

## **Website Evaluation**

Team L3M0N8 (Liela, Lourdes, Lando [Rene])

IDE 641: Techniques in Educational Evaluation

Dr. Moon-Heum Cho

29 January 2025

## Comprehensive Evaluation Assignment for PBS LearningMedia and CK-12

The rapid expansion of digital learning resources has made it essential to evaluate the effectiveness of educational websites to ensure they meet the needs of students and educators. This evaluation focuses on PBS LearningMedia and CK-12, two well-established online learning platforms that provide free, high-quality educational content tailored for K-12 learners. Both platforms were selected based on their widespread use, commitment to interactive and multimedia learning, and alignment with modern educational standards.

### PBS LearningMedia

PBS LearningMedia is an extensive digital resource library offering curriculum-aligned videos, interactive lessons, and instructional tools designed to engage students and support educators. Its content is sourced from reputable institutions such as PBS, National Science Foundation, and NASA, ensuring accuracy and credibility. The platform caters to diverse subjects, including STEM, social studies, language arts, and the arts, making it an asset in both classroom and remote learning settings.

- **Website URL:** <https://www.pbslearningmedia.org>

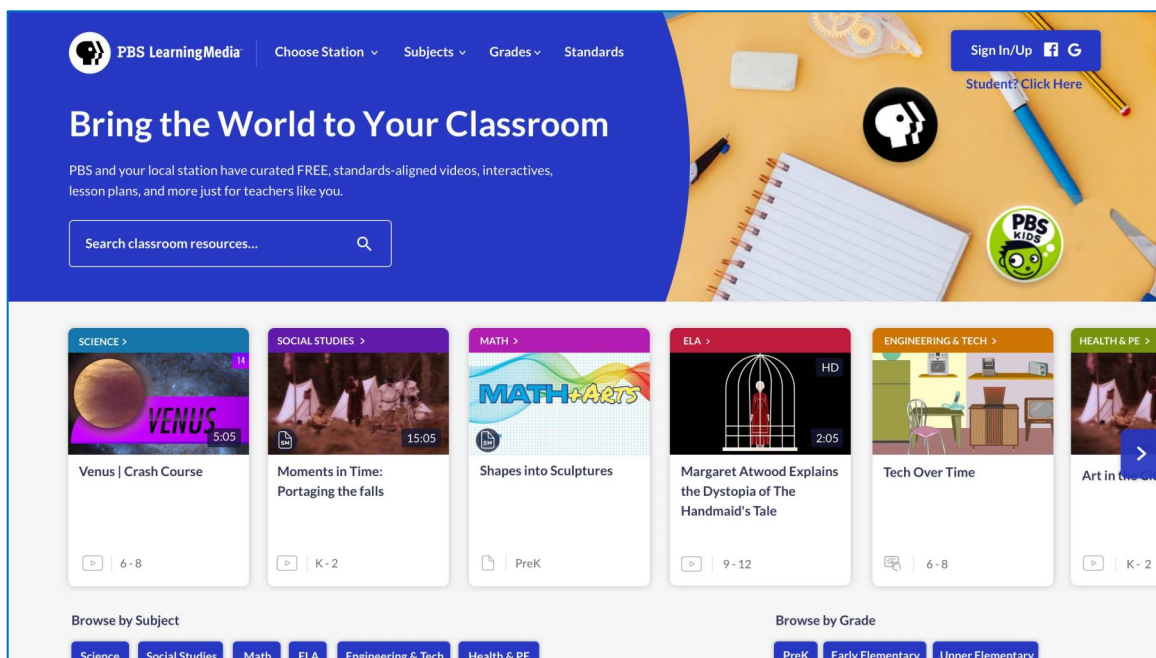


Figure 1: PBS LearningMedia Homepage

This image captures the main interface of PBS LearningMedia, where educators can search for and explore digital learning resources. The top of the page features:

- A search bar allowing users to find materials quickly.
- Navigation links for Subjects, Grades, and Standards, making it easy to locate content aligned with curriculum requirements.

Several featured lesson resources are displayed, categorized by subject:

- Science: A video lesson about Venus from Crash Course.
- Social Studies: A history-based lesson on Portaging the Falls.
- Math: A creative approach integrating math with art.
- ELA: A literature lesson on Margaret Atwood's dystopian themes.
- Engineering & Technology: A resource on technological advancements over time.

This homepage serves as a central hub for teachers to find interactive lessons, videos, and teaching materials tailored to various subjects and grade levels.

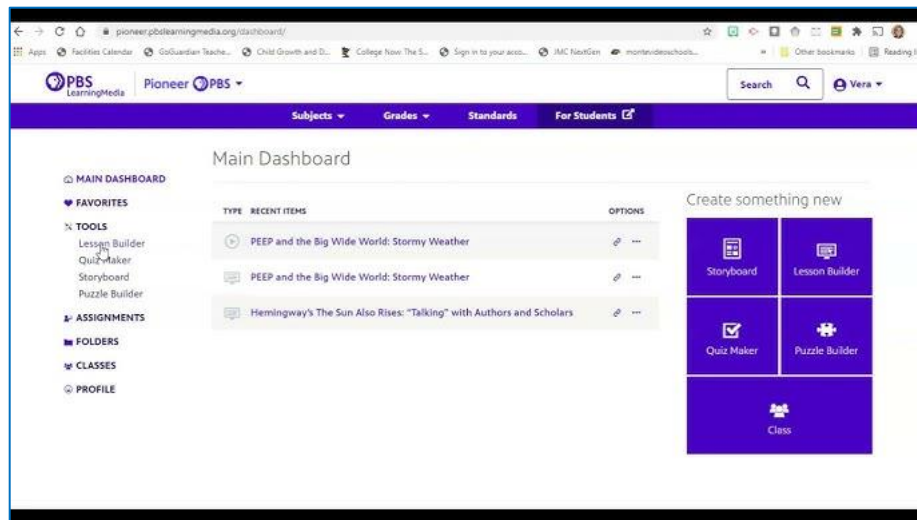


Figure 2: PBS LearningMedia Teacher Dashboard

This screenshot provides an inside look at the PBS LearningMedia Main Dashboard, which serves as a central hub for educators to create and organize digital learning materials. Key features visible in this image include:

#### Navigation Panel (Left Side)

- Main Dashboard: The homepage for managing all resources.
- Tools Section: Includes interactive tools like the Lesson Builder, Quiz Maker, Storyboard, and Puzzle Builder, which allow teachers to customize lesson plans for their students.
- Assignments & Classes: Features where educators can assign materials and manage student participation.

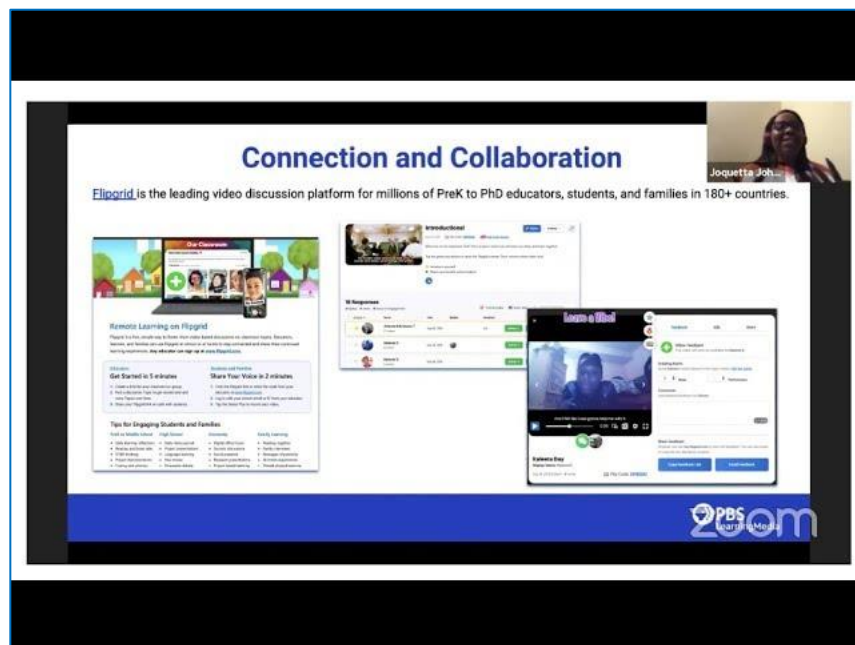
#### Main Workspace (Center Section)

- Displays recently used resources, such as lessons on stormy weather and Hemingway's *The Sun Also Rises*.

- Includes an Options menu, likely offering editing or sharing capabilities for each resource.

### "Create Something New" Section (Right Side)

- Provides quick-access buttons to build a Storyboard, Lesson, Quiz, or Puzzle.
- The Class feature allows educators to create virtual learning environments within PBS LearningMedia.
- This dashboard streamlines lesson planning and allows teachers to integrate interactive content into their instruction while tracking student engagement.



**Figure 3: PBS LearningMedia and Flipgrid Collaboration**

This image is a screenshot from a PBS LearningMedia webinar or online presentation, focusing on "Connection and Collaboration" in education. The presentation highlights Flipgrid, a widely used video discussion platform that connects educators, students, and families in over 180 countries. The discussion centers on how Flipgrid facilitates interactive learning experiences, allowing students and teachers to engage in video-based discussions to enhance classroom collaboration.

At the top of the slide, the title "Connection and Collaboration" emphasizes the role of technology in building student engagement and fostering meaningful interactions. Below the title, a brief description explains that Flipgrid enables educators to create and manage discussions through video responses, making it a valuable tool for remote learning, class participation, and community-building.

The slide contains three screenshots demonstrating Flipgrid's key features. The first screenshot (left side) shows Flipgrid's homepage, introducing its capabilities for student engagement, video responses, and interactive discussions. The second screenshot (top right) displays an interactive discussion board, where students and teachers can post, view, and comment on video responses. The third screenshot (bottom right) features a student's video submission, with interactive elements such as peer feedback, comments, and engagement tools.

At the bottom right of the slide, the PBS LearningMedia logo is visible, indicating that this session is part of an educational training or workshop. Additionally, the presence of the Zoom logo suggests that the session was conducted as a virtual professional development event for educators. This highlights PBS LearningMedia's role in equipping teachers with digital tools that enhance student collaboration, engagement, and participation.

## CK-12

CK-12 is a dynamic, adaptive learning platform that provides customizable digital textbooks (FlexBooks), interactive simulations, and AI-driven tutoring tools to support mastery-based learning. CK-12 is particularly strong in STEM education, offering in-depth math and science resources that align with Common Core and Next Generation Science Standards (NGSS). It features a student-paced learning environment, making it a flexible option for personalized instruction.

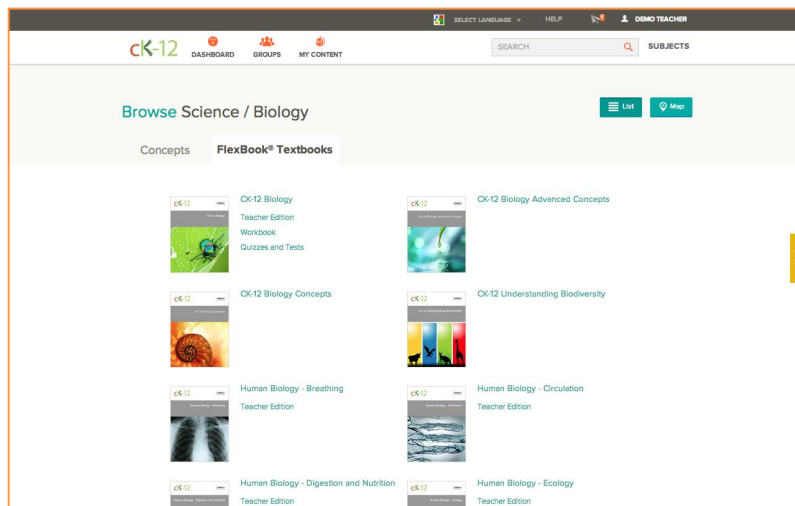
- **Website URL:** <https://www.ck12.org>



Figure 4: CK-12 Homepage Overview

This screenshot showcases the CK-12 homepage, which serves as the primary entry point for users exploring educational resources. The banner at the top highlights a promotional campaign, indicating CK-12's effort to engage educators and students in interactive

learning competitions. Below the banner, a search bar allows users to quickly find specific topics. The main section displays subject categories, such as Mathematics, Science, Engineering, Technology, English, and History. Each category includes subtopics like Algebra, Statistics, Chemistry, and Physics, making it easier for students and teachers to navigate based on their learning needs. The design is visually structured, with colorful icons representing different subjects, which enhances usability and engagement.



**Figure 5: CK-12 Student Dashboard**

This screenshot provides a detailed view of CK-12's self-study dashboard, where students can track their progress across multiple subjects. The dashboard displays progress bars for different learning modules, such as Cell Biology, Linear Equations, and Real Numbers, showing how many concepts have been completed in each subject.

Each module includes:

- A percentage score indicating mastery level
- A breakdown of recent and upcoming topics
- An interactive progress tracker
- 

This feature helps students visualize their learning journey, making CK-12 a powerful tool for self-paced education. The structured layout ensures that learners stay on track and can revisit weaker areas to improve comprehension.

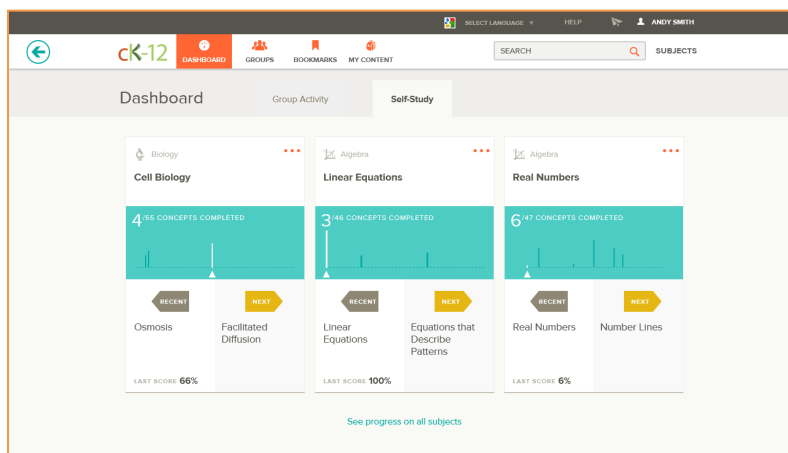


Figure 6: CK-12 FlexBook Library (Biology Section)

### Why These Platforms?

PBS LearningMedia and CK-12 share a common goal to enhance student engagement and academic performance through technology-driven learning. While PBS LearningMedia excels in providing rich multimedia resources and curated content for educators, CK-12 focuses on an adaptive learning experience with customizable digital resources. This evaluation compares their accuracy, usability, interactivity, and overall effectiveness in supporting K-12 education.

This analysis follows a structured rubric evaluation model adapted from Harmon & Reeves (1998), which assesses digital learning resources based on accuracy, currency, interactivity, accessibility, and instructional effectiveness. The evaluation includes:

- **Primary Source Analysis:** Direct use and testing of PBS LearningMedia and CK-12, with a focus on navigation, multimedia integration, and content relevance.
- **External Research Studies:** Supporting evidence from **peer-reviewed studies** and **education-focused reports** (e.g., **EDC 2019**, **Gates Foundation 2022**) that measure student outcomes and engagement on both platforms.
- **User Data & Feedback:** Teacher and student testimonials, as well as platform analytics, provide insights into usability and instructional impact (PBS, 2023; CK-12 Foundation, 2023).

This evaluation provides a data-driven comparison of PBS LearningMedia and CK-12, highlighting their strengths, limitations, and real-world impact on student learning outcomes.

### Understanding the Evaluation Rubric: How We Scored PBS LearningMedia and CK-12

When evaluating PBS LearningMedia and CK-12, we chose to use a 7-point scale instead of the original 5-point Harmon & Reeves (1998) scale to ensure greater precision, flexibility, and differentiation in assessing these platforms. A 5-point scale limits the

ability to capture subtle differences in usability, engagement, and instructional effectiveness, often forcing evaluators to choose between broad categories like "Good" and "Excellent" without room for nuanced distinctions. Expanding to 7 points allows for a more detailed breakdown, ensuring that platforms that excel in some areas but have minor weaknesses are scored more accurately. Additionally, a 5-point scale often leads to score compression, where evaluations cluster around the middle, failing to differentiate truly exceptional platforms from those that are just above average. A 7-point scale spreads out the scores, reducing the tendency for everything to be rated as simply "good enough" and allowing for a clearer distinction between average, good, and excellent platforms. This approach aligns with modern evaluation standards in educational technology and user experience research, where 7-point scales are preferred for their ability to provide balanced yet detailed assessments.

Since PBS LearningMedia and CK-12 have different structures and functionalities, a broader scale allows for a fairer comparison, making it easier to recognize small but meaningful differences in customization, interactivity, and usability. This refined scale also provides more actionable feedback, helping educators and developers pinpoint specific areas of strength and improvement, rather than relying on generalized ratings. By using a 7-point scale, we ensured that this evaluation is more precise, informative, and aligned with industry best practices, giving a clearer picture of each platform's effectiveness in digital learning.

When evaluating educational websites, a basic "good or bad" judgment doesn't cut it. To make this assessment clear, fair, and meaningful, we used a 7-point scale that breaks down exactly how well PBS LearningMedia and CK-12 perform in key areas. This system ensures we capture nuanced differences in accuracy, usability, interactivity, and effectiveness.

### **Breaking Down the 7-Point Scale**

Each score from 1 to 7 represents a different level of performance. Here's what each number means in real-world terms:

#### **1 – Unusable / Major Failures**

- This is rock bottom—a website that is so bad it's almost impossible to use.
- It might have misleading or completely inaccurate information, a broken user interface, or features that don't work at all.
- If this were a textbook, it would be filled with typos, missing pages, and facts that are just plain wrong.

*Example: If PBS LearningMedia constantly crashed, linked to outdated or false educational materials, or had an interface so confusing that even a teacher couldn't navigate it, we'd give it a 1.*

## **2 – Poor / Major Issues**

- The platform works but not well.
- Some information might be useful, but there are too many errors, broken links, or frustrating features for it to be reliable.
- This is like a classroom with a great teacher but no textbooks—you can still learn, but it’s a struggle.

*Example: If CK-12 had great resources but required outdated plugins or only worked in one specific browser, making it inaccessible for most users, it would score a 2.*

## **3 – Below Average / Needs Serious Improvement**

- The basics are there, but poor execution holds it back.
- Some features work, but others are frustrating, hard to use, or lack depth.
- Think of a workshop where the instructor knows their stuff, but the handouts are a mess, and the slides are unreadable.

*Example: If PBS LearningMedia had some great videos but no way to search for them properly, or CK-12 had digital textbooks that were full of mistakes, they would land at a 3.*

## **4 – Functional, but Flawed**

- The website mostly does what it’s supposed to do, but not without problems.
- Some features are well-designed, but others are clunky, outdated, or hard to navigate.
- This is like a textbook that covers all the right material but is boring and full of dense, unreadable text.

*Example: If PBS LearningMedia had amazing video content but an awkward interface that made searching a pain, or CK-12’s FlexBooks were useful but outdated in places, they would get a 4.*

## **5 – Good, but Not Exceptional**

- Solid overall, with only a few noticeable issues.
- Most users will find it helpful, but it’s missing that “wow” factor that would make it truly great.
- This is like a good teacher who explains concepts well but doesn’t make the class exciting.

*Example: If CK-12 had fantastic textbooks and simulations but the interface looked outdated, it might score a 5. If PBS LearningMedia had tons of great resources but lacked a strong filtering system to help users find what they need quickly, that's a 5.*

## 6 – Excellent, with Minor Issues

- The site is well-designed, reliable, and useful.
- It's effective for learning, with engaging materials and strong usability.
- There might be a few small flaws, but nothing that truly hurts the experience.
- Think of a brilliant teacher who occasionally runs out of time before finishing a lesson—still fantastic, just not perfect.

*Example: If PBS LearningMedia had flawless content, great videos, and easy navigation but lacked some customization options for teachers, that's a 6. If CK-12's simulations were cutting-edge but required high-speed internet, making them inaccessible for some students, that's a 6.*

## 7 – Outstanding / Best in Class

- This is the gold standard—a platform that nails every major category.
- Content is top-tier, navigation is smooth, and the learning experience is highly engaging.
- Teachers, students, and parents can use it easily and effectively, with no major frustrations.
- This is the teacher everyone remembers—the one who made learning exciting and easy to understand.

*Example: If CK-12's AI-powered learning tools provided instant feedback, adjusted content to a student's needs, and were completely free and accessible, that's a 7. If PBS LearningMedia offered perfectly curated, up-to-date content, interactive tools, and flawless usability, that's a 7.*

## Evaluation Rubric for PBS LearningMedia and CK-12

### Evaluation Rubric for PBS LearningMedia

| Criteria                | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Comments                                                           |
|-------------------------|---|---|---|---|---|---|---|--------------------------------------------------------------------|
| Accuracy of Information |   |   |   |   |   |   | ✓ | Highly accurate and sourced from reputable organizations.          |
| Currency of Information |   |   |   |   |   | ✓ |   | Frequently updated but lacks visible update timestamps.            |
| Scope of Information    |   |   |   |   |   | ✓ |   | Covers a broad range of subjects but limited depth in niche areas. |

|                              |  |  |  |  |   |  |   |                                                                      |
|------------------------------|--|--|--|--|---|--|---|----------------------------------------------------------------------|
| Appropriateness for Students |  |  |  |  |   |  | ✓ | Well-structured for different age groups and cognitive levels.       |
| Clarity of Presentation      |  |  |  |  |   |  | ✓ | Visually engaging and well-organized learning materials.             |
| Navigation                   |  |  |  |  | ✓ |  |   | Intuitive navigation but could improve search functionality.         |
| Media Integration            |  |  |  |  |   |  | ✓ | Excellent use of multimedia to enhance engagement.                   |
| Site Maps and Overviews      |  |  |  |  | ✓ |  |   | Provides basic overviews but lacks detailed navigation maps.         |
| Web Design                   |  |  |  |  | ✓ |  |   | Aesthetically pleasing but less dynamic than modern interfaces.      |
| Reliability                  |  |  |  |  |   |  | ✓ | Fast-loading and stable with minimal downtime.                       |
| Value vs. Constraints        |  |  |  |  | ✓ |  |   | Offers excellent free content, but some premium features are locked. |
| Privacy                      |  |  |  |  |   |  | ✓ | Strict data protection policies ensure user confidentiality.         |

### Evaluation Rubric for CK-12

| Criteria                     | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Comments                                                     |
|------------------------------|---|---|---|---|---|---|---|--------------------------------------------------------------|
| Accuracy of Information      |   |   |   |   |   |   | ✓ | Highly accurate, verified by subject experts.                |
| Currency of Information      |   |   |   |   |   | ✓ |   | Regularly updated with real-time modifications.              |
| Scope of Information         |   |   |   |   |   | ✓ |   | Extensive content, including customizable digital textbooks. |
| Appropriateness for Students |   |   |   |   |   |   | ✓ | Adaptive tools adjust complexity to student proficiency.     |
| Clarity of Presentation      |   |   |   |   |   | ✓ |   | Clear but overwhelming for first-time users.                 |
| Navigation                   |   |   |   |   |   |   | ✓ | User-friendly and robust search functionality.               |
| Media Integration            |   |   |   |   | ✓ |   |   | Effective simulations but some require plugins.              |
| Site Maps and Overviews      |   |   |   |   |   |   | ✓ | Detailed learning pathways and resource organization.        |
| Web Design                   |   |   |   |   |   |   | ✓ | Modern interface enhances usability.                         |
| Reliability                  |   |   |   |   |   |   | ✓ | Fast, stable, and well-maintained infrastructure.            |
| Value vs. Constraints        |   |   |   |   |   |   | ✓ | Completely free with no major limitations.                   |
| Privacy                      |   |   |   |   |   |   | ✓ | Adheres to strict privacy and data protection standards.     |

## Summary

The evaluation of educational websites requires a structured methodology to ensure that platforms effectively support student learning and instructional goals. This analysis assesses PBS LearningMedia and CK-12, two widely used digital learning platforms that provide free, high-quality educational content. The selection process involved research-based comparisons, expert recommendations, and a review of alternative platforms. Additionally, the evaluation identified specific challenges in navigation, content updates, and accessibility, leading to recommendations for improvement.

### Selection Process

A rigorous selection process was used to ensure that the websites chosen for evaluation met the criteria for effectiveness in K-12 education. The following steps were taken to identify and assess potential platforms:

#### *1. Defining Evaluation Criteria*

Before selecting the websites, it was essential to establish a framework for assessment. Using the Harmon & Reeves (1998) model, the evaluation focused on accuracy, usability, interactivity, accessibility, and instructional effectiveness. These criteria were selected to ensure a comprehensive evaluation that aligns with best practices in digital learning research.

#### *2. Researching Educational Platforms*

A review of widely used K-12 educational websites was conducted. Sources such as Common Sense Education, EdSurge, and peer-reviewed studies on online learning were examined to determine the most relevant and effective platforms.

#### *3. Comparison of Alternative Platforms*

Several digital learning platforms were considered before selecting PBS LearningMedia and CK-12. These included:

- Khan Academy – A widely used, free educational platform with structured lessons.
- National Geographic Learning – A resource that provides multimedia learning tools, like PBS LearningMedia.
- IXL Learning – A personalized, adaptive learning platform with assessment-based instruction.

PBS LearningMedia and CK-12 were ultimately selected due to their alignment with K-12 curriculum standards, accessibility to students and educators, and diverse content formats. Both platforms offer videos, interactive tools, and digital textbooks while remaining free for users. Their strong reputations for accuracy and credibility also made them ideal candidates for evaluation.

### Challenges Encountered in the Evaluation

During the evaluation, several challenges were identified that impacted the ability to fully assess the platforms' effectiveness. These challenges primarily related to content updates, usability, and media integration.

### *1. Lack of Clear Update Information*

A significant issue affecting both platforms was the difficulty in determining the currency of resources.

- PBS LearningMedia provides a vast collection of educational videos and lesson plans; however, it is not always clear when content was last updated. This raises concerns about whether the material aligns with current educational standards.
- CK-12 updates its adaptive learning tools frequently, but some of its FlexBooks lack visible update timestamps, making it difficult for educators to determine if the content reflects the latest developments in subjects like science and mathematics.

A more transparent system for indicating update history would enhance the reliability of these resources.

### *2. Navigation and Usability Issues*

Both platforms offer extensive learning materials, but their interfaces present usability challenges:

- CK-12's interface is complex for first-time users due to the large number of customization options, which can be overwhelming.
- PBS LearningMedia has a user-friendly design, but its search functionality is limited. Important resources are sometimes difficult to locate due to excessive filtering layers.

Improving the user interface and enhancing search and filtering features would significantly improve navigation on both platforms.

### *3. Media Integration and Accessibility Limitations*

4.

- PBS LearningMedia has well-integrated multimedia content, ensuring that videos, images, and lesson plans work seamlessly.
- CK-12, however, has some accessibility issues, particularly with interactive simulations. Certain simulations require specific browsers or plugins, making them inaccessible to students using school-issued Chromebooks or outdated devices.
- Ensuring compatibility across all browsers and devices would make CK-12's interactive features more widely available.

## **Recommendations for Future Improvements**

Following the evaluation, several areas for improvement were identified that could enhance the effectiveness and accessibility of PBS LearningMedia and CK-12.

### *PBS LearningMedia: Areas for Enhancement*

1. Improve Search and Filtering Capabilities – Enhancing search functionality by allowing for better filtering by grade level, subject, and content type would improve usability.
2. Provide Visible Content Update Information – Including “Last Updated” timestamps on lesson plans and videos would increase transparency for educators.
3. Expand Interactive Learning Tools – While PBS LearningMedia excels in providing educational videos, incorporating more interactive elements, such as simulations and virtual labs, would enhance engagement.

### *CK-12: Areas for Enhancement*

1. Simplify the Interface for New Users – A guided tutorial or beginner-friendly mode would improve accessibility for first-time users.
2. Ensure Full Browser and Device Compatibility – Adjusting interactive tools to function across all standard web browsers without requiring additional plugins would improve accessibility.
3. Display Content Update Information for FlexBooks – Clearly marking when each digital textbook was last revised would help educators verify the accuracy of the materials.

## **Conclusion**

PBS LearningMedia and CK-12 are both strong digital learning platforms that offer free, high-quality educational content for K-12 students and educators. Using the Harmon & Reeves (1998) rubric evaluation model and a 7-point scale, this analysis highlights their strengths in content accuracy, multimedia integration, and instructional design, while also identifying areas where improvements could enhance usability and overall effectiveness.

PBS LearningMedia received high scores (6-7) in content accuracy, media integration, and instructional design, making it a trusted source for classroom-ready resources. CK-12 excelled in customization, adaptive learning, and interactive simulations, scoring 6-7 in flexibility and STEM content delivery. However, both platforms scored lower (4-5) in user navigation and accessibility, indicating the need for usability enhancements to improve the overall user experience.

The Harmon & Reeves evaluation model identified three key areas of focus for both platforms. Content quality and accuracy remained a major strength, with PBS LearningMedia offering expert-curated resources, while CK-12's content allowed for real-time adaptability, earning both platforms strong evaluations in content reliability. Interactivity and engagement were also critical factors, as CK-12's simulations and adaptive AI tools provided a dynamic, interactive learning experience, whereas PBS LearningMedia excelled in video-based instruction. However, both platforms could benefit from expanding student-centered engagement tools to further increase learner interaction. In terms of usability and accessibility, CK-12's interface can feel overwhelming for first-time users, and some simulations require specific browsers, limiting accessibility. Similarly, PBS LearningMedia's search function and update visibility need refinement to improve content discovery and usability for educators.

Overall, PBS LearningMedia and CK-12 offer significant value to digital education, providing high-quality instructional resources that support student learning and engagement. However, their effectiveness could be further improved through usability enhancements, clearer content update tracking, and expanded interactivity. By addressing these key areas, both platforms can continue to evolve as leading educational resources, ensuring equitable access to high-quality digital learning tools for students and educators alike.

## References

- CK-12 Foundation. (2023). CK-12 Foundation. (2023). CK-12 digital learning resources. *CK-12 Foundation*. <https://www.ck12.org>
- Harmon, S. W., & Reeves, T. C. (1998). *Interactive learning system evaluation form*. Retrieved from <http://treeves.coe.uga.edu/edit8350/wwweval.html>
- PBS LearningMedia. (2023). PBS LearningMedia. (2023). Educational resources for teachers and students. *PBS LearningMedia*. <https://www.pbslearningmedia.org>

## Appendix A

