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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

Schoolnet is a Digital Classroom (DCR) learning solution with a curriculum mapped to the Central Board of Secondary Education (CBSE). The product consists of short animated videos, practice worksheets and assessment questions for each learning unit and supporting hardware. The product is available for the Grades Nursery-10 for different subjects including languages, Mathematics, EVS. This report evaluates Mathematics for Grades 3-5. Teachers can use this product in their classroom for various topics as part of the curriculum.
3. Executive Summary

**Schoolnet | Mathematics | Grades 3-5**

<table>
<thead>
<tr>
<th>Content Quality</th>
<th>Pedagogical Alignment</th>
<th>Technology and Design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exemplary</td>
<td>Valuable</td>
<td>Valuable</td>
</tr>
</tbody>
</table>

**Potential benefits of this product**

- Schools and teachers can be assured of the content correctness and alignment to national standards and curriculum across grade ranges.
- The content and activities support the development of the math skills recommended by the NEP (2020) for the intended learners.
- The use of real-life examples and objects that are relevant to the content as well as relatable to the learners, helps establish the connection between their own lives and mathematical concepts. It could also aid in developing a positive attitude towards the subject.
- The product uses visualizations in the form of images, diagrams and animations suitable for the content, thus enhancing the learning experience.
- Through their conversational presentation style and appropriate highlighting, the videos and animations are likely to promote learners' cognitive engagement.
- The product adheres to user-centered design making it easy for learners to use.

**Potential limitations of this product**

- Due to the lack of explicit scaffolds or hints in many activities, some learners might struggle while working independently.
- The feedback quality in the assessment is lacking, as it provides only binary feedback (Correct / Wrong) and the correct answer but does not provide any explanation or steps to obtain the correct answer.
- The lack of group activities or prompts might lead to low participation and collaboration amongst students.
- Basic features such as captions, transcripts are missing that can pose a barrier for learners with diverse needs.
## Schoolnet (Grades 3-5): Summary of Review Ratings by Criteria

### Content Quality: Exemplary

<table>
<thead>
<tr>
<th>C1 Content accuracy</th>
<th>The content is accurate and includes correct facts, explanations, examples and realistic schematic diagrams</th>
</tr>
</thead>
<tbody>
<tr>
<td>C2 Correctness and clarity in assessment</td>
<td>Assessment questions and their solutions are factually correct and unambiguous.</td>
</tr>
<tr>
<td>C3 Language comprehensibility</td>
<td>The language used in the voice over and on screen text are easily understandable by the intended learner.</td>
</tr>
<tr>
<td>C4 Mathematics skill coverage</td>
<td>Comprehensive coverage of grade-appropriate mathematical skills as recommended by the national standards.</td>
</tr>
<tr>
<td>C5 Curriculum alignment</td>
<td>The content is aligned with the NCERT curriculum.</td>
</tr>
<tr>
<td>C6 Inclusivity in representation of learners</td>
<td>The content makes an attempt to represent various sections of society across religion, gender, skin-colour, socio-economic groups but is not consistent.</td>
</tr>
</tbody>
</table>

### Pedagogical Alignment: Valuable

| P1 Constructivist approach | The content and activities allow the learners to construct an understanding of the topic in some topics. |
| P2 Addressing learning gaps/ alternate conceptions | Alternate conceptions and learning gaps are effectively addressed in some of the learning units but not consistently in all the learning units reviewed. |
| 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. |
| P5 Cognitive engagement | The content uses a conversational teaching style and is well supported by visual and verbal cues making learning highly engaging. |
| P6 Motivational features | The product does not include any motivational features that have potential to prompt learners to further explore the content. |
| P7 Logical chunking and connectedness | The content is adequately structured to facilitate meaningful learning. |
**P8 Learning objective – assessment alignment**
All learning objectives have assessment questions aligned at corresponding cognitive levels.

**P9 Pedagogy – assessment method alignment**
The pedagogical strategies used and the assessment methods are in line with the grade specific recommendations of NEP.

**P10 Cognitive levels covered**
Higher order thinking skills are sufficiently addressed both in content and assessments.

**P11 Feedback quality**
The feedback to assessment questions indicates the correct answer but neither provides its explanation nor redirects the learner to remedial content.

**P12 Opportunities for collaboration**
The prompts or opportunities for learners to collaborate are limited.

**P14A Teacher support for in class orchestration**
Teacher support is provided for how to use the product but not on how to effectively execute the learning unit in the classroom to enhance the learning experience.

**P14B Teacher support to generate out-of-class activities**
Teachers have opportunities to make certain choices, create activities and assessments and link their own other resources to the learning units in the product.

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**Technology and Design: Valuable 😊**

**T1 Interface design: Enable intuitive use**
The product interface satisfies the user-centered design principles to facilitate the learning process.

**T2 Interface design: Assess consequences of an action**
Error handling is available for some actions.

**T3 Learner navigation & pace**
It is easy to navigate between different lessons and activities. However, the learners can not decide the speed of videos.

**T4 Universal design**
Captions and transcripts are absent making the product less accessible to diverse learners.

**T5 Analytics for learners' progress**
The information provided by the interface is easy to interpret however, it does not provide sufficient guidance in identifying where the learner needs to put in effort or where additional support should be provided to make progress.

**T6 Tools to support problem solving**
Effective mathematical tools to aid problem solving are present.

**T7 Meaningful interactivity**
Appropriate features like input boxes, drag and drag, click to select, dropdowns, sliders and checkboxes were used wherever required.

**T8 Content type - Technology alignment**
The visualizations used suitably maps to the content type.
4. Detailed Review

4.1 Content Quality

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Inclusivity in Content Representation ................................................. 10

4.2 Pedagogical Alignment

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Enhancing Learner Experience .............................................................. 14
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4.3 Technology & Design

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Affordances that Facilitate Learning .................................................... 22
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>
</tr>
</thead>
</table>

Content Accuracy (C1) is rated Exemplary: The reviewers observed that all the content was accurate and contained correct facts, explanations, examples, terminology with precise definitions and diagrams that look realistic.

Illustrative example: Topic: Tables and Shares: Division, Grade 4

Division was defined as the process of finding how many times the divisor is contained in the given number. It was also illustrated using an example of dividing 12 by 3, by showing repeated subtraction of 3 from 12 four times.

Illustrative example: Topic: Does it look the same?: Reflection, Grade 5

The concept of object and image was clearly shown to the learner with the help of accurate image and diagram.

Correctness and clarity in assessment (C2) is rated Exemplary: The practice assessment questions were clear and solutions contained accurate answers for most topics. The questions also informed the learner on what to think about and what was expected as a response.
Illustrative example: Topic: Playing with Patterns: Patterns, Grade 4

The assessment question explains that the learner needs to fill in the blanks with appropriate numbers by applying the same sum rule. It also states that the learner needs to drag the appropriate number into the blanks and click done after that.

Illustrative example: Topic: Fun with numbers : Fun with numbers, Grade 3

The voice-over in the video of this learning unit is as follows, 'The tortoise was standing on springs now. It could jump. It jumped onto number ten first. The tortoise then added ten to ten and jumped to number twenty'  

Illustrative example: Topic: How big? How heavy?: Volume, Grade 5

The voice-over in the video of this learning unit is as follows ‘Did you notice a change in the water level? Why did the water level increase when the object was dropped in it? Let us explore further.’

4.1.2 Alignment to National Standards

Mathematics Skill coverage (C4) is rated Exemplary: The overall Mathematics mindset and skills required for grades 3-5 (recommended by NEP 2020 and NCF) such as developing a liking towards Math, seeing a connection of mathematical thinking to their daily lives, computational and arithmetic skills, data handling, estimation and approximation were covered across various topics.
Curriculum alignment (C5) is rated **Exemplary**: The reviewers found that, broadly, all the topics and sub-topics covered were aligned with the content present in NCERT textbooks for Grade 3-5. The content was sequenced logically across the grade ranges in alignment with the national curriculum.

### 4.1.3 Inclusivity in Content Representation

**Inclusivity in the representation of learners (C6)**

*Inclusivity in the representation of learners (C6) is rated **Valuable**: The reviewers observed some evidence of inclusivity in representation from diverse sections of the society.*

#### Illustrative examples:

- Diverse Indian names like Rinky, Bunty, Raghav, Aditi were used.
- In a group of six boys used in a video, a boy was shown wearing a turban.
- The characters in the videos had representation from male and female gender. They were seen wearing familiar Indian attire such as salwar, shirt and pants.

Despite the above mentioned examples, it was also seen that it wasn’t consistent across all sampled learning units. There was a lack of systemic representation, especially with respect to racial inclusivity.

#### Illustrative examples:

- Most characters across learning units were found to be fair-skinned.
- The settings of videos were mostly representative of learners of a higher socio-economic background.
4.2 Pedagogical Alignment

Pedagogical Alignment focuses on learner-centered pedagogy, enhancing learner 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-Centred Approach

<table>
<thead>
<tr>
<th>Constructivist approach (P1)</th>
<th>Addressing learning gaps (P2)</th>
<th>Opportunities for collaboration (P12)</th>
</tr>
</thead>
</table>

**Constructivist approach in pedagogy design (P1) is rated Valuable:** In many sampled units, the product provides some opportunities for learners to make sense of the content on their own rather than merely transmit information. It allows the learner to make connections to their previous knowledge as well as apply the understanding of the concept. This was done in different ways across the grade range. There were multiple well-sequenced examples and hands-on activities.

**Illustrative example:** Topic: Tables and Shares, Division, Grade 4

The learning unit has multiple practice questions that prompt learners to apply their understanding, reflect-test-revise their understanding. The solution is also explained so that learners can self-assess. One among those questions can be seen in the image.

**Illustrative example:** Topic: Does it look the same?: Rotational Symmetry, Grade 5

The learner is prompted to think and draw shapes that will look the same even after a half turn.
Illustrative example: Topic: Who is Heavier?: Weight: Grade 3

While explaining the method of weighing, it elaborates on the steps to weighing using a beam balance. The learner is expected to receive and assimilate the information and is not provided opportunity to think, reflect or engage with the content.

Addressing learning gaps/ alternate conceptions (P2) is rated Valuable: In some of the sampled learning units, the common learning gaps were identified as well as addressed. This was done either through presenting multiple ways to think about a concept or specifically addressing certain points.

Illustrative example: Topic: Playing with Patterns: Patterns, Grade 4

The learning unit covers the patterns in numbers and images through the topics of magical pattern and tiling. The learner understands that the approach towards each of them is distinct.
The common misconception while reading time is clearly explained in the learning unit. That is, when the hour hand is between two numbers we consider the smaller number. But when the hour hand is between 12 and 1, we take 12.

But potential learning gaps and alternate conceptions have not been consistently addressed in all the learning units reviewed.

Opportunities for collaboration (P12) is rated Potential to Improve. The reviewers did not find enough evidence for activities which could encourage collaboration among the learners. There were no in-built activities in most sampled units except two which the learners could collaborate on, or perform in groups. There were also no prompt questions observed in the videos which suggest the learners to discuss the response or engage with fellow learners in any way.

Project work was present in two of the sampled units however, the structure did not ensure whole group participation.

A project is presented that requires the learner to interact with their friends to complete a survey and tabulate the data. However it is limited to interaction for data collection and no other structures or roles for different learners in a group.

Clear collaborative activities were absent in almost all the learning units, apart from this.
4.2.2. Enhancing learner experience

<table>
<thead>
<tr>
<th>Content in context (P3)</th>
<th>Learner scaffolding (P4)</th>
<th>Cognitive Engagement (P5)</th>
<th>Motivational Features (P6)</th>
<th>Logical Chunking and connectedness (P7)</th>
</tr>
</thead>
</table>

**Content in context (P3) is rated Exemplary:** Mathematical problems are placed in various contexts and scenarios which are relatable to the learner. Most of the topics have relevant and sufficient real world context which aids in better understanding of the topic. Different objects from the surroundings or the daily activities which the learner likely performs or observes around them were present sufficiently.

**Illustrative example:** Topic: Fun with numbers, Grade 3

The learning unit is set in a park where three children are playing. The idea of skip counting is explained in the video through the game, ‘Hopscotch’ which is very familiar to the learners.

**Illustrative example:** Topic: Long and Short: Length, Grade 4

In this learning unit, characters familiar to the learners, Akbar and Birbal were used. Akbar is seen asking Birbal to make a line shorter without altering it. Birbal draws a longer line besides it, making the initial line short.

**Illustrative example:** Topic: Smart charts: Charts, diagrams, Grade 5

- Activity to collect and tabulate data about different types of vehicles running on the road of your village/city
- Activity to collect and tabulate data about different types of trees seen in the neighbourhood
- Activity to collect and tabulate data about the favourite fruits of friends.

**Learner Scaffolding (P4) is rated Valuable:** The reviewers observed some aspects of scaffolding to be present in the product. Some of the sampled learning units had a summary as well as hints for practice questions that will help the learner to create a mental model of the concept learnt. None of the assessment questions in the learning units had hints or remedial content to help the learner solve the problem.

**Illustrative example:** Topic: Does it look the same?: Rotational Symmetry, Grade 5

In the summary, different types of objects that have rotational symmetry with a half, one-third, one-fourth and one-sixth turn are put together. This helps the learner create an appropriate mental model of the concept ‘Rotational symmetry’
The learners are expected to arrange the tabular data in the format of a pie chart. There is a hint provided to the learner to complete the practice activity as shown in the image.

**Cognitive Engagement (P5) is rated Exemplary:** Appropriate highlighting and the different colours and borders were used to engage the learners. The content presentation style in the sampled units was conversational.

**Illustrative example:** Topic: Be My Multiple, I'll be Your Factor: Factors, Common Factors, Grade 5

The content was presented in a conversational style and used active voice and words such as, 'Hello students', 'Let us summarize what we have learnt in this unit'. In addition, there were visual cues, for example, bullet points were used in summary.
Motivational Features (P6) is rated Exemplary: In the assessment section, encouraging phrases like ‘Very good. All your answers are correct’, ‘That’s not quite right. Try again’, ‘Excellent! You are right’ are used in many places. An element of choice are present in how many questions of a particular type the learner wants to practice. However, at a product level, features such as overall learning proficiency levels are not present. Including such explicit features would encourage a learner to further explore the content.

Logical chunking and connectedness (P7) is rated Exemplary: All the learning units were structured adequately to aid in a meaningful learning experience. They were chunked into small videos of generally less than 5 minutes duration. Some videos have a reflection spot or practice questions within them, or are followed by a set of assessment questions in different formats namely fill in the blanks, matching etc.

Illustrative example: : Topic: Shapes and Angles: Shapes and Angles, Grade 5

The learning unit had eight sub-topics consisting of short videos explaining a single concept. The duration is less than 5 minutes. Assessment questions aligned to the videos were available.

4.2.3 Assessment of Learning

Learning objective – assessment alignment (P8) is rated Exemplary: Most sampled learning objectives had associated assessment questions at the corresponding cognitive levels in the videos. The assessment questions can enable the learners to attain the learning objectives.
Illustrative example: Topic: Rupee and Paise? Conversion of rupee to paise, Grade 3

The video, with the help of interactive examples, explains and provides opportunities for practice to the learners on how to apply the formula and find the perimeter of a rectangle when the length and breadth are given. Similarly, in the assessments the learner is required to apply the formula and find the perimeter and match the correct option as shown in the image.

Pedagogy-assessment method alignment (P9) is rated Exemplary: For the preparatory stages (Grades 3-5), NEP 2020 suggests scenario-based teaching involving relatable examples that make connections with daily life, and teaching using activities and observation. The product has sufficient scenario-based problems through stories and relatable real-life examples to ensure alignment with these recommendations. The overall pedagogy of assessments was largely activity-based.

Illustrative example: How big? How heavy?: Volume, Grade 5

In one of the activities, the learners were asked to make a measuring bottle which can measure 10 ml, 20ml, 30ml as shown below.
**Illustrative example:** The Fish Tale: Mathematical Operations on Bigger numbers, Grade 5

Scenario based questions as shown below were used in the assessment section of the learning unit.

**Cognitive levels covered (P10) is rated Exemplary:** The questions were present at various cognitive levels suitable for the topics, ranging from recall and understanding to application. Most topics had opportunities for the learner to apply the concept, solve problems and make connections between different ideas and go much beyond just recalling or identifying.

**Illustrative example:** Topic: Playing with Patterns: Patterns, Grade 4

The assessment question requires the learner to apply the rule of ‘the sum of the numbers below is equal to the number above them’ that was explained in the video.

**Illustrative example:** Topic: Playing with Patterns: Patterns, Grade 4

From the list of shapes given, the learner is expected to identify the shape that would not look the same after a half turn. This requires the learner to analyze and compare the shapes before and after the half turn.
Feedback Quality (P11) is rated **Potential to Improve**: The feedback present was in binary (Y/N) format stating what is the correct response. No explanation provided as to why it is so. The learner is neither provided with an explanation as to why it is the correct response nor redirected to revisit related content.

**Illustrative example:** Parts and Wholes: Fractions, Grade 5

The product informs the learner what the correct answer is by highlighting it in green. But doesn't explain why it is so or redirect the learner to revisit the associated content.
4.3.4 Teacher Support

**Teacher support for in class orchestration (P14A)**

Teacher Support for in class orchestration (P14A) is rated **Valuable**: Teachers are provided with an Admin Manual and Navigation Guide to help them understand features of the teacher kit. The teacher kit includes a paint tool, highlighter, make your own activity / assessment etc. However there was no evidence of guidance on how to effectively execute the learning unit in the classroom or integrating the product into the lesson plan.

**Teacher support to generate out-of-class activities (P14B)**

Teacher support to generate out-of-class activities (P14B) is rated **Exemplary**: The reviewers found that the teacher had opportunities available to create their own activities and assessments. They can also link their presentation to the video resources of the product.

**Illustrative examples**

- The ‘make your own activity’ feature allows the teacher to create an activity of their choice related to the topic. They can give a suitable title, objective, description on how to do it and materials required for the same.
- The ‘make your own assessment’ feature allows the teacher to create both multiple choice assessments as well as subjective assessments related to the topic.
- Teachers are also provided with a ‘link your resources’ feature allowing them to add any associated resource.

4.3 Technology and Design

Technology & Design measures how well the technological affordances and the user interface design integrate with the pedagogy and context to promote a meaningful learning experience for all learners. The criteria in this dimension focus on user interface design and affordances that facilitate learning.

4.3.1 User Interface Design

**Interface design: Enable intuitive use (T1) is rated Exemplary**: The overall interface was very intuitive to use. All important buttons and links to various activities were clearly visible. Also, there was consistency in the way actionable elements are used and highlighted across the product. There was a clear mapping between control and effect, and expected responses were observed with user actions, like button clicks.
Illustrative examples

- The different buttons like ‘done’, ‘try again’, or ‘solution’ were highlighted in the assessments giving a clear indication of an action to be taken.
- Different types of learning content like the teacher kit, video, resources (assessments and worksheets) were placed in separate tabs.

Interface design: Assess consequences of an action (T2) is rated **Valuable**: The interface facilitates error handling or reversal of actions to some extent but does not provide a constructive response to learner’s actions. Error handling or reversal was not observed if the learner stops an assessment midway.

Illustrative example: Exiting a learning unit

There was no explicit feedback for learner actions, while starting a new topic or a prompt if the learner tries to exit a particular activity midway. However, when returning / relogging, a prompt asks if you want to continue from where you left.

Learner Navigation and pace (T3) is rated **Valuable**: The learner can easily navigate between different content pieces across different chapters or various activities within a chapter. However, there was no option to control the pace of the videos.

Illustrative example: Grade 4 lessons

The learner can navigate between various mathematics chapters in grade 3. They can choose the one they wish to from a drop down. One learning unit, ‘length’ has two sub sections namely, ‘guessing lengths and distances’ and ‘measures and conversions’. The learner is free to choose either of them. However, while playing the videos there is no option to control the pace.

Universal Design (T4) is rated **Valuable**: Some features of Universal design were present like allowing inputs from mouse click. Sufficient time is given to the users to read and understand the content. However, many important features of Universal design according to the WCAG design principles were found to be missing. Some of these include captions for the video content, voice over for assessment questions.
4.3.2 Affordances that Facilitate Learning

<table>
<thead>
<tr>
<th>Analytics for learners’ progress (T5)</th>
<th>Tools to support problem-solving (T6)</th>
<th>Meaningful Interactivity (T7)</th>
<th>Content type – Technology alignment (T8)</th>
</tr>
</thead>
</table>

Analytics for learners’ progress (T5) is rated **Valuable**: The usage report provided to the teachers is easy to interpret. But, it does not provide sufficient guidance to the user on identifying where the learner needs to put in effort or where additional support should be provided to make progress.

Illustrative example

Multimedia usage report gives the class-wise, subject-wise and student-wise usage report. This gives information on time spent in an easy to understand format with start time and end time (per grade and subject). However, it does not record assessment scores or identify the area/topic in which the learner requires support.

Tools to support Problem-solving (T6) is rated **Exemplary**: Mathematical tools are present in topics wherever required.

Illustrative example: Fields and Fences: Introduction to areas, Grade 4

Protractor and scale were available to the learner to measure the length of sides and angles of a rectangle.

Meaningful Interactivity (T7) is rated **Exemplary**: The product has all the appropriate interactivity features which are meaningful for learning. The reviewers did not observe any superfluous interactivity features. Different features like input boxes, drag and drop, click to select and dropdowns were used wherever they aid in better understanding of the concept.
Content type - Technology alignment (T8) is rated Exemplary: The visualizations used in the product map suitably to the content type. The images, diagrams and animations aided the learner to visualize concepts effectively.

Illustrative example: Does it look the same?: Rotational Symmetry, Grade 5

Animation is provided alongside steps to do the activity to guide the learners.

Illustrative example: Parts and Wholes: Fractions, Grade 5

Appropriate images were used to illustrate part of a whole concept as shown in image below.
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.