Evaluated in
July 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

iPrep Digital Class is a digital classroom learning solution with a curriculum mapped to the CBSE board. The product contains animated videos and practice questions for each learning unit, along with DIY project videos for some topics. Teachers can use the content to supplement their teaching in the classroom or assign different videos or practice tests to students. The English version of the product has been evaluated in this report.
3. Executive Summary

iPrep Digital Class | Mathematics | Grades 6-8

<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

- Students, teachers, and parents can be assured of the correctness of the content and all the learning activities.
- Schools can be assured of the alignment of the content with the national curriculum.
- Schools and teachers can be assured of the correctness of the content and can use the product for in-class teaching as well as assigning independent tests or activities to the students.
- Learners will likely be able to develop deep conceptual understanding as the product addresses common learning gaps.
- The content is cognitively engaging and is likely to keep classes of various numbers of learners meaningful engaged.
- The product uses sufficient real-life examples and scenarios for learners to relate Mathematical concepts to their day-to-day lives.
- The adoption and learning curve for the teachers and students would likely be smooth due to the intuitive nature of the interface, and well-chunked topics.
Potential limitations of this product

The effectiveness of the learning experience may be negatively impacted in the following ways:

- There aren’t opportunities for the learner to experiment or perform hands-on activities, which might result in poor retention in the case of topics where multiple concepts are applied together.
- Due to insufficient explicit scaffolds or hints in some activities, struggling learners might get stuck when they are working independently on the activities.
- The lack of group activities or prompts might lead to low encouragement from the teacher for collaboration among the learners.
- The lack of some key Universal Design features might make the product unsuitable for some learners.
- The absence of motivational features can hamper learners from completing assessments.
- The lack of breakdown in the mastery level can hinder the identification of the exact areas where the learner would need additional support.
### Content Quality: Exemplary

<table>
<thead>
<tr>
<th>C1. Content accuracy</th>
<th>The content is accurate and concepts are explained clearly.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C2. Correctness and clarity in assessment</td>
<td>Most of the assessment questions and solutions are correct but ambiguity or incompleteness was observed in some of the questions.</td>
</tr>
<tr>
<td>C3. Language comprehensibility</td>
<td>The language used is likely to be easily understandable by the learners of Grades 6 to 8.</td>
</tr>
<tr>
<td>C4. Mathematics skill coverage</td>
<td>Skills recommended by NCF 2005 and NEP 2020 for Grades 6-8 are covered</td>
</tr>
<tr>
<td>C5. Curriculum alignment</td>
<td>The content is aligned with the NCERT curriculum</td>
</tr>
<tr>
<td>C6. Inclusivity in the representation of learners</td>
<td>An attempt has been made to represent diverse socio-economic backgrounds and genders, but it is not sufficiently inclusive.</td>
</tr>
</tbody>
</table>

### Pedagogical Alignment: Valuable

<table>
<thead>
<tr>
<th>P1. Constructivist approach</th>
<th>The content allows the learners to understand the meaning of the concepts but some of the important features of constructivism are missing.</th>
</tr>
</thead>
<tbody>
<tr>
<td>P2. Addressing learning gaps/alternate conceptions</td>
<td>Potential learning gaps or confusions are identified and addressed effectively.</td>
</tr>
<tr>
<td>P3. Content in context</td>
<td>A relevant and sufficient real-life context is included which will help the learners to relate to and care about the topic.</td>
</tr>
<tr>
<td>P4. Learner scaffolding</td>
<td>Any kind of support or hints are missing in the practice questions.</td>
</tr>
<tr>
<td>P5. Cognitive engagement</td>
<td>The content presentation style is conversational and important elements are highlighted well.</td>
</tr>
</tbody>
</table>
P6. Motivational features
The content lacks effective motivational features that will prompt the learners to explore the content.

P7. Logical chunking and connectedness
The chapters are chunked logically into smaller videos, and practice tests are mapped to the chapters.

P8. Learning objective- assessment alignment
Learning objective and assessment alignment is missing in some of the learning units.

P9. Pedagogy - assessment method alignment
Pedagogy and assessment alignment is found for a few topics.

P10. Cognitive levels covered
Questions covering Higher Order thinking skills are present in some of the topics.

P11. Feedback quality
Feedback in the form of complete solutions is present, but no guidance is provided for revisiting the content.

P12. Opportunities for Collaboration
No opportunities for collaboration or group activities were observed.

P14A. Teacher support for in-class orchestration
There is no support for teachers to plan the lessons or integrate the content in their teaching.

P14B. Teacher support to generate out-of-class activities
A “Coach App” is available which the teachers can use to assign content or tests to the students.

Technology and Design: Valuable

T1. Interface design: Enable intuitive use
The platform is easy to use and the elements are clearly visible.

T2. Interface design: Assess consequences of an action
The interface provides an appropriate response to the learner’s action.

T3. Learner navigation & pace
It is easy for the learners to navigate within and between learning units, but they can watch the videos only at a certain pace. The practice tests also lack flexibility in navigation.
**T4. Universal Design**
Essential features of universal design are not present which would make it difficult to be used by diverse learners.

**T5. Analytics for learners’ progress**
The dashboard provides easily interpretable progress of the learners but does not provide sufficient guidance on the next steps.

**T6. Tools to support problem-solving**
Mathematical tools which would enhance the learning experience were not observed.

**T7. Meaningful interactivity**
Any interactive features to support the understanding of various concepts were absent.

**T8. Content type - Technology alignment**
Appropriate visualizations are used in the videos to aid in meaningful learning.

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

### 4.1 Content Quality 🧑‍🎓

<table>
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<td>Alignment to National Standards</td>
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<td>Inclusivity in Content Representation</td>
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### 4.2 Pedagogical Alignment 😊

<table>
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<tr>
<th>Category</th>
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### 4.3 Technology & Design 😊

<table>
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<tr>
<th>Category</th>
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<tr>
<td>User Interface Design</td>
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<td>Affordances that facilitate learning</td>
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</table>
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>
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</table>

**Content Accuracy** (C1) is rated **Exemplary**. The reviewers observed that all the content is accurate and the videos included correct definitions, facts, and examples. There were no inaccuracies observed in the content from either a conceptual viewpoint or in the representation of any content.

**Illustrative example:** Knowing your Numbers, Grade 6

Concepts and topics like large numbers, representation of large numbers, Indian & International systems of Numeration, expressing, arranging, rounding off numbers are covered. Topics like comparing numbers, writing large numbers, and skills like estimation and simplification using brackets are accurately depicted using multiple examples.

**Illustrative example:** Simple Equations, Grade 7

The concept of variables and constants is introduced well. The video content covers the definition of an equation, how to solve an equation, and the transpose of an equation accurately.

**Correctness and Clarity in Assessment** (C2) is rated **Valuable**. The assessment questions and solutions were practically correct but there was either some ambiguity or some incompleteness in some of the practice tests. This was either due to formatting errors, missing images, missing context, or improper use of language in the questions. An example from one chapter is shown below:
Illustrative example: Simple Equation, Grade 7

There are multiple instances where the solutions provided are ambiguous. Images are provided below. The formatting of the fractions and the equations can cause confusion.

![Correct solutions](image1)

Figure 1: The solutions are difficult to understand due to their formatting and structure.

![Correct solutions](image2)

Figure 2: The questions are ambiguous either due to formatting(left) or phrasing(right).
Language comprehensibility (C3) is rated Exemplary. The language used is likely to be easily understandable by the learners of grades 6-8. Simple, short, and easy-to-understand sentences are used. The reviewers found that the accent used was neutral in more than 80% of the sampled learning units. The vocabulary used is familiar. Wherever there are new vocabulary words required for the topic, they are well supported by images or animations which likely help the learners to comprehend the content.

4.1.2. Alignment to National Standards

<table>
<thead>
<tr>
<th>Mathematics Skill coverage (C4)</th>
<th>Curriculum alignment (C5)</th>
</tr>
</thead>
</table>

Mathematics skill coverage (C4) and curriculum alignment (C5) are 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 6-8. Within each chapter, all the different aspects of the topic were covered comprehensively with the videos as well as other learning activities.

Illustrative example: Understanding Elementary Shapes, Grade 6

The chapter covers all different concepts and topics like lines, angles, polygons, circles, curves. The topics covered were line segment, types of angles, types of quadrilaterals like rectangle, square, rhombus, parallelogram, etc. These are all in alignment with the NCERT curriculum.

The overall Mathematics mindset and skills required for grades 6-8 (recommended by NEP 2020 and NCF) like understanding abstract concepts, seeing relationships between numbers, observing number patterns, being introduced to algebraic notation and graphical representation, observing geometrical properties, etc.
4.1.3. Inclusivity in Content Representation

Inclusivity in the representation of learners (C6) is rated Valuable. The was a fair representation of different sections of the society observed in the content in terms of gender and socio-economic backgrounds. The scenarios and context presented in the videos are likely to be relatable to most sections of Indian society in terms of social and economic backgrounds, both urban as well as rural.

While gender inclusion was apparent in most of the chapter videos, the other forms of representation, for example, different skin colors, different abilities, were missing. The reviewers also observed that there is a significantly higher representation of fair-skinned characters across the product.
4.2 Pedagogical Alignment

**Pedagogical Alignment** focuses on learner-centric 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-centered Approach

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

**Constructivist approach in pedagogy design (P1)** is rated **Valuable**. The product goes beyond the mere transmission of information and helps learners make sense of the content by using various scenarios and problem statements before explaining the Mathematical concepts and ideas.

**Illustrative example: Data Handling, Grade 6**

The unit starts with a scenario where two students (Vinay and Preeti) are discussing their final exam rates. The hook used here is - which student has done better? Vinay has got 320/400 marks and Preeti has got 400/500 marks. The chapter begins with this hook before it explains the concept of percentages.

**Illustrative example: Visualizing Solid Shapes, Grade 8**

The entire content is taught through a conversation between two girls, Radha and Rita. Rita asks all the questions, and Radha answers them. The topics are also short and well-sequenced.
There is also a section present for ‘Stem Projects’ in the product which has videos demonstrating some hands-on activities for learners to try out for various topics. These activities are present for some of the topics in the grade range. They can aid in helping the learners build an intuitive understanding of various ideas.

However, some crucial elements of a constructivist approach were found to be either missing or ineffective. For example, there was little scope of experimentation or activity based learning in the product. Some mathematical properties were also stated as facts without clear reasoning and explanation. Reflection spots and in-video thinking questions were present in some of the learning units but were ineffective. There wasn’t a sufficient prompt for the learners to pause and think about the questions. In some cases, the question was left unanswered or without any discussion. In many learning units, the practice questions involving problem-solving are also not sufficient to help learners construct an understanding of the concept.

**Addressing learning gaps/ alternate conceptions (P2) is rated Exemplary.** The common learning gaps were identified as well as addressed in more than 80% of the topics wherever there is a possibility. This was done either through presenting different scenarios, multiple ways to think about a concept, or addressing specific points.

**Illustrative example: Topic: Visualizing Solid Shapes, Grade 8**

The different views of a 3D shape (top, front, and side) are shown and explained. The differences between 2D and 3D shapes are highlighted.

**Opportunities for collaboration (P12) is rated Potential to Improve.** The reviewers did not find any evidence for suggested activities which could encourage collaboration among the learners. There were also no prompt questions observed in the videos which suggest that learners discuss the response or engage with fellow learners in any way. There were no in-built activities in the product which the learners could collaborate on, or perform in groups.
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. All the topics have relevant and sufficient real-world context which aids in providing 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 daily activities that the learner likely performs or observes around them were present sufficiently.

Illustrative example: Topic: Understanding Elementary Shapes 1, Grade 6

The chapter starts with a scene of a child and his uncle discussing the time on the clock. The uncle asks the child about the angle formed between the minute hand and hour hand, and also the shape of the clock (hexagon). He mentions towards the end that he has learned his geometry well.

![Figure 3: Example for understanding elementary shapes](image)

Illustrative example: Topic: Lines & Angles, Grade 7

The chapter starts with a student, Aditi asking her if she can close the window as the sun rays were falling directly on her. Her teacher says yes, and asks her what she meant by rays.
Illustrative example: Topic: Direct & Inverse Proportion, Grade 8

The chapter starts with an example of a person named Michael who has to prepare two cups of coffee. The exact measurements of sugar, coffee, milk, water are shown on the screen, and the question asked is - what would he have to do if he had to prepare coffee for 10 people?

Learner Scaffolding (P4) is rated Potential to Improve. The product lacks any scaffolds or support for the learners which could either help them come out of a stuck situation or take on challenges of higher difficulty in a progressive manner. The assessment questions do not provide any hints or prompts to a learner who might be stuck or might be struggling to figure out the correct response or make sense of the question. The questions also lack any supporting visuals where required.

However, the product attempts to adapt the level of questions based on the user’s performance, but it is not very effective. This is due to the fact that the learner gets stuck in a loop of very few questions (sometimes around only 3 questions) if they answer incorrectly. Most of the assessments also lack step-by-step solutions which could potentially serve as scaffolds helping the learner understand the concept better and solve further questions.

Cognitive Engagement (P5) is rated Exemplary. The signaling in the product was exemplary. Appropriate text highlighting and use of different colors, borders, boxes, and animated arrows were made to engage the learners and bring their attention to the important aspects. The videos were very bright and colorful making it a visually appealing experience for the learners. The tone was conversational and inviting for the learners in most of the learning units.

Illustrative example: Visualizing Solid Shapes, Grade 8

Figure 4: Example of signaling and highlighting
Motivational Features (P6) is rated Valuable. The reviewers observed a mastery bar when attempting a practice test, which indicates the mastery in the current practice session based on the learner’s performance. But it is likely ineffective especially for a struggling learner since it was observed that the mastery sometimes drops to 0 from a high number when a learner just answered 1 or 2 questions incorrectly.

There were not enough motivational features observed in the assessments or the content videos, which would motivate the learner to explore the content further. There were no opportunities observed for a higher skill level learner to progress to the higher difficulty by means of unlocking challenging questions or higher difficulty levels. The product also lacks any motivational cues for a struggling learner. No progress indicators or proficiency levels were available for a learner at an overall product level.

Logical Chunking and Connectedness (P7) is rated Exemplary. All the learning units were structured adequately to aid in a meaningful learning experience. The videos did not exceed 7-8 minutes. Many learning units were in fact chunked into smaller pieces of 1-3 minutes with each video explaining a sub-topic. Even for the longer videos, they were internally structured in a logical manner. They started with an example, identified the learning objectives, and explained the subtopics in a step-by-step manner. The practice tests were also mapped exactly to the content videos and the topic names, thus helping the learners to navigate to the relevant practice tests after learning the content.

4.2.3. Assessment of learning

<table>
<thead>
<tr>
<th>Learning objective – assessment alignment (P8)</th>
<th>Pedagogy-assessment method alignment (P9)</th>
<th>Coverage of cognitive levels (P10)</th>
<th>Feedback Quality (P11)</th>
</tr>
</thead>
</table>

Learning objective - assessment alignment (P8) is rated Valuable. The videos and the practice tests were broadly aligned to the stated learning objectives as well as the expected objective as per the National Curriculum for all the topics.

However, questions in the practice tests in some learning units were not representative and completely aligned with the content covered. An example is listed below:
**Illustrative example: Data Handling, Grade 6**

The content discusses defining, recording, organizing data and drawing pictographs and bar graphs. Whereas the assessment only focuses on one question around recording data. Images are represented below.

![Figure 5: The objectives of the lesson](image-url)

**Figure 5: The objectives of the lesson**

![Figure 6: The only questions asked in the assessment](image-url)

**Figure 6: The only questions asked in the assessment (Same data set) throughout.**

---

**Illustrative example: Understanding Elementary Shapes 1, Grade 6**

The content covered in this chapter includes line, line segments, angles, and polygons, but in the assessment, more than 90% of the questions are only around one topic - measurement of angles. No questions around polygons or lines are covered.
Pedagogy-assessment method alignment (P9) is rated Valuable. Pedagogical strategy is recommended for each grade group in NEP, 2020. According to NEP, 2020 - the pedagogical strategy recommended for Upper Primary School (Grades 6-8) is Hands-on Activities, Real-Life Scenario, and Pattern Formation.

There were some problems pertaining to a real-world context, but all of the practice tests were in a direct question-and-answer format, with no opportunities for learners to engage in activity-based learning or assessments. The pedagogical strategies (e.g. activities, examples) used in the product and the assessment methods were aligned to each other for only some topics in the grade range. For example, topics like Data Handling, Introduction to Graphs have real-life scenarios but lack hands-on activities. The assessments are only MCQs.

Cognitive levels covered (P10) is rated Valuable. The questions are present at various cognitive levels as required, ranging from understanding and identifying, to application and estimation. There is good coverage of Higher Order Thinking Skills (HOTS) questions in around 50% of learning units, going beyond just recalling or identifying. However, some of the learning units do not contain enough HOTS with most questions being at a recall, or a definition level.

Illustrative example: Understanding Elementary Shapes 1, Grade 6

Most questions are fact-based and are mostly used to identify whether the angle is right, straight, or reflex.

Feedback Quality (P11) is rated Valuable. The review team found that the feedback in the product was in the form of a solution to practice problems. In most of the learning units, practice questions were in the form of Multiple Choice Questions (MCQ). The team observed that for all chosen options, the same statements appear in the solution. Also if learners want to know which part they should revisit to get correct answers, there is no guidance provided. No accompanying images or other visuals were present to explain the answers in any of the learning units.

Illustrative example: Visualizing Solid Shapes, Grade 8

In the case of the questions, the image of a polyhedron, pyramid, cube, cuboid, or any other 3D shape is not shown throughout the assessment. The correct explanation is given for the solution provided, but there is no guidance or redirection on what content should be revisited or focused upon by the learner. Some images are shown below.
4.2.4. Teacher Support

**Teacher support for in-class orchestration (P14A)** is rated Potential to Improve. The product did not have any features built in the product to support teachers in lesson planning or using the learning material.

**Teacher support to generate out-of-class activities (P14B)** is rated Valuable. The reviewers found that the support for teachers was present to some extent. The teacher can connect to the learners using a separate “Coach App”, and has the flexibility to assign the already available lessons and practice tests to individuals or groups of students.

However, a teacher cannot create customized worksheets or practice tests for their class. There is no option available to either select particular questions from a question bank for a particular chapter or to create worksheets by picking questions across various chapters.
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

<table>
<thead>
<tr>
<th>Interface design (T1 and T2)</th>
<th>Learner Navigation and pace (T3)</th>
<th>Universal design (T4)</th>
</tr>
</thead>
</table>

**Interface design: Enable intuitive use (T1) is rated Exemplary.** The overall interface was very intuitive to use. Different types of learning content like the videos, assessments, and projects were placed separately, with clear icons. Easily operable buttons helped the learners to change the class or navigate to the desired content type. In the assessments, the button for submission was clearly visible. The play/ pause and fast forward/ rewind buttons were clearly visible in the videos. Important buttons like “Start Practice Tests”, or the button tiles to “play the videos” or “Next video”, were clearly visible and consistent throughout the product.

The practice questions were intuitive and easy to answer, with large “option” boxes for MCQs and a clear submit button. Overall, consistency is maintained throughout the product, and the learner can easily find the visual elements and functions required to do the given task.

**Interface design: Access consequences of an action (T2) is rated Exemplary.** There were sufficient prompts for different user actions wherever required, making the learner aware of the consequences of their action. For example, If a learner presses the “back” button in the middle of the assessment, there is a prompt asking whether the learner wants to close the assessment midway or continue to improve content mastery. If the learner wants to retake a completed test, the prompt informs the learner that the last recorded mastery will be erased should they choose to retake the test, and provides the learner an option to go back on the decision. In case the learner chooses to quit midway, the test starts from the previously ended point.
Learner Navigation and pace (T3) is rated Valuable. The product offers a good level of flexibility to the users to learn at their own pace and sequence. The learners can navigate freely to the desired class, topic, or practice test. Videos can be paused, fast forwarded, and quit at any time. There were no restrictions on the amount of time needed to spend on different practice questions.

However, the videos could not be played at varying speeds based on a learner’s preference. Another missing aspect of navigation in the practice tests was the inability to navigate between questions in a particular practice test. The learner needs to serially answer the questions. The product does not allow the learner to skip a question and move forward. Once an answer is selected and submitted, the learner cannot go back and revisit the question after seeing the solution.

Universal Design (T4) is rated Potential to Improve. The learners had sufficient time to read and understand the content. However, many important features of Universal design according to the WCAG design principles were found to be missing. There were no written captions for the video content. The questions of the assessments could only be read and the answers could be operable through the touch screen input. There was no alternate option like audio instructions, voice-over for questions, or audio input.

### 4.3.2. Affordances that facilitate learning

<table>
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<tr>
<th>Analytics for learner’s progress (T5)</th>
<th>Tool to support problem-solving (T6)</th>
<th>Meaningful interactivity (T7)</th>
<th>Content type - Technology alignment (T8)</th>
</tr>
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</table>

Analytics for learners’ progress (T5) is rated Valuable. The product allows the learners to view progress reports related to video lessons and practice tests. The learners can get information about the amount of time spent watching different content videos, and the number of attempts, and the percentage mastery level in a particular practice test. However, the dashboard does not identify the specific learning objectives in which the learner would need additional support or practice. It also lacks any actionable elements which can prompt the learner to revisit certain content pieces or tests based on the presented information. There is a separate dashboard for the teacher as well, on the “Coach App”, where the teacher can view similar statistics about mastery levels and the amount of time spent watching the different content pieces.
Tools to support Problem solving (T6) is rated Potential to Improve. Mathematical tools were not present in the topics that were reviewed. There were no tools like a protractor, scale, graphs, etc. which the learner could use and apply while learning in the product.

Meaningful interactivity (T7) is rated Potential to Improve. The product only has basic interactivity features like simple buttons or radio buttons which help the learners to select the answers and navigate through the content. There were no other interactivity features observed which could aid in the learning or understanding of various concepts. Interactivity features like input boxes, drag and drop, dropdowns, sliders, and checkboxes were missing.

Content Type - Technology alignment (T8) is rated Exemplary. The visualizations used in the product map suitably to the content type. Process images or simple animations are used wherever required.

Illustrative example: Understanding Elementary Shapes, Grade 6

Diagrams and animations were used to show different figures and types of polygons like quadrilateral, triangle, etc.

Illustrative example: Introduction to Graphs, Grade 8

Appropriate animations were shown to display how bar graphs and line graphs are drawn. With changing time, it was shown on a line graph how distance increases and how the graph gets formed eventually.
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.