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Introduction

Today’s students eagerly expect, and often have need for digital learning environments. As the sophistication of educational technology has expanded, many teachers have come to rely on online learning, whether to capture and analyze real-time student performance data, or to deliver individualized content in a blended classroom. We have seen this effect most recently when schools were forced to close their physical locations during the coronavirus pandemic; virtual tools and educational technology became a major delivery mechanism and key support. Technology continues to be a meaningful tool used by educators to maintain instruction with their students. Knowing that technology will never replace the importance of teachers, educators have embraced the additional opportunities to set up their students for success. Engaging digital content has expanded what teachers can do within a traditional classroom or a blended learning environment, and multiple implementations confirm its power to enable instruction in a virtual setting on a large scale. Furthermore, schools and districts have been able to utilize digital educational tools to reach students who have not had success in traditional school settings or who require more flexibility in setting, schedule, or instructional pace. Data gathered from engaging digital content serves a key role in continuity planning for the future.

Edmentum develops research-based digital educational solutions and tools to support teachers in creating successful student outcomes, no matter the educational setting. The roots of the company trace back to the early 1960s and the University of Illinois at Urbana-Champaign under the name PLATO. The company created what most experts agree was the first authentic computer-assisted instructional system designed for widespread use (Dear, 2017).

That first digital learning system was a milestone, not only because it was computer-based, but also because learning scientists designed it. PLATO embodied revolutionary instructional principles that incorporated leading insights in education and psychology. It featured a number of innovations useful for instruction, including digital graphics overlaid with text and animation; both essential to quality computer-based education. Later, audio added a key feature for reaching students for whom reading had been a barrier to understanding. PLATO grew to include:

- opportunities for social learning with teacher-student interaction
- a rigorous curriculum
- sound assessments
- personalized learning strategies to increase student motivation and achievement

Today, the PLATO system has evolved to be what is now known as Edmentum Courseware—national or state-specific, standards-aligned, online courses for students ranging from 6th grade to adult learners. What has remained constant for over 50 years is the priority Edmentum places on educator needs and student outcomes. Edmentum’s use of instructional pedagogy and architecture goes back to innovations in 1960 and remains at the forefront of our innovation. Over the years, the research community at large, including educational psychologists, practitioners, learning scientists, and philosophers of education, have continued to research and expand the principles of learning theory, which are then rigorously applied to Edmentum Courseware.
Today, educators operate in a variety of learning environments from brick-and-mortar schools to remote learning (and everything in between). Teachers create supportive and engaging atmospheres and develop relationships that foster learning. Their impacts on students are wide-ranging, including teaching academic knowledge and skills, developing critical thinking, and helping students to develop into moral people and good citizens. Edmentum programs honor the role of teachers as a critical influence on student learning—indeed, teacher relationship is shown to have one of the largest impact effects on student learning, according to John Hattie’s meta-analysis of more than 1,200 studies (Hattie, 2009, 2012, 2015). Schools are turning to technological solutions, including online courseware, to give teachers additional tools to meet the needs of a wide range of different learners. Educators also view technology as a way to anticipate and prepare for the needs of the future. Edmentum partners with educators, making it easier to provide individualized learning for every student through easy-to-use technology, high-quality content, and actionable data.

This paper discusses:

- the needs of today’s learners and educators
- six foundational research-backed learning design principles of Edmentum Courseware that support teachers and students in achieving learning outcomes
- the role of Edmentum Courseware in learning environments

Who Are Today’s Learners?

Self-paced, independent, tech-integrated, active, diverse, and impatient are some of the adjectives that describe today’s students. Traditional learning environments of the past do not match the needs of many of these learners. Recent work by University of Arizona educational researchers (Seemiller & Grace, 2016, 2019) indicates that students who are in school now and who will be entering school in the coming years share some common characteristics and a common context that shapes their worldview. By understanding the specific needs of today’s learners, educators can better prepare for and teach these learners.

Seemiller and Grace describe today’s students as tech-integrated, compared to the previous generation, who they describe as tech-savvy. Because current students have been immersed early and often in technology—cell phones, tablets, and smart devices—and have information available instantly through the internet, they tend to expect technology to make their lives work in an everyday way. They approach new objects as technological in nature even if they aren’t sure how they are used. For example, kindergartners are frequently confused by a desktop computer with a mouse. They’ve been known to point the mouse toward the computer screen like the more familiar television remote control. Toddlers used to tablets may swipe images in magazines expecting them to change.
Seemiller and Grace found characteristics of tech-integrated learners that can be well served by online courseware. Tech-integrated learners can benefit from the following qualities of courseware.

**Active learning.** This generation’s work style tends to be active and investigation focused. Self-directed, online work can enable that interaction style.

**Independent work.** The individual nature of technology has helped students become accustomed to independent learning. This approach doesn’t preclude lessons where students work collaboratively in groups, engage in discussion, and give feedback. But the modality of online learning is uniquely suited to independent work not bound by location, space, and time.

**Individualized pacing.** The current generation of students prefers self-directed work and tends to view teachers as facilitators of learning, rather than transmitters of knowledge. Today’s learners are motivated by milestones. It’s extremely difficult for teachers to manage a large class of students all working at their own pace, on the content they are ready for at that moment. Technology supports teachers in providing more highly individualized instruction than possible without it. Materials that are customizable to fit the learner’s individual needs allow teachers to provide key milestones to guide student pace.

## Who Are Today’s Teachers?

Today’s teachers recognize that the needs of their students are more diverse than ever, which makes the requirements of the teaching profession more demanding than ever. Most teachers are on the road to embrace technology to help manage data and support instruction and individualization.

In many school systems, technology has fundamentally restructured teachers’ roles in education and the way students understand teachers and interact with them. In generations past, teachers were considered the sole source of knowledge for their particular topic, and students had few other ways to easily access information. Today’s world is flooded with a multitude of easily accessible information, and the job of teachers is no longer limited to providing every detail of instruction about a topic, but to act as a facilitator to help students learn how to evaluate and use the information they access. Teachers are also critical in building relationships with students: understanding them as whole-learners and using their connection to influence and motivate. Both facilitating learning and building relationships help teachers meet students where they are instructionally as a way to improve learning outcomes, providing the right experiences and opportunities in the right way at the right time.

In classrooms with many students, it’s challenging and unsustainable for teachers to provide individualized instruction for each learner. Digital learning tools can be used to facilitate effective personalized learning. As discussed earlier, the thoughtful and deliberate integration of technology into classrooms gives teachers the power to efficiently do more. Teachers can utilize technology to assign individual practice, grade student work, monitor progress towards meeting key milestones, and communicate student learning with families. Teachers are eager to support students based on individualized needs. Used appropriately and innovatively, technology provides teachers the tools to meet the individual needs of larger numbers of students effectively and in a sustainable way.
Edmentum Courseware Learning Design Principles

John Hattie’s meta-analysis of evidence-based educational research reveals the impact of key influences on student learning. He ranks these influences by effect size (Hattie, 2009, 2012, 2015). Edmentum Courseware has based its principles in the research of Hattie’s large effect practices.

Edmentum’s six learning design principles provide the bedrock of Courseware’s learning methodology. Each principle has a sound basis in theory, best practice, and research.

- **Mastery Learning**
  Focus on efficient learning. Students show mastery of key content, invest time on not-yet-mastered content, and proceed through learning new content at their own pace.

- **Active, Engaging Learning**
  Involve learners in responding to and manipulating information while they learn—ensuring their involvement in building understanding and minimizing passive reception of information.

- **Deliberate Practice**
  Offer intentional, structured, and sustained practice that builds thoughtfully in complexity to support increasing levels of understanding.

- **Explicit Instruction**
  Support successful learning by providing clear skill statements, modeling of learning outcomes, and reducing cognitive load.

- **Scaffolding**
  Buoy learning by providing specific supports when learners need them and systematically removing them—leading to independence as learners approach mastery.

- **Metacognitive Strategies**
  Engage students in reflecting on how they best learn and evaluating their thought processes to help themselves along their learning path.
Mastery Learning

Mastery learning, which has also been called competency-based learning, focuses students on content that they have not yet mastered and enables learners to work at their own pace to master new concepts. It establishes an efficient investment of learning time because learners spend less time on what they already know while efficiently investing time on what they need to master (Le, Wolfe, & Steinberg, 2014). It supports the positive message that every child, if given enough time and the right approach, can learn well-defined skills to the level of mastery (Anderson & Krathwohl, 2001). A key feature of mastery learning is that students’ progress through learning objectives at their own pace demonstrating mastery through small assessments as they work. Assessments provide information to allow learners and their teachers to make decisions that best suit each learner. This ensures that the pace of instruction matches what each student is ready to learn (Haynes et al., 2016; Le et al., 2014).

How Edmentum Courseware Applies the Mastery Learning Principle

Unit Pretests identify material that learners have already mastered and that which they still need to master. Pretests assess each unit and provide teachers and students with information about what students have already mastered. Students are exempt from lessons on already-mastered content, allowing them to focus their time on content they still need to master.

Performance on pretest enables learners to skip material they have mastered, focusing work on material not yet mastered.

This pretest will impact the learner’s lesson assignment. The first four lessons in the module will show as complete because of mastery in pretest. The last lesson will show as not mastered until the learner successfully works through the material.
**Backward design ensures a powerful relationship between goals, instruction, and assessment.** Edmentum begins with carefully chosen mastery objectives and then defines the assessment experience that will best demonstrate mastery. Each assessment goal defines a learning experience that drives towards the ability to perform well on the assessment ultimately demonstrating mastery of the learning objective. This approach to instructional design is known as *backward design* (Wiggins & McTighe, 2005).

**Rigorous instruction is based on alignment with national and local standards to focus on important concepts and drive performance.** Carefully chosen mastery objectives are aligned to national and state standards to support mastery required for course completion and high-stakes assessments.

**Checks for understanding inform and streamline instruction.** After completing a lesson, students take a mastery test. Learners and their teachers can use mastery test results to make decisions about what to review, whether to choose to retake the lesson, and what other learning experiences would be helpful.

Use student data to make learning decisions. For example, the orange indicates the lesson has not been mastered, providing an opportunity for learner and teacher to decide whether to redo lesson or find another way to master the material.
Learners have control over time, place, path, and pace of learning, which supports them to impact their own learning. The flexibility inherent in digital curriculum makes it possible for learners to work any time and any place. Courseware allows students to speed up when they understand material and slow down or repeat material when they need more time to understand.

Active, Engaging Learning

Active learning is an instructional method that involves students in responding to instruction, encouraging them to manipulate information, and to interact more deeply directly during the learning process. Active learning contrasts with a traditional lecture format, in which a teacher delivers information to a classroom of students who passively receive it (Bonwell & Elson, 1991). Techniques that encourage active learning tend to be better at promoting higher-level learning and skills. Hattie’s research shows that as students become active in the process of their own education, learning outcomes improve. Learners “reach the stage where they become their own teachers, they can seek out optimal ways to learn new material and ideas, they can seek resources to help them in this learning, and when they do they can set appropriate and more challenging goals” (Hattie, 2009, pp. 86–87).

How Edmentum Courseware Applies the Active, Engaged Learning Principle

Interactivity in lessons engages learners. A variety of learning experiences across courses motivate students and enhance thoughtful learning. Multiple representations and ways of interacting with content help learners develop rich understandings.

- Check-for-understanding items are embedded frequently within lessons. Students apply recent learnings, get immediate feedback on whether they answered correctly, and get a full explanation of the correct answer. Some check-for-understanding items in Algebra II include open-on-demand worked examples to provide additional support.
• Warm-Up items activate prior knowledge and encourages learners to make connections. These activities give an additional boost to the new learning of already understood concepts.

• Highlighter tool functionality provides ways for learners to interact with readings.

Use of highlighter tool in English 10 encourages close interactions with text.

• Science courses utilize simulations, virtual, and augmented reality labs to engage students in active learning.

In Biology, learners may complete an augmented reality respiration lab.

They record their findings.
• An in-course notebook tool provides an opportunity for learners to take notes and record observations.

**Real-world examples and applications make learning relevant.** Students apply their acquired knowledge to contexts and real-world artifacts that help them see how what they are learning is relevant to them.

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**Introduction**

**Warm-Up**

You’ve probably heard the term “tone of voice” or even “watch your tone.” What does tone mean in these instances?

In these cases, tone refers to the way someone sounds.

In informational text, a writer or speaker’s tone also refers to his or her attitude. Tone in a text is the author’s attitude toward the subject he or she is writing about.

A writer’s tone toward the topic could be serious, humorous, critical, optimistic, playful, or any number of other attitudes.

In this lesson, we’ll analyze how the tone of Nelson Mandela’s inaugural speech is revealed through his word choice, message, and writing style.

---

**Diction and Tone in Mandela’s Speech: Your Turn**

As you read the excerpt, try to identify the tone of this section. Use the Highlighting tool ( ) to mark **diction and syntax** that contribute to the tone.

**Inaugural Address**

by Nelson Mandela (excerpt)

That spiritual and physical oneness we all share with this common homeland explains the depth of the pain we all carried in our hearts as we saw our country tear itself apart in a terrible conflict, and as we saw it spurned, outlawed and isolated by the peoples of the world, precisely because it has become the universal base of the pernicious ideology and practice of racism and racial oppression. We, the people of South Africa, feel fulfilled that humanity has taken us back into its bosom, that we, who were outlaws not so long ago, have today been given the rare privilege to be hosts to the nations of the world on our own soil.

We trust that you will continue to stand by us as we tackle the challenges of building peace, prosperity, non-sexism, non-racism and democracy. We deeply appreciate the role that the masses of our people and their political mass democratic, religious, women, youth, business, traditional and other leaders have played in bringing this conclusion.

We would also like to pay tribute to our security forces, in all their ranks, for the distinguished role they have played in securing our first democratic elections and the transition to democracy, from blood-thirsty forces which still refuse to see the light.

---

**Deliberate Practice**

Deliberate practice refers to intentional, highly structured, and sustained student effort that impacts knowledge and skill acquisition and retention. The learning curve relies on the link between practice, reinforcement, immediate feedback, and performance (Campitelli & Gobet, 2011; Hattie & Yates, 2013). When learners engage in deliberate practice, they are motivated by a compelling desire to improve. Therefore, they exert the effort to practice until they master the content. Hattie’s research shows students’ deliberate practice is a powerful influence on student achievement because initial learning can be consolidated from surface knowledge to long-term memory (Hattie, 2009; Hattie & Yates, 2013).
How Edmentum Courseware Applies the Deliberate Practice Principle

**Practice and feedback are employed within lesson tutorials.** Integrated items allow learners to immediately apply new knowledge to gain new levels of understanding. Students receive immediate feedback about whether their answers are correct or incorrect, including an explanation of the correct answer, which encourages students to learn from their mistakes and successes.

**Sets of practice items follow tutorials in Algebra courses.** Extended practice provides additional application of recent learning to problems. These items also include feedback and correct answer explanations.

---

**Question**

Match the event in health care to its effect.

Drag each tile to the correct box.

---

**Explanation:**

The invention of the microscope helped scientists understand the link between microorganisms and diseases. The discovery of the structure of DNA led to advances in genetic engineering and gene therapy. The regulation of medical practice led to allowing only licensed doctors to practice medicine. The permission to perform dissections led to a better understanding of the human body and its workings.

---

**Question**

Select the correct answer from each drop-down menu.

Look at this expression, and complete the statements.

\[ 3x + 2y + 4 \]

- In the first term, 3 is a **coefficient**.
- In the second term, \( x + 2 \) is a **factor**.
- In the last term, 4 is a **constant**.

---

**Explanation:**

- This 3 in the first term is multiplied by a variable, \( x \). So it is a coefficient.
- The \( x + 2 \) in the second term is multiplied by 2. So, it is a factor.
- The 4 in the last term is not multiplied by anything. It is a fixed value, so it is a constant.
Items are constructed to support and build mastery. Item types are selected for the best pairing of the skill and the demonstration of mastery. Items are put in an order to build from basic foundation to application of higher-level learning. This sequencing includes the appropriate level of rigor to allow students to understand and improve their mastery.

In Geometry, students learn through manipulating figures using powerful graphing tools.

In History, students can interact with timelines to understand the chronology and interaction of historic events.
Explicit Instruction

The term *explicit instruction* refers to a “group of research supported behaviors that are to design and deliver instruction in order to provide needed supports for successful learning through clarity of language and purpose, and reduction of cognitive load” (Hughes, Morris, Therrien, & Benson, 2017).

How Edmentum Courseware Applies the Explicit Instruction Principle

**Clear instructional goals and skill statements.** Each tutorial opens with an objective so both learner and educator know the goal of the lesson. Instruction and assessment are developed using backward-design to ensure learners meet learning goals.
Break instruction down to address well-defined skills. The introduction of new content is carefully managed to avoid cognitive overload (Archer & Hughes, 2011).

Guided problems and examples provide models to support learning. Explicit instruction embedded in guided problem solving is in the form of worked examples and models that reveal the thinking process. This structure has been found to have a high impact on student learning (Archer & Hughes, 2011).
The gradual release of responsibility model moves learners from guided to independent work in a step-wise fashion. Within each lesson, learners begin with an overview of the concept, interact with guided examples, and apply their learning in check-for-understanding items. Mastery test performance indicates how well learners can work independently with the content. Additional review is available prior to taking the master test for increased reinforcement when necessary.

### Scaffolding

Instructional scaffolding is a process where instructional supports provide aid to students in mastering content until they can apply new skills and strategies independently (Dickson, Chard, & Simmons, 1993; Rosenshine & Meister, 1992). Scaffolding is particularly important when students are first encountering new material, and as they develop a mastery of the content, the supports can be gradually removed as they develop skills to complete work independently. Scaffolding reduces barriers to learning by removing unnecessary complications or difficulties. For example, if reading is a barrier to a math student, simplified text and audio support for reading can help that learner access the math instruction.
Hattie writes “scaffolding is essential for cognitive development as students move from spectator to performer after repeated modeling by adults.” (Hattie, 2009, p. 327).

Vygotsky describes a Zone of Proximal Development, where the level of difficulty or challenge is balanced with a learner’s level of proficiency so that the work of learning isn’t too difficult or too easy. When learners are working on content in which they are proficient and has little challenge for them, they become bored or apathetic. When learners are insufficiently proficient with material and it’s difficult or challenging, they become anxious or feel that they can never be successful with their work. When learners are outside of this optimal learning zone (the zone of proximal development), the time they are investing is not productive. Scaffolds are additional learning supports that can move learners into more challenging material where they are not yet proficient. The scaffolds help learners achieve an appropriate level of productive struggle (Vygotsky, 1978).

How Edmentum Courseware Applies the Scaffolding Principle

Edmentum Courseware includes a large variety of scaffolds for learners. Learners may choose when to use most of the scaffolds, so they are implemented when the learner needs them and are not as the learner becomes more proficient. This powerful ability to choose support when needed is intrinsically motivating and empowering.

Glossary links and pop-ups support vocabulary development. If learners need additional support on new academic language, they can click on glossary links or pop-ups for expanded support. The glossary is always available in the resource tab in the sidebar.

Audio supports a variety of learners. Audio is available to read text to provide access to content for struggling readers. It’s also helpful for English learners who may understand what they hear better than what they read. Brain-based learning shows that simultaneous reading and listening to information is more effective on developing listening fluency than a single modality, particularly for students learning English (Chang & Millett, 2014; Woodall, 2010).

A translation tool supports English language learners. English language learners may activate translations of text using primary language dictionaries for 19 languages. This tool is in the sidebar.
**Interactive Tools.** Students can access a variety of tools that provide support and additional interactivity.

<table>
<thead>
<tr>
<th>Tool</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table of Contents</td>
<td>The Table of Contents for the tutorial reveals where the learner is, what has been completed, and what is coming. Learners may select to return to a previous lesson to review sections they have already completed.</td>
</tr>
<tr>
<td>Resources</td>
<td>In Resources learners have access to a variety of materials to support their success. Resources may include Guided Notes, Glossary, short summaries of key instructional material, and more.</td>
</tr>
<tr>
<td>Dictionary</td>
<td>The Dictionary provides a definition powered by Merriam-Webster for any text the learner enters.</td>
</tr>
<tr>
<td>Reading Tools</td>
<td>In Reading Tools learners can enable automatic narration for slides. They can also enable click to speak which reads aloud any text the student selects.</td>
</tr>
<tr>
<td>Translate</td>
<td>In Translate learners may choose one of 19 languages. They may then enter or copy and paste words to be translated into that language.</td>
</tr>
<tr>
<td>Calculator</td>
<td>A calculator is available as a ready alternative to a handheld calculator.</td>
</tr>
<tr>
<td>Math Tools</td>
<td>Math Tools include a Graph tool to plot x-y functions and data and a Data Plot tool to plot box plots and histograms.</td>
</tr>
<tr>
<td>Highlighter</td>
<td>The Highlighter tool includes multiple colors, enabling students to mark on-screen text to create meaningful engagement.</td>
</tr>
</tbody>
</table>

**Video clips augment instruction.** Students can explore lesson topics by playing short videos. The videos provide another modality or approach to the content.

*Women in the Political Realm*

For a half a century after nonwhite men were granted the right to vote by the Fifteenth Amendment, women in the United States couldn’t cast ballots in any election. It was only in 1920 that they gained suffrage with the ratification of the Nineteenth Amendment. This milestone helped launch the journey for women’s social equality that would continue through the century. To some extent, women took a more active role in national politics after 1920. However, their impact was less dramatic than had been expected. They did not vote as a bloc, so they did not exert significant power on political decisions. As is typically the case, legal rights have a weak tangible effect on the people who receive them at the time of their enactment. But in the 1920s women were better positioned to work for greater social equality. This video provides a glimpse of how developments in fashion, dance, and music signaled the arrival of the modern woman in the 1920s.

Video in US History gives learners a peek into the past.
Guided notes provide layers of support. These printable notes align to key learnings in lessons. To complete them, learners record and summarize key pieces of information from the lesson. The physical act of writing (if the notes are printed out) adds an additional modality to the mix. As Hattie notes, summarization is one of the most powerful learning strategies (Hattie, 2009).

Strategic use of color supports learners in seeing connections. The visual support reduces the amount of explanation and makes it easier for learners to follow the instruction.

Use of color in English 10 connects instruction to model.

Find the value of $3|x^2 - y^2$ when $x = -3$ and $y = -5$.

$$= 3 \cdot (-3)^2 - (-5)^2$$

$$= 3 \cdot 9 - 25$$

$$= 27 - 25$$

Color in an Algebra 2 lesson helps learners track substitution.
Metacognitive Strategies

Metacognition means thinking about one’s thinking, and in an educational context, it refers to students’ self-understanding and knowledge about themselves as learners. Students use metacognitive skills to select, monitor, manage, and evaluate cognitive processes to self-reflect on how they learn and strategically employ the most effective learning strategy in their work. Thoughtful self-monitoring practices are associated with better learning (National Research Council, 2005; Pellegrino & Hilton, 2013).

Metacognition skills enables students to:

- understand the goals of the learning process;
- reflect on and determine the best strategies for learning;
- monitor their own understanding of a specific topic; and
- reflect on misunderstandings that may be preventing a full understanding of academic material.

Instructional strategies that utilize metacognition have been found to be strongly associated with positive educational outcomes (Hattie, 2009, 2012). Students with strong metacognitive skills outperform students who don’t have the ability to reflect on their learning strategies. “Strong learners can explain which strategies they used to solve a problem and why, while less competent students monitor their own thinking sporadically and ineffectively and offer incomplete explanations.” (Pellegrino & Hilton, 2013)

Attention to metacognition appears throughout Courseware. It includes instruction that focuses on metacognition and opportunities for learners to self-monitor.
How Edmentum Courseware Applies Metacognitive Strategies

Clarifying Big Ideas lessons create solid foundations through metacognition practice of examining commonly misunderstood ideas. Based on content-area research that identifies specific misunderstandings that students often hold, Clarifying Big Ideas lessons appear in Algebra II and English 10 courses. The lessons prepare learners for greater success by repairing misunderstandings around important foundational principles. Through clearly drawing student attention to the misunderstanding and articulating the big ideas that underpin learning, students are able to productively apply those big ideas throughout the course and better prepare themselves for success in higher-level courses.

✓ These ideas ARE True.
- There are many ways to solve algebraic equations and problems.
- We can use reasoning and intuition to justify solutions.
The two students in the Warm-Up solved the problem different ways. They both found the correct solution.

✗ These ideas are NOT True.
- There is only one correct way to solve an algebra problem.
- Solving a problem requires following a certain procedure, even if you don't understand it.

Think-alouds reveal modeled thinking so learners can reflect on that thinking and their own. Think-alouds appear in videos, as instruction, and as interactions where learners see other students’ thinking and decide whether they agree with the thinking or not.
Generalizations support not only the steps for solving problems but the thinking behind them. Lessons pair the generalized logical thinking and process on the left and follows with an illustrative example on the right.

Edmentum Courseware Meets Today’s Needs

Every course is designed to meet the needs of today’s teachers and learners. Many students need the opportunity to independently access engaging digital content on their own timing under the guidance of a supportive teacher. At the same time, teachers are looking for tools to more efficiently support the individualized needs of a wide range of learners. Courseware provides a wide range of benefits to meet these needs.

Addressing Today’s Learner

**Self-paced learning.** Individual differences and learning styles are all part of the movement toward individualized learning. Edmentum Courseware always supports the ability of students to advance at their own pace using multiple media formats.

**Dynamic, interactive, digital content that engages students.** Learning is best when students are engaged. Edmentum’s Courseware always engages the student to interact with lessons.

Addressing Today’s Teacher

**Courses are easily customized by teachers to meet local standards, pacing guides, and student needs.** For teachers, one-size does not fit all. Different localities have their own standards and pacing guides. Sometimes it’s not practical to encourage self-pacing. Some teachers might want to add lessons or practice sessions. Courses are always customizable and can be made to fit a teacher’s goals and objectives.

- Educators have the option to build their own courses by selecting various resources, lessons, modules, or units.

- Course material can be added, deleted, reordered, or combined across subject area to meet student and classroom needs. Teachers can add weblinks, documents, or teacher-created digital drop boxes.

- Within a specific course, teachers can decide whether they want to use pretests or posttest.
**A rigorous alternative to traditional classroom courses.** Edmentum Courseware has always emphasized the rigor and relevance of course materials. These elements are part and parcel of the mastery learning approach and of the emphasis on intrinsically motivating learners. Edmentum challenges students with rigorous instruction and practice across a broad range of subjects and courses in ways that are relevant.

**Flexible assessments.** Edmentum assesses aptitude and achievement in many different ways. Pretests are diagnostic tests that help determine how well-prepared the student is. In many cases because of the quality of pretests, Edmentum can accurately judge what a particular student can profitably skip within a unit. The posttests and End of Semester Test confirm how well the student has mastered the material. Finally, a variety of teacher-graded activities and assignments provide more subjective indicators of student progress. This full range of assessment techniques makes Edmentum’s assessments useful, accurate, and flexible.

**Data and Reports powerfully inform instructional decisions.**

- Real-time student performance data is presented with clear visualizations and is easily accessible through dashboards.
- Pacing data clearly shows which students are not on track to meet the end date that teachers set.
- The course gradebook can be customized with activity weights and is auto-populated as students complete assignments, with overall student grades and activity specific grading details.

**Conclusion**

Digital learning environments are an integral part of instruction for many learners and educators. Three key benefits of Edmentum Courseware are the ability to individualize material and deliver it anytime, anyplace for each learner; easy access to increasing amounts of data that can impact instruction; and flexible flexibility to meet the needs of diverse learners.

Courseware design is based on six principles of learning design. These six principles are research-proven educational practices that lead to student learning (Hattie, 2009, 2012, 2015) and are aligned to the needs of today’s learners and educators.

There is no one-size-fits-all instructional design. At Edmentum, we have created a powerful synthesis of design and technology with the explicit goal to support teachers in meeting the learning needs of all students. Teachers incorporating technology into their classrooms can scale to more personalized solutions. This efficient method of individualized instruction and environment can be sustained over long periods of time and will result in improved student learning and outcomes.
References


Edmentum Courseware is designed to reside at the intersection of research and best practice, while taking into account the needs of learners and educators. The curriculum and assessment writers are first and foremost educators, and many have personal experience as teachers. Subject matter experts are instrumental in course design. Every new course begins with Edmentum staff conducting meetings where we solicit and utilize educator feedback to make each course better than the last.

Each course includes multiple assessments designed to continually check understanding, measure mastery, ensure knowledge retention, and prepare students for course exams and high stakes assessments. Subject matter experts and item writers are immersed in Webb’s Depth of Knowledge (DOK) framework and content developers utilize technology-enhanced items in tests, which often reflect higher DOK complexity.
Course Structure

- Components of a course include a student orientation, a course syllabus, one or more units of instruction, and assessments.
- The alignment guides for each course comprehensively addresses national and state standards.
- End-of-semester tests measure students’ mastery and retention of the instruction in lessons and units in the semester.

Unit Structure

- Components of a unit include unit pretests and posttests, lessons, online discussion, unit activity (and for algebra only, unit practice).
- Unit pretests are optional and can be used at a teacher’s discretion before beginning the lessons to determine whether students have already acquired knowledge of specific course information. A show of mastery enables students a chance to be exempted from material they already know.
- The collection of lessons in a unit support the connections between concepts.
- Online discussions allow teacher-to-student and student-to-student discussion and debate about topics covered in the unit. These discussions require students to synthesize knowledge acquired during lesson mastery and apply critical-thinking skills to answer questions, form opinions, express ideas, and respond to the ideas and opinions of others.
- Unit activities offer students the chance to demonstrate higher levels of skill by completing a variety of tasks and submitting the resulting project, paper, essay, data, research, or presentation to the teacher via an online digital drop box.
- Unit posttests measure students’ understanding of both the basic knowledge and the higher-level skills within each unit. These assessments help ensure that students are building and retaining knowledge from lesson to lesson throughout the unit.

Lesson Structure

- Individual lessons provide instruction and assessment with carefully-crafted objectives aligned to national and state standards.
- Lesson tutorials are designed to help learners acquire and build knowledge and include a variety of interactive practice activities, such as exploratory timelines and clickable diagrams. Judged check-for-understanding items within the tutorial include multiple-choice, matching, fill-in-the-blank, drag-and-drop, and multistep problem-solving questions.
- For Algebra I and II, learners may choose to complete additional practice items to prepare for success on course assessments.
- Mastery tests conclude each lesson and measure whether students have mastered lesson objectives.