EVALUATION REPORT

Tulna

EdTech

TICTACLEARN
MATHEMATICS
GRADES 1-2

Evaluated in
August 2021
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1. What Does This Report Contain?

The section, 'Overview of the Product', provides a brief description of the product and its key features to give the context for the evaluation. The two sections following that present the findings from the evaluation. The Executive Summary provides the overall rating and offers implications in terms of benefits and limitations for teachers and learners. The Detailed Review section provides an in-depth evaluation of the product, categorized under three dimensions (or constructs) – Content Quality, Pedagogical Alignment, and Technology & Design. For each dimension, the product is reviewed on the criteria along with explanations for the rating, and grouped into clusters. Specific examples have been provided in this report to support and elaborate on the evaluation ratings.

The terms, ‘Exemplary’, ‘Valuable’, and ‘Potential to Improve’, used in the report refer to the rating scale for evaluating the product.

- **'Exemplary'** indicates that the product has been designed as per recommended learning theories and research-based evidence.
- **'Valuable'** indicates limited adherence of the product’s design to the recommended learning theories and research-based evidence.
- **'Potential to Improve'** indicates unsatisfactory or lack of adherence of the product’s design to the learning theories and research-based evidence.

2. Overview of the Product

TicTacLearn is an online interactive audio-visual learning solution with its curriculum mapped to the CBSE board. The product contains short, animated, engaging videos and practice questions for each learning unit. TicTacLearn content is available for Math (Grades 1 to 10) and Science (Grades 3 to 10) and is free of cost. Teachers can use the content to supplement their teaching in the classroom or share specific videos or practice tests with students. Students can learn from the content in and outside the classroom, whereas parents can use it to help their children visualize concepts and address their learning gaps.
3. Executive Summary

TicTacLearn | Mathematics | Grades 1-2

Content Quality Exemplary
Pedagogical Alignment Exemplary
Technology and Design Valuable

Potential benefits of this product

- Students, teachers and parents can be assured of the correctness of the content and assessments.
- The product covers all the math concepts and skills as per the NCERT Curriculum, and these concepts are logically structured to aid meaningful learning.
- The content is cognitively engaging and is likely to keep learners meaningfully engaged.
- The product uses sufficient real-life examples and scenarios for learners to relate Mathematical concepts to their day-to-day lives.
- The content addresses learners’ alternate conceptions and supports the formation of the correct understanding of the concept.
- Images and animations are relevant to the content and can enrich the experience of the learners.

Potential limitations of this product

- The lack of explicit scaffolds or hints in the assignments may lead to difficulty for some learners while working independently.
- The product does not support learners with special needs.
- Teachers are not provided with explicit support and guidance to use/customize the product for effective learning.
- Some learning units do not have associated assessments, thus learners miss the opportunity to check their understanding.
TicTacLearn (Grades 1-2): Summary of Review Ratings by Criteria

Content Quality: Exemplary

C1. Content accuracy
The content is accurate and contains correct facts and explanations.

C2. Correctness and clarity in assessment
The assessment questions are correct, clear and unambiguous.

C3. Language comprehensibility
The language used, accent and vocabulary are easy to follow by the intended learners.

C4. Mathematics skill coverage
The content covers all the skills for Grades 1-2 that are recommended by NCF 2005 and NEP 2020.

C5. Curriculum alignment
The content is aligned with NCERT recommendations.

C6. Inclusivity in representation of learners
The content attempts to represent various sections of society across religion, gender, skin colour, socio-economic groups.

Pedagogical Alignment: Exemplary

P1. Constructivist approach
The videos go beyond transmission of information and help the learners to build their understanding of the concept.

P2. Addressing learning gaps/alternate conceptions
The possible alternate concepts are identified and effectively redressed to help the learners correctly understand each topic.

P3. Content in context
Relevant and sufficient real-life context is included, which will help the learners to relate to and care about the topic.

P4. Learner scaffolding
The product attempts to provide scaffolds to learners to help them take up problems with more difficulty.

P5. Cognitive engagement
The content presentation style is conversational and important topics are highlighted to enhance the learning experience.
Executive Summary
Summary of Review Ratings by Criteria

*Only relevant criteria have been included in the evaluation*
4. Detailed Review

4.1 Content Quality 🙁

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4.2 Pedagogical Alignment 🙁

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4.1 Content Quality

Content Quality measures the accuracy and content/skill coverage for the grade targeted and the specific domain. This dimension focuses on content accuracy and clarity, alignment to national standards, and inclusivity in content representations.

4.1.1 Content Accuracy and Clarity

<table>
<thead>
<tr>
<th>Content Accuracy (C1)</th>
<th>Correctness and clarity in assessment (C2)</th>
<th>Language comprehensibility (C3)</th>
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</table>

Content Accuracy (C1) is rated Exemplary. The reviewers observed that the content is accurate, and the videos explain the concepts clearly on average. Reviewers observed no inaccuracies either factually or in the representation of the content.

Illustrative example: Topic: Shapes and Space - Spatial Understanding- position, Grade 1

The video helped the learner identify the position of the objects, for instance, Chotu’s bat was under the bed, his raincoat was on the bed. Various examples were provided, which accurately helped the learners identify the position of objects, such as the position of mangoes that fell from the tree (under the tree).

Illustrative example: Topic: Time - Sequencing the Events, Grade 1

The video helps the learner to sequence activities correctly. There are examples where the learners get a chance to sequence the events and classify them based on the time of the day. There is an example where the characters in the video watch the steps of making a pot, sequencing them from kneading the mud to the formation of a clay pot.
Illustrative example: Topic: Money - Money in our daily life, Grade 1

The video helps the learners to look at currency and identify its value. There is a proper highlight which shows the value of the currency. The learners are also supported to identify the rupee symbol, which would show the value of the currency. The second video exposes the learners to the fact that different coins can be added to arrive at the same currency value. Example: 10 rupees can be formed by two 5 rupee coins or ten 1 rupee coins or as a combination of coins and notes.

Illustrative example: Topic: Give and Take - Adding two-digit numbers using groups of 10s, Grade 2

Accurate content that helped the learners do use an abacus and add tens and ones. The video helped the learner to count in groups of 10s and 1s, write them as two-digit numbers and add them.

Correctness and clarity in assessment (C2) is rated Exemplary. The assessment questions were clear and unambiguous. They clearly informed the learner on what to think about and what is expected as a response. The solutions contained accurate answers for the topics.

Illustrative example: Topic: Give and Take - Carry over sums using groups of 10s, Grade 2

Assessment question: Amir has 36 buttons. He got 6 more. How many does he have now? The learners had to pick the correct answer from the options provided.

Illustrative example: Topic: Patterns - Simple patterns by stamping, Grade 2

The assessment question showed a pattern on the block and options showing what the block print would look like. The learners had to choose the kind of pattern that was likely to be made using the block.
Illustrative example: Topic: Time - Sequencing the Events, Grade 1

The assessment questions asked: What activities do we do during school time? This was followed by images so that the learner could identify images containing activities that could be done during school hours. Options such as 'playing with the pet' were incorrect.

In another question, the learners were asked to choose an activity from an already established sequence. 'Picture shows the sequence of events when Mona went to the beach and built a sandcastle. Can you tell what she did after building the castle?'

Language comprehensibility (C3) is rated Exemplary. The language used was easily understandable by the learners of Grade 1 and 2. Simple sentences and phrasing were used in all the learning units covered. The accent was neutral and the vocabulary used was familiar.

Illustrative example: Topic: Data Handling, Grade 1

The video introduces the learners to the concept of data handling by using short and simple sentences like “Today we will learn how Bubbly learns counting and representing data while helping her mother.

“Mummy, can I help you in grouping the vegetables?”

"Yes, Bubbly. See, the number of cabbages is one over here. So we write 1 in front of cabbage. In the same way, we have to count the remaining vegetables and write the numbers against it."
Illustrative example: Topic: Measurement - Idea of length, Grade 1

In the video, the mother asks the children to look around and identify long and short objects from the surroundings. "Look around and give me another example of a long object and a short object. Can you do that?"

Illustrative example: Topic: Counting in 10s - Bundle of 10s, Grade 2

In the video, the characters converse among themselves using simple sentences and familiar vocabulary.
Teacher: Hey, Lily, Billy, what are you going to make with the straws?
Billy: We will make a wall-piece out of these. To make a wall piece, I need 28 straws.
Lily: And I need 45 straws. But how will we count these straws?

4.1.2. Alignment to National Standards

<table>
<thead>
<tr>
<th>Mathematics Skill coverage (C4)</th>
<th>Curriculum alignment (C5)</th>
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Mathematics skill coverage (C4) and Curriculum alignment (C5) are rated Exemplary. The reviewers observed that the learning units broadly covered the skills that are intended for this grade range. Furthermore, the videos covered the topics and sub-topics under the intended curriculum, CBSE grades 1 and 2.

The Mathematics skills required for Grades 1-2 (recommended by NEP 2020 and NCF 2005) include making comparisons and classification along one dimension at a time, identifying shapes and symmetries, and understanding the connection between counting and quantity. The content was sequenced logically across the grade ranges in alignment with the national curriculum.

Illustrative example: Topic: Counting in 10s - Bundles of 10s, Grade 2

The learning unit covers the topics of counting in bundles, counting bundles, and loose ones, which are covered in the grade-level textbook. It addresses counting and quantity, which is recommended for this grade range.

Illustrative example: Topic: Patterns - Patterns of numbers and alphabet, Grade 2

The video explains how to make patterns with letters and numbers and complete a pattern. Such patterns are covered in the grade-level textbook. It addresses the skill of identifying shapes and symmetries by identifying the following pattern in the series.
Illustrative example: Topic: Addition - Addition of 1 digit numbers, Grade 1

The videos in this learning unit have explained the concept of counting through the help of images as well as symbols, as was present in the curriculum. It helped the learners develop the connection between counting and quantity.

4.1.3. Inclusivity in Learner Representation

Inclusivity in representation of learners (C6) is rated Valuable. The reviewers observed some evidence of inclusivity in representation from diverse sections of the society in terms of gender and skin colours. However, other forms of representation, for example, different religions, different abilities, were missing.

Illustrative examples

- Diverse Indian names like Pinky, Chotu, Sonu, Bhora, Tinku, Chiku
- There was a representation of various skin colours in Data Handling - Collects and Represents Simple Data, Grade 1
4.2 Pedagogical Alignment

**Pedagogical Alignment** focuses on learner-centered pedagogy, enhancing learning experience, assessment of learning, and teacher support. It measures the extent of alignment of the pedagogical strategies with national educational policies, Learning Sciences theories, and design principles to create a meaningful learning experience.

### 4.2.1. Learner-centered Approach

<table>
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<tr>
<th>Constructivist approach</th>
<th>Addressing learning gaps / alternate conceptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>(P1)</td>
<td>(P2)</td>
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</table>

Constructivist approach in pedagogical design (P1) is rated **Exemplary**. The product explained the concepts to the learners through a well-sequenced set of examples. The videos included reflection-spot questions, which could help learners construct a better understanding.

#### Illustrative example:
Topic: Shapes and Space - Spatial Understanding - Position, Grade 1

The video helped the learners build an understanding of counting through various examples, like identifying the position of the mangoes that fell from the tree. Questions were asked and addressed within the video. "Children, where are the mangoes? On the tree or under the tree? These mangoes are under the tree."

#### Illustrative example: Topic: Addition - Addition of one-digit numbers, Grade 1

The video showed the character, Chotu, stitching buttons to his shirt. As the child stitched, the parrot (narrator) counted ahead by one. After showing the steps of counting, the video asks the learner to count the number of buttons on Chotu's shirt. Then the video provided the answer.
The videos went beyond transmission of information and gave examples from real-life occurrences for the learners to make sense of the concepts.

**Illustrative example:** Topic: Shapes and Space - Roll and Slide, Grade 1

The introductory video was situated in the park. The video helped the children identify the objects that rolled and the objects that slid by using the example of a slide. Objects like a scale and a woolen ball were pushed down to identify which rolled down and which of them slid down.

**Illustrative example:**

Topic: Data Handling - Collects and Represents Simple Data, Grade 2

The video allowed the learners to count and handle data using different examples, like counting the number of vegetables, counting the number of shapes in the drawing, counting stickers, counting candies or counting when more stickers were given.
Addressing learning gaps / alternate conceptions (P2) is rated Exemplary. The product identified the common learning gaps that can occur with each learning unit and addressed them systematically in the learning unit. This was done either through presenting multiple ways to think about a concept or addressing specific points.

**Illustrative example: Topic: Money - Money in our daily life, Grade 1**

The video provided multiple ways of thinking about arriving at the same currency value. It explains that a 10 rupee coin and a 10 rupee note have the same value. Additionally, different coins can be combined to form the value of 10 rupees, different notes can be combined, and even a combination of notes and coins will result in a total of 10.

**Illustrative example: Topic: Measurement - Idea of length, Grade 1**

In the video, the child says that the spoon which was placed ahead of the other is longer. His mother helps him understand the topic by asking him to place both the spoons at the same starting point to begin the comparison. Such questions were also asked in the assessment with the help of scissors.

**Illustrative example: Topic: Jugs and Mugs - Utensils and their capacity, Grade 2**

The video addresses the question, Does a lower level of water in one vessel compared to the other, mean that the first vessel has less water? Does the same level mean the same quantity? The video explains why the water level does not necessarily indicate less or more water by counting the number of glasses required to fill the vessel.
4.2.2. Enhancing learning experience

<table>
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<tr>
<th>Content in Context (P3)</th>
<th>Learner scaffolding (P4)</th>
<th>Cognitive Engagement (P5)</th>
<th>Logical Chunking &amp; Connectedness (P7)</th>
<th>Facilitating Goal Setting (P15)</th>
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**Content in Context (P3) is rated Exemplary.** Most of the topics have relevant and sufficient real-world context, which aids in a better understanding of the topic. Mathematical problems are placed in various contexts and scenarios which are relatable to the learner. Different objects from the surroundings or the daily activities which the learner likely performs or observes around them were present sufficiently.

**Illustrative example:** Topic: Counting in 10s - Bundles of 10s, Grade 2

The video shows a set-up where two students wished to make a wall-hanging with straws. They need 28 and 45 straws respectively. Although they have a lot of straws, they are unable to group them and keep them. The teacher helps them to arrange the straws in groups of 10 to be able to count correctly.

**Illustrative example:** Topic: Patterns - Patterns of numbers and alphabet, Grade 2

The introduction video is in a classroom setting. The teacher claps following a particular pattern, and the students are encouraged to identify the pattern and write it on the blackboard.

Thus the product provides different ways to engage the learners and motivate them to care about the topic.
Learner Scaffolding (P4) is rated Valuable. The reviewers observed that the videos went beyond the transmission of information. In some learning units, the characters in the videos made mistakes, and then appropriate steps were discussed, which helped the learners to resolve the error and tackle more difficulty.

Illustrative example: Topic: Jugs and mugs - Utensils and their capacity, Grade 2

In the video, the mother asked her son which vessel had more water - a half-filled jug or a fully-filled mug. To explain how to arrive at the answer, the mother compared the number of water glasses required to completely fill a mug to the number of glasses required to fill half of the jug. Thus the learner could see how to break down the question to arrive at an answer.

Illustrative example: Topic: Addition - Addition of 1 digit number, Grade 1

In the video, one of the characters was double-counting and providing a wrong answer. The video asked the learner to show the steps of counting, then it identified the error and subsequently helped the learner address the error and answer the question correctly.

However, the reviewers did not observe any instances of hints, prompts or breakdown of difficult questions into smaller parts in the assessment questions. The steps were provided as feedback to assessment questions. There were no suggested remedial videos that the learner could refer to if stuck.

Cognitive Engagement (P5) is rated Exemplary. The tone used in the learning units was conversational and engaging. The labelling was appropriate and highlighting was done using different colours, which would enrich the learning experience.

Illustrative example: Topic: Measurement - Idea of length, Grade 1

Learning happens through a conversation between the child and her mother. An engaging and conversational tone is used throughout. Appropriate highlights are used to differentiate between a short and a long object.

Illustrative example: Topic: Numbers from 1-9: Numbers from 1-5, Grade 1

Learning happens through a conversational tone between the teacher and the students in a classroom context. The teacher said, "Pinky, can you bring me five flutes from the table?". The video used appropriate highlighting to count the number of flutes one by one.
Logical chunking and connectedness (P7) is rated Valuable. The learning units were structured adequately to aid in a meaningful learning experience. They were small and logically chunked to enhance the learning experience. However, 25% of the sampled learning units did not have associated practice or assessment questions to check the learners' understanding.

Facilitate Goal Setting (P15) is rated Valuable. The learning units have meaningful titles which can help the learners understand what is to be expected in the videos. The assessments have the same title as well.

Illustrative example:

- The name of the learning unit is "Money in our daily life." The video exposes children to the available coins and notes and how they can be mixed and matched to arrive at a particular currency. There is no discussion about what to expect in the video.
- The name of the learning unit is "Simple Patterns by Stamping." The video shows how to identify objects around us and how we can use them to make simple patterns

However, the learning units do not provide any content-related description such as the importance of the unit, learning outcome, information about the task value, etc. Thus, there is no way for the learners to choose the videos that are mapped to their content goals.

4.2.3. Assessment of learning

Learning objective - assessment alignment (P8) is rated Exemplary. The videos and assessment questions were aligned to the stated learning objectives as well as the expected objective as per the National Curriculum. The cognitive levels in the practice activities were aligned with the content discussed in the videos.

Illustrative examples:

- Topic: Give and Take - Adding two-digit numbers using groups of 10s, Grade 2
  The videos explained to the learners how two-digit numbers could be written in boxes of tens and ones, and how they could be added. The assessments had similar questions on classifying and reading the tables of tens and ones, and then adding two-digit numbers.

- Illustrative examples: Topic: Patterns - Patterns of numbers and alphabet, Grade 2
  The videos helped the learners form an understanding of number patterns. The assessment asks the learners to apply this knowledge and complete patterns.
Pedagogy - assessment method alignment (P9) is rated Valuable. Pedagogical strategy is recommended for each grade group in NEP, 2020 and NCF 2005. According to the NCF recommendations, the pedagogical strategy recommended for Grades K-2 is Learning through Play. The videos provide instances where the characters are learning the concept through game-based activities. This, in turn, will help the learners in understanding the concept through game-based activities.

Illustrative examples: Topic: Addition - Addition of 1 digit numbers, Grade 1

The characters in the video learnt addition by playing a game of snakes and ladders. They used the number on their dice to count and move ahead.

Illustrative examples: Topic: Give and Take - Adding two-digit numbers using a group of 10s, Grade 2

The learners were exposed to counting groups of tens and ones by using an abacus. They were asked how to count using an abacus, and then they were asked to add two-digit numbers in two abaci.

However, the assessments included only formal tests with multiple-choice answers and did not follow a game-based assessment approach recommended for this grade range. The children were also given numeric scores at the end of the assessments, which is not ideal for K-2. Hence, this criterion is rated valuable.

Cognitive levels covered (P10) is rated Exemplary. The assessment questions are present at various cognitive levels, ranging from understanding and identifying, to application and estimation. There is good coverage of Higher Order Thinking Skills (HOTS) questions in many topics, going much beyond just recalling. The maximum HOTS are at an application level. Most topics have problems where learners need to apply the concept, solve problems, and connect different ideas.
Illustrative examples: Topic: Give and Take - Carry over sums using groups of 10s, Grade 2

There were questions in the assessment that would probe the learners to classify and then apply to solve problems. Example: “Chandu has 28 chocolates. He buys 2 erasers and 33 more chocolates from the shop. How many chocolates does he have in total?” In this case, the learners would have to collect erasers with erasers and only then add them up.

Illustrative examples: Topic: Patterns - Simple patterns by stamping, Grade 2

A round pattern was shown and the learners were asked which object could be used to make such a print - a lemon, a brinjal, a leaf or an apple. Learners had to classify the shape of the pattern and the objects, then think about the possible patterns created by brinjal, lemon and apple to arrive at the final answer.
Feedback Quality (P11) is rated Valuable. In general, the assessment questions stated the correct answer and provided the steps to arrive at the correct answer. Thus the feedback explains what the correct answer is and how to arrive at it. However, reviewers observed that only in some learning units was the feedback framed in sentences and included images to depict the correct answer. Furthermore, the feedback does not direct the learners to revisit the related content.

Illustrative examples: Topic: Shapes and Space - Roll and Slide, Grade 1

The assessment question was: Which object can only slide? The options show images of a pumpkin, an apple, an eraser and a brinjal.
Solution: Correct Option: 3. The eraser is the only object which can slide because it has no curved surface.

Illustrative examples: Topic: Numbers from 1-9 - Numbers from 1-5, Grade 1

The feedback provides the correct responses along with the steps to arrive at the correct response. It not only says why it is the correct answer, but also provides a rationale why none of the other answers were correct.
Which group has LESS THAN 4 animals? The question is followed by images.
Solution: Correct Option: 3
Option 1 has 4 animals.
Option 2 has 5 animals.
Option 3 has 3 animals.
Option 4 has 5 animals.
3 is less than 4.
So only Option 3 has less than 4 animals.
Illustrative examples:
Topic: Give and Take - Adding two digit numbers using groups of 10, Grade 2

Question: 2 tens and 5 ones + 3 ones and 2 tens = ________
Solution: Correct Option: 1
2 tens and 5 ones = 25
3 ones and 2 tens = 2 tens and 3 ones = 23
25 + 23 = 48

The feedback also provides an image of solving the question using boxes of tens and ones.

4.2.4. Teacher Support

Teacher Support (P14) is rated Potential to Improve. The reviewers did not support any form of teacher support in the product.
4.3 Technology and Design

Technology & Design measures how well the technological affordances integrate with the pedagogy and content to promote a meaningful learning experience for all learners. This dimension focuses on user interface design and affordances that facilitate learning.

4.3.1. User interface design

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<tr>
<th>Interface design: Enable intuitive use (T1)</th>
<th>Universal design – Content accessibility (T4)</th>
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Interface design: Enable intuitive use (T1) is rated Exemplary. The overall interface was very intuitive to use. Different types of learning content like videos and assessments were placed in separate locations. Important buttons were clearly visible. There was a visible option of moving ahead, moving forward, or submitting the assessments. The left-hand side of the screen provided an intuitive option for the user to move to a certain grade and a certain topic and learn in a certain language.

Universal Design - Content accessibility (T4) is rated Potential to Improve. The videos have a voice-over but do not have any caption associated with the voice-over, posing a barrier to diverse learners. This was seen in most of the sampled learning units. The reviewers observed that many important features of Universal Design according to the WCAG design principles were missing. The interface provided only a reading option for the assessment questions. The answers could be operable only through the keyboard, and there was no alternate option like audio instructions.

4.3.2. Technology for meaningful learning

Content type – Technology alignment (T8)

Content type - Technology alignment (T8) is rated Exemplary. The visualizations used in the product map suitably to the content type. Images and animations were also used appropriately to help learners visualize a process, likely enriching the learning experience.
Illustrative example: Topic: Data Handling - Collects and represents simple data, Grade 1

The video correctly represents objects and appropriate images and animations to show the correct grouping. For example, candies were grouped based on the same colour. When the mother provided 3 more red candies, they were put together against red candies and then counted.

Illustrative example: Topic: Shapes and space - Roll and slide, Grade 1

The video provided the learners with an excellent set of animations to show which objects rolled, slid, or both. The video showed a wooden scale and a tiffin box sliding down while a woollen ball rolled down. The animation of sliding and rolling was accurate and clearly explained the difference. Later on, the video showed the example of dholak, a musical instrument, which could roll or slide, based on the side it was on.
Appendix

How does the EdTech Tulna evaluation work?

FRAMEWORKS

EdTech Tulna frameworks define a set of standards for quality design of EdTech products. A rigorous and research backed process is established and applied for the creation of various nuanced frameworks. These frameworks are use-case specific to enable transparent and precise, high stakes decision making. The process includes considering existing research literature, feedback from the ground on multiple stakeholder needs and an appreciation for the quality of solutions currently supplied in the ecosystem.

The frameworks are categorized along the three dimensions of Content Quality, Pedagogical Alignment, and Technology & Design to capture a holistic view of the quality of the product design. The frameworks are also made available at varying levels of depth for varying stakeholder needs and range from supporting governments and institutions in making high stakes, rank based, adoption decisions, to providing a brief overview of the key criteria to be considered while designing a product.

TOOLS

Each Tulna framework is accompanied by a toolkit that is specifically designed to guide experts to evaluate EdTech products. These toolkits are customized to the type of EdTech solution, grades, subjects, to drive meaningful and nuanced evaluations. The tools are informed by research as well as iterative empirical study and tested for inter-rater reliability and validity. A typical toolkit consists of rubrics and reviewer guidelines to enable evaluators to interpret the framework and conduct unbiased evaluations. Each criterion within the framework is rated along a three-point rating scale - ‘Exemplary’, ‘Valuable’, and ‘Potential to Improve’ - indicating the level of alignment with expectations laid out in the framework.

Toolkits include supporting materials - videos, templates, and example illustrations - to guide experts while conducting evaluations.

PROCESS

Each product goes through a rigorous review process that takes approximately 160 hours for four grade ranges K-2, 3-5, 6-8, and 9-10. Each review team is designed to be independent and neutral. A typical expert review team consists of 3-4 members who are subject matter experts, instructional designers, user-interaction experts, user-experience design experts, and professionals with experience in teaching and implementing EdTech in field settings. Each review team has an anchor of at least one experienced evaluator.

Each member of the expert review team undertakes a two-week long intensive training on understanding the frameworks and the subsequent application of its toolkits to conduct evaluations. For each product, the review team applies a systematic sampling strategy and decides the representative learning units that will be reviewed. The team collectively reviews a subset of the learning units to check for convergence and establish inter-rater reliability. Team members then individually review the remaining learning units. The team finally meets to synthesize key points and takeaways of each review and elaborates their reviews into an in-depth report, which is overseen by the experienced evaluator.

The role of the product company is limited to an initial demo which supports the review team to deepen their appreciation of the intended use of the product, and its scope. The product company is then provided the final reviews and their unedited responses are published alongside the expert evaluations on the Tulna evaluation center.