ease of Integration.

   1. Student Engagement and Appeal — H
      Based on 60 student surveys; observations

      • 76% of students strongly agreed that it was fun using Formative in class (n=60).

   Student quotes:
   I like that you can take fun quizzes on the website.

I like Formative because instead of me participating in class the teacher can see my answer.

During observations in a science class, most students shared their opinions and participated actively — including those whom teachers identified as ordinarily reluctant participants. Teachers used the dashboard to monitor students’ work in real time, catch distractions as they came up, and keep students on task. The product appeared to give more reluctant learners an easy way to participate in class without feeling self-conscious, or needing to be the center of attention.

2. Student Ease of Use — H
   Based on 60 student surveys; classroom observations

   • 85% of students said Formative was easy to use (n=60).
   • During observations, students knew what to do and got right to work with few directions from their teacher.

   Student quotes:
   What I liked is that it is very easy to use.

   The technology is very easy to use. How instead of writing stuff on paper and take tests on paper, we can do it online.

3. Ability to Personalize — M
   Based on 60 student surveys; classroom observations

   During classroom visits, researchers did not observe examples of student personalization (i.e., customizing activities based on
individual student needs or interests); all students answered
the same questions, unless a teacher assigned different sets of
questions to different groups. However, students’ survey
responses indicated that 73% felt that Formative helped them
learn in a way that meets my needs (n=60).

Student quotes:
It’s really helpful for anyone who needs help.
It helps me to stay more focused on the topic.

4. Teacher Ease of Integration — H
Based on two teacher surveys; teacher interviews;
classroom observations

• Both teachers said Formative was easy to integrate into
their classroom practices. When asked if they will continue
to use the product after the pilot ends, both noted that it is
very likely.
• The two teachers also said that Formative gives them
greater flexibility in terms of planning and implementing
lessons and class activities that use technology to meet the
diverse needs of students.

Feature Highlight
Teachers and students generally enjoyed using Formative.
Teachers were excited about the Google classroom button (a
feature that both teachers expressed a need for) because they
were able to post their assessments and assignments directly
from Formative. They also liked the dashboard folders,
finding them very useful for organizing their assessments.

Student quotes:
I liked how you could add attachments or photos.
I like that when the teachers grade your work you
could just click on that assignment and you can see
your grade.

Strengths of the Design for Teachers
• Easy online tools (e.g., folders for organizing assessments;
a Google classroom button to easily share content)
• A dashboard that provides real-time analytics that teachers
can use to track student progress
• The ability to scan responses by student and provide real-
time feedback
• The ability to grade assignments automatically and then
send students individualized feedback

Challenges of the Design for Teachers
• Teachers found the dashboard interface difficult to use at
times, because several of Formative’s features were not
easy to find

Indicator 3. Implementation — M
EDC|CCT typically found that coordinated teacher planning
time, teacher preparedness to use the product, and regular
usage (relative to the company’s recommended usage) were
associated with more robust implementations. Overall,

teachers made moderate use of Formative during the 12-week
pilot.
The score is based on three sub-indicators: Amount of Teacher Use; Teacher Planning; and Professional Development.

1. **Amount of Teacher Use — M**  
   Based on two teacher surveys; teacher interviews  
   - Both teachers used Formative with their students about once a week, for between 15 and 30 minutes  
   - Teachers used Formative at the beginning of class to check that students understood previous lessons, or as a review for an upcoming quiz; they used it again as a closing activity so that students could check what they learned

### An Example of Classroom Use
At the beginning of class, Mr. Curry told students to log onto their laptops, and assigned them a “Do Now” activity: Solve a set of math problems on Mixed Numbers using Formative. As students worked on their laptops, Mr. Curry used Formative to observe students’ work from his own computer screen. After about six minutes, when he saw that all students had finished, he summarized what he had seen. “Most of us did a really good job. You all did pretty well by doing the first step well. But I want to point out some mistakes. For the next step, you have to multiply before you add.” He wrote out the problem on the board, and walked students through the correct order of operations. Using Formative, Mr. Curry was thus able to check his students’ understanding of the problems and then use that information to guide instruction.

2. **Teacher Planning — H**  
   Based on two teacher surveys; teacher interviews  
   - On their exit surveys, both teachers indicated that they met about once a week to discuss and share ideas about how to use Formative  
   - Teachers used their initial meeting in September 2015 to plan how they would use the product with students during the 12-week pilot. Both teachers were active during interim meetings with the company, and used the time to make recommendations for improvements to the product developer

3. **Professional Development — L**  
   Based on two teacher surveys; teacher interviews  
   Both pilot teachers said they did not receive any professional development to use the product, but both agreed that they did not need any professional development

### Indicator 4. School Environment — H
Across the 2015 SCEC schools, EDC|CCT has found that greater levels of involvement from administration and other staff generally contributed to stronger pilot tests. Although administrative involvement was not an expectation that iZone staff laid out in advance, we describe the level and type of involvement because we have found it to be important context for interpreting the product ratings.

In those schools where we observed higher involvement from building administrators, there was often a tight fit between product design and a school-wide initiative that could make
use of those features, contributing to greater involvement from administrators. In turn, teachers had leeway to use the product in support of that initiative, or additional support from administrators. Higher administrator involvement also tended to create broader teacher buy-in, and allowed for supportive school structures like common planning time.

The school environment at Crossroads Academy was highly supportive of the pilot test.

The score is based on two sub-indicators: Administrative Involvement and Technology Infrastructure.

1. Administrative Involvement — H
   Based on two teacher surveys; teacher interviews

   • Many of Formative’s features closely aligned with a larger school priority: to help teachers instantly check for student understanding by accessing data in real time. An administrator affirmed that the product was aligned with their school priority, as illustrated in the quote below.

   Administrator quote:
   We were looking to find a tool that could offer real-time feedback so that teachers can adjust their lessons on the fly. Formative was able to do that for us. I saw that teachers had a visual of how each child was responding on their individual laptops, and could display the responses they wanted on the SMART Board. So the teacher could adjust by going directly over to Johnny and working on the misunderstandings he was having, or could project a common problem for everyone to see.

2. Technology Infrastructure — H
   Based on two teacher surveys; teacher interviews; school visits
   • Crossroads Academy Middle School has a one-to-one program that provides all students with their own laptop devices.
   • Teachers regularly use technology as part of assessment activities
   • Students and teachers are proficient at managing technology use in the classroom

Indicator 5. Product Alignment to School Challenge — H

Based on researcher analysis, Formative was highly aligned with the school challenge. The school principal had made formative assessment a key goal for the entire staff, the teachers were eager for easier ways to check for student understanding in real time, and Formative was expressly made for this purpose, with features that enabled real-time temperature-taking and instant instructional adjustments.

The challenge (recap): Teachers at Crossroads Academy wanted to monitor student learning by regularly checking on student understanding and differentiating instruction based on the
data. Teachers wanted to be able to check for student understanding by accessing data in real time.

**Ways the Product Aligned to the Challenge**
- The tool enabled teachers to supervise students’ work in real time and provide instant feedback.
- The tool enabled teachers to manage students’ work, and made learning visible by creating a dashboard of student activity.
- The tool enabled teachers to get interactive responses quickly from the class and to assess whether their class generally understood the concept before moving on to another.
- The tool enabled teachers to respond to the individual needs of students, helping them answer the following questions: *What does this student need at this moment in order to be able to progress with this key content? What do I need to do to make that happen?*

**Recommendations**

Based on our findings from the 2015 Short-Cycle Evaluation Challenge, we suggest the following changes to improve the product and how it is implemented in schools.

**Product Improvements**
- Include a bank of standards-aligned assessment templates or examples for each subject that teachers can modify to meet their needs
- Rearrange, reorganize, and redesign the dashboard to deliver a friendlier user experience

**For Future Users**

1. **For effective teacher implementation:**
   - Take time to become familiar with the technology before implementing
   - Give students a chance to practice with it on low-stakes tasks

2. **For effective school support:**
   - Ensure that teachers have prior familiarity with formative assessment as a goal and as a practice

**Changes to the Product After the SCEC**

Formative’s product developers demonstrated that they were highly responsive to teacher needs. Based partly on the pilot teachers’ recommendations, they undertook a substantial website overhaul, including back-end development and front-end redesign. A company representative summarized the changes the company has made to the product by saying:

- *In general, the entire site will be changed by next school year, a decent portion of which is influenced by the educators at Crossroads Academy.*

**SCEC Pilot Scoring**

EDC | CCT researchers used a holistic approach to score the 2015 SCEC pilot tests. **The five indicators in our scoring system are based on factors that we know to influence how successfully teachers can take up a new technology into their practices, including: usable product features that relate to learning objectives; preparation and training to use the**
technology; and communication with the building administration to ensuring that teachers have the technological infrastructure and planning time they need, as well as the space to use an untried tool in the context of the curriculum and school initiatives.

It is important to note that the indicators are broad, and are intended primarily to give educators, and those responsible for procurement, a “big picture” idea of what the implementation of this product looked like in context in order to judge whether the tool might be useful in their own schools.

Each indicator score is a composite score based on the following quantitative and qualitative measures: surveys, observations, interviews, and contextual factors. The data sources are aligned to multiple indicators in the scoring system.

The explanations for sub-indicator scores are outlined in the body of the report. The indicators and sub-indicators are listed below, along with the data sources that were generally used for each sub-indicator.

1. *Evidence of Educational Promise:* Indicator of the likelihood that the product will improve educational practices and learning outcomes in a fuller study. This reflects the overall assessments from multiple stakeholders about whether the product helped to address the challenge during the pilot, plus a researcher’s assessment of the likelihood of its effectiveness in a more robust implementation study (i.e., stronger conditions for implementation in the school).

   a. Researcher Observations: based on classroom visits
   b. Teacher Assessment: based on teacher interviews and surveys
   c. Student Assessment: based on student surveys
   d. Administrator Assessment: based on administrator interviews

2. *Product Design:* Indicator of how engaging and usable the product was for students and teachers. This reflects the degree to which the product features (including non-technological components) suited teachers’ and students’ goals and needs.

   a. Student Engagement and Appeal: based on student surveys
   b. Student Ease of Use: based on student surveys and classroom observations
   c. Ability to Personalize: based on student surveys and classroom observations
   d. Ease of Integration for Teachers: based on teacher surveys, teacher interviews, and classroom observations

3. *Implementation:* Indicator of how robustly teachers and students used the product during the 90-day pilot. This reflects the overall extent to which the teacher used the product, as modified by how much time and training they had to use it.

   a. Amount of Teacher Use, based on teacher surveys and interviews
b. Teacher Planning: based on teacher surveys and interviews and workshop observations

c. Professional Development: based on teacher surveys and interviews

4. School Environment: Indicator of the level of in-school communication and technical support for the pilot test. This reflects the degree to which participation from the building administration, and the overall quality of the technical infrastructure, influenced the pilot.

a. Administrative Involvement: based on teacher surveys and interviews

b. Technology Infrastructure, based on teacher surveys and interviews and classroom observations

5. Alignment to School Challenge: Indicator of the “goodness of fit” between a product’s features and affordances and the school challenge. This reflects the perceptions of multiple stakeholders about the match between product and school challenge, modified by a researcher’s overall assessment of the fit between the two.

a. Researcher Assessment of Fit: based on researcher product analysis, school challenge statements, and classroom observations

b. Teacher Perception of Fit: based on teacher surveys and interviews

c. Company Perception of Fit: based on company surveys and interviews

d. Administrator Perception of Fit: based on administrator interviews

**Scoring Method**

The score for each indicator began with the analysis of numerical data from surveys. Depending on the type of survey item, we used either the average response or the frequency of a response to determine the “base score.” The surveys used different numerical scales, with different ranges (e.g., 1–3, or 1–5), and so we transformed the scores into the categories of High, Moderate, and Low.

We then reviewed qualitative data related to the indicator, drawn from observations, interviews, or open-ended responses to survey questions. Depending on whether those responses or observations had an overall “positive” or “negative” connotation, we modified the indicator score up or down by half a point. Finally, a researcher applied his or her knowledge of the specific context in which the product was used in order to determine whether the categorical score matched his or her perception about the indicator, and revised the score up or down accordingly.