

# **K-12 Blended Teaching**

## **A Guide to Practice Within the Disciplines**

Jered Borup, Michelle Jensen, Karen T. Arnesen, Cecil R. Short, & Charles R. Graham



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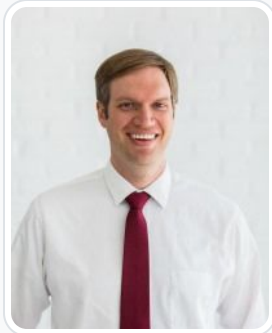
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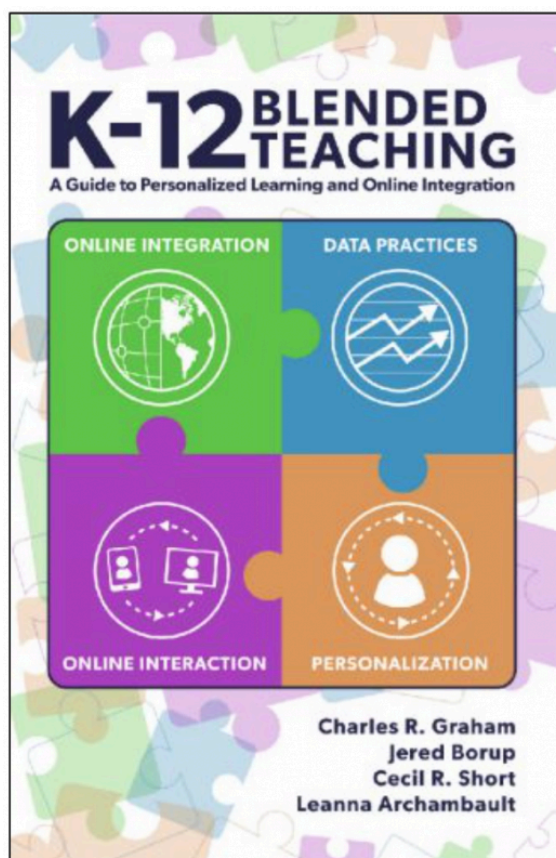


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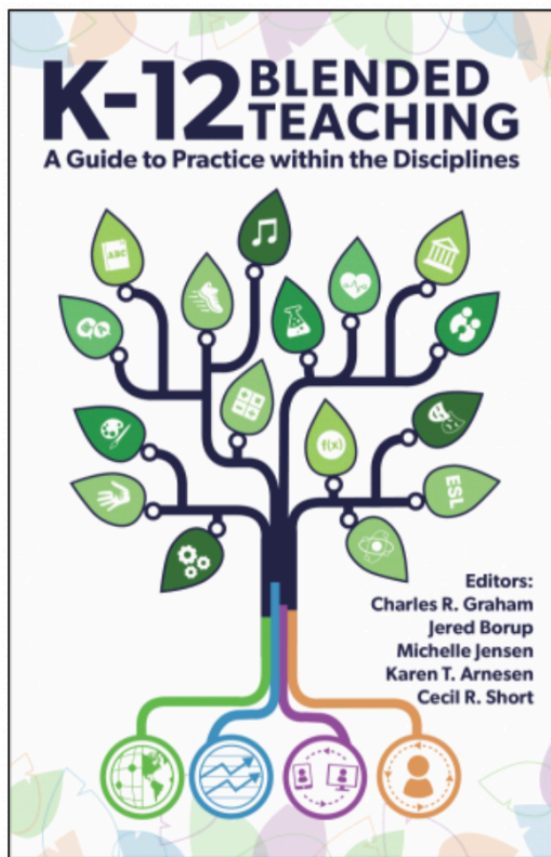
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# About This Series

This series is a guide to blended teaching in K-12 classrooms. It is a follow-up to [The K-12 Blended Teaching: A Guide to Personalized Learning and Online Integration \(Volume 1\)](#).



The purpose of this series is to provide rich examples of four key blended teaching competencies from a disciplinary perspective. Volume 2 is an introduction to the series and the discipline-specific book editions within the series. The image on the cover represents the four core competencies introduced in Volume 1 as roots that feed the disciplinary branches of the tree. The four competencies are essential to blended teaching in all the disciplines though often implementation of the competencies looks different across disciplines.



Each book within the series focuses on blended teaching examples within a different teaching discipline. Below are examples of what a few of the discipline specific editions of the series look like.



The first three chapters of each book in the series are the same and provide definitions and an overview of the blended teaching framework. Subsequent chapters are organized into sections that focus on blended teaching in the specific discipline. Each series edition has the following discipline-specific chapters:

- **Introductions** – Video introductions to the model teachers who will share video examples throughout the section.
- **Why Blend?** – Descriptions from the model teachers about why they chose to try blended learning in their classrooms.
- **Online Integration and Management** – Examples of how to effectively combine online instruction with in-person instruction.
- **Online Interaction** – Examples of how to facilitate online interactions with and between students.
- **Data Practices** – Examples of how to use digital tools to monitor student activity and performance in order to guide student growth.
- **Personalizing Instruction** – Examples of how to implement a learning environment that allows for student customization of goals, pace, and/or learning path.

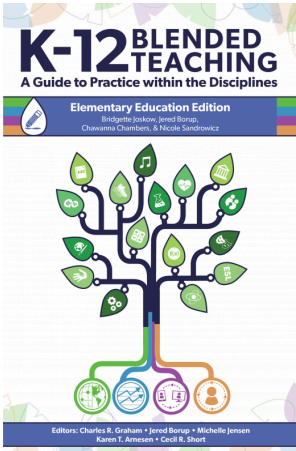
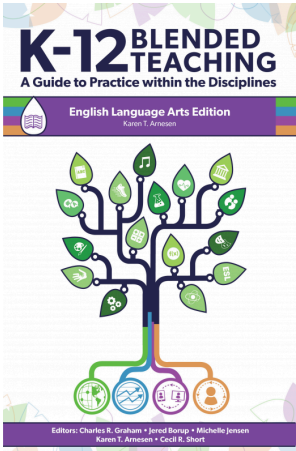


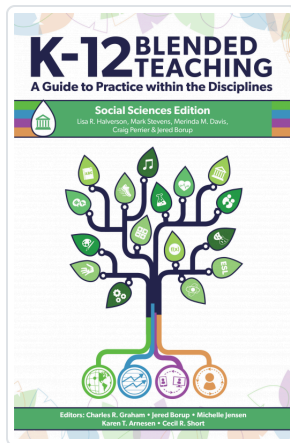
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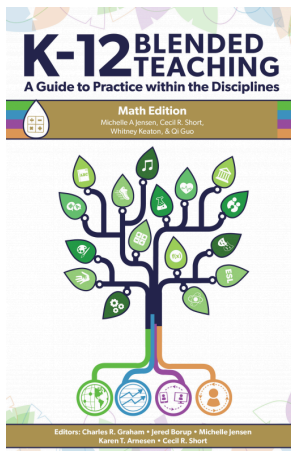
# Discipline-Specific Editions in the Series

Cover	Edition	Citation
	<a href="#">Elementary Education</a>	<p>Joskow, B., Borup, J., Chambers, C. B., &amp; Sandrowicz, N. (2022). <a href="#">K-12 blended teaching: Elementary education edition</a>. In C. R. Graham, J. Borup, M. Jensen, K. T. Arnesen, &amp; C. R. Short (Eds.), <i>K-12 blended teaching (Vol 2): A guide to practice within the disciplines</i>. EdTech Books. <a href="https://edtechbooks.org/k12blended_eled">https://edtechbooks.org/k12blended_eled</a></p>
	<a href="#">English Language Arts</a>	<p>Arnesen, K. T. (2022). <a href="#">K-12 blended teaching: English language arts edition</a>. In C. R. Graham, J. Borup, M. Jensen, K. T. Arnesen, &amp; C. R. Short (Eds.), <i>K-12 blended teaching (Vol 2): A guide to practice within the disciplines</i>. EdTech Books. <a href="https://edtechbooks.org/k12blended_ela">https://edtechbooks.org/k12blended_ela</a></p>



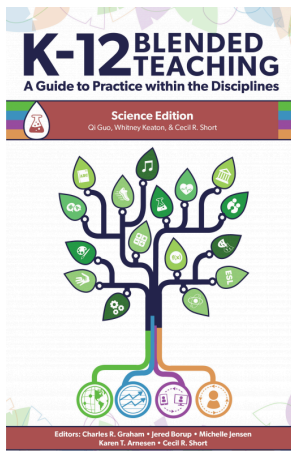
### [Social Science](#)

Halverson, L. R., Stevens, M., Davis, M., Perrier, C., & Borup, J. (2022). [K-12 blended teaching: Social science edition](#). In C. R. Graham, J. Borup, M. Jensen, K. T. Arnesen, & C. R. Short (Eds.), *K-12 Blended Teaching (Vol 2): A guide to practice within the disciplines*. EdTech Books.  
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### [Math](#)

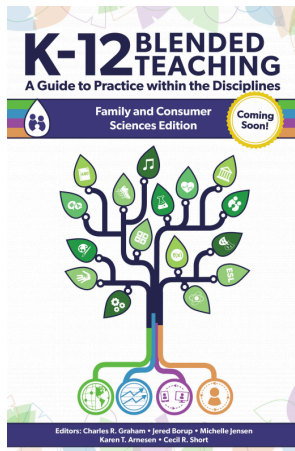
Keaton, W., Jensen, M., Short, C. R., & Guo, Q. (2022). [K-12 blended teaching: Math edition](#). In C. R. Graham, J. Borup, M. Jensen, K. T. Arnesen, & C. R. Short (Eds.), *K-12 blended teaching (Vol 2): A guide to practice within the disciplines*. EdTech Books.  
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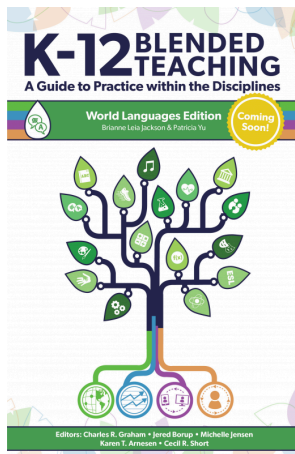
Guo, Q., Keaton, W., & Short, C. R. (2022). [K-12 Blended teaching: Science edition](#). In C. R. Graham, J. Borup, M. Jensen, K. T. Arnesen, & C. R. Short (Eds.), *K-12 blended teaching (Vol 2): A guide to practice within the disciplines*. EdTech Books.  
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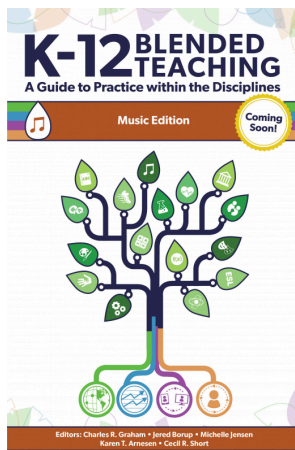


## [Family and Consumer Sciences](#)

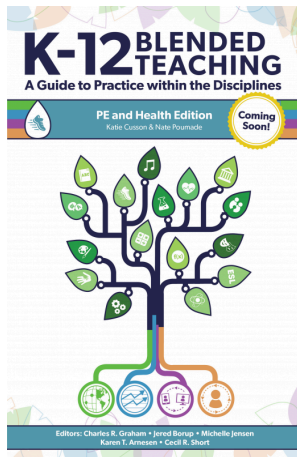
Hancock, N., Lewis, C., & Jensen, M. (2024). [K-12 Blended Teaching: FCS](#). In C. R. Graham, J. Borup, M. Jensen, K. T. Arnesen, & C. R. Short (Eds.), *K-12 blended teaching (Vol 2): A guide to practice within the disciplines*. EdTech Books. [https://edtechbooks.org/k12blended\\_fac](https://edtechbooks.org/k12blended_fac)



## World Languages (coming soon)



## Music (coming soon)



PE and Health

(coming soon)



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# General Introduction to Blended Teaching

Introduction to K-12 Blended Teaching
K-12 Blended Teaching Competencies
A Framework for Evaluating Blended Teaching



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# Introduction to K-12 Blended Teaching

Charles R. Graham, Karen T. Arnesen, Jered Borup, & Michelle Jensen



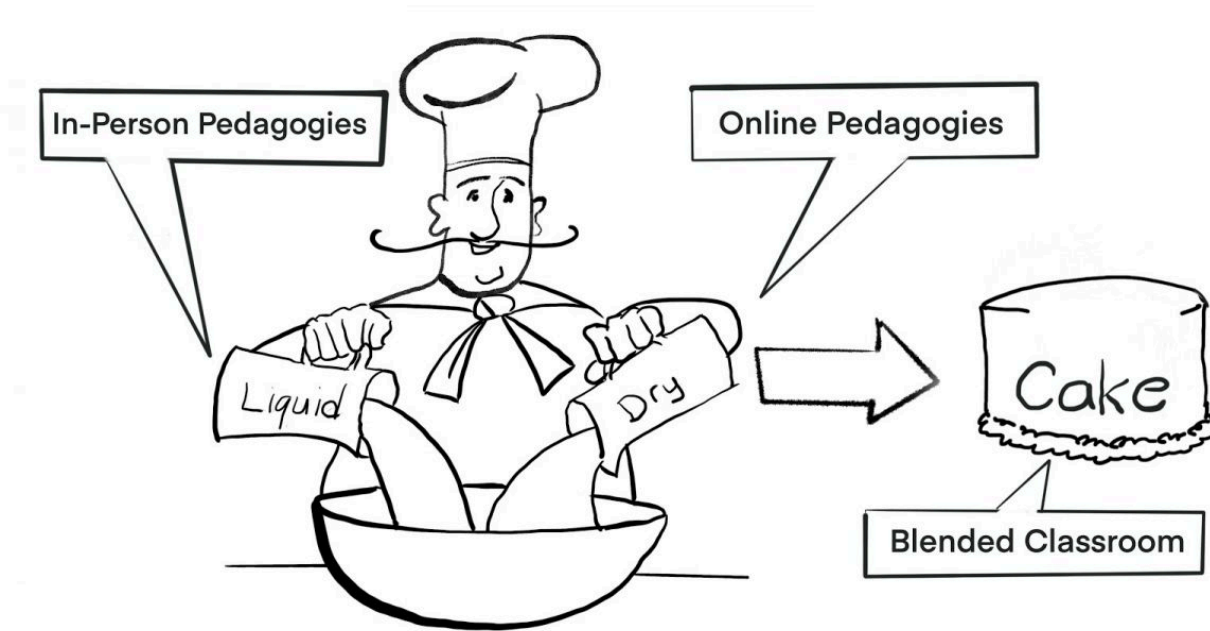
## 1.1 Blended Teaching

In its simplest form, blended teaching is the *strategic* combination of in-person teaching and online teaching.

Blended teaching is a general term that covers a wide range of different pedagogies, strategies, models, and practices. One teacher's blended classroom might look mostly like a traditional classroom with the addition of an occasional online discussion with students, while another classroom might be mostly online with a few strategically planned in-person activities.

Consider this simple (yet imperfect) analogy. Blended teaching is like baking a cake.

- The cook mixes the dry and liquid ingredients together to create a cake for friends/family to eat. The skill of the cook and the nature of the ingredients can create something uniquely wonderful.
- Likewise, a teacher 'mixes' pedagogies in online and in-person modalities together to create learning experiences/outcomes for students.



Consider possible lessons to take from the blended-cooking analogy:

- More dishes are possible with both dry and liquid ingredients.
- The specific ingredients matter. (You can't just have 2 cups of any dry ingredients and 1 cup of any liquid ingredients.)
- The amounts of specific ingredients also matter.
- When mixed well the outcome is different (often better) than if not mixed at all.
- When different ingredients are used, a different cake is made.
- Different cakes may have different purposes.
- There are thousands of ways to combine the dry and liquid ingredients.
- Good cooks do not follow a recipe. They make the cake to fit a specific purpose.

Like a good baker makes a cake, a skilled teacher can create a blend that promotes learning in a way that is most helpful for her own students.



## 1.2 Reasons for Blended Teaching

There are three primary reasons that teachers are motivated to try blended teaching: (1) Improved student learning, (2) Increased access and flexibility, and (3) Increased cost efficiency. Table 1 shares a few simple examples of each of these reasons for blending.

**Table 1**

*Reasons for Blending*

### Reasons for Blending

<b>Improved Student Learning</b>	A teacher:
----------------------------------	------------

## Reasons for Blending

	<ul style="list-style-type: none"><li>• uses the blend to give students small group instruction or one-on-one time with students in order to address specific learning needs.</li><li>• uses data obtained from online tracking systems to constantly monitor learning and to make adjustments to instruction.</li><li>• uses self-made videos to give instructions that students can slow down, speed up, pause, or repeat in order to understand the material or an assignment.</li><li>• offers choice in assignments to increase student engagement and ownership in their learning.</li></ul>
<b>Increased Access and Flexibility</b>	<p>A teacher:</p> <ul style="list-style-type: none"><li>• uses the online space to incorporate into the classroom materials and information, targeted instruction, and activities that are not otherwise available.</li><li>• uses technology to give students choices in learning activities.</li><li>• consults with students to make learning goals.</li></ul>
<b>Increased Efficiency</b>	<p>A teacher:</p> <ul style="list-style-type: none"><li>• moves some science labs online, creating less need for expensive equipment in the classroom.</li><li>• uses books that are online to lower the cost of books (and to have more than a classroom set for students).</li><li>• uses the online space to publish assignments, teacher and student examples, writings, explanations, and questions, reducing the need for copies.</li><li>• creates videos to expand teacher presence in the class, thus multiplying her effectiveness and productivity.</li></ul>

In this book we will primarily focus on providing examples of blended instruction that are designed to improve student learning and/or increase access and flexibility for the learner. It is worth noting that while one of these purposes may be the primary reason that you implement a blended approach, you may also see added benefits in other areas as well, such as in ease of lesson planning or improved overall class engagement.



## 1.3 Identifying Your Reason for Blending

Each teacher needs to decide their own reason for blending. This is important because, like the chef with the cake, determining your purpose provides a vision for how to select appropriate blended models and strategies to achieve the purpose. Blending just because an “administrator told you to” or because “you like technology” are not good reasons for blending.

In working with teachers, we have found that one of the best ways to get started is to identify and focus on a problem of practice. A problem of practice is a current problem or challenge that you believe blended teaching could help you solve.

As you consider problems of practice that are meaningful to your teaching context, these five pathways may help you identify them (Table 2).

**Table 2**

*Problem of Practice Pathways*

## Problems of Practice Pathways

<b>Signature Pedagogies</b>	<p>Signature pedagogies are the teaching strategies that are commonly used in your discipline. They are often unique to your content discipline and shared within your professional organization.</p> <p>A problem of practice could be recognizing and trying to address limitations in your implementation of one or more signature pedagogies in your discipline.</p> <p>Examples:</p> <ul style="list-style-type: none"> <li>• <b>Language Arts:</b> I want to find more effective ways to engage my students in collaborative writing.</li> <li>• <b>Math:</b> I want to increase the quality of mathematical discourse in my classroom.</li> <li>• <b>Science:</b> I want to create opportunities for my students to use technology to analyze and interpret data and then create a scientific argument from this evidence.</li> </ul>
<b>Social Emotional Learning</b>	<p>Students may struggle in areas of social emotional learning, such as self-management, self-awareness, responsible decision making, social awareness, and relationship skills.</p> <p>A problem of practice could be recognizing and addressing areas of growth in students' social and emotional learning.</p> <p>Examples:</p> <ul style="list-style-type: none"> <li>• I want to create structures to help my students to make rational decisions.</li> <li>• I want my students to engage in activities that help them develop empathy for each other.</li> <li>• I want to introduce self-regulation challenges into my students' assignments.</li> </ul>
<b>6 C's of Deep Learning</b>	<p>The 6 Cs of Deep Learning are character, citizenship, collaboration, communication, creativity, and critical thinking.</p> <p>A problem of practice could entail trying to increase one or more of these C's in your instruction.</p> <p>Examples:</p> <ul style="list-style-type: none"> <li>• I want to increase my students' ability to communicate effectively about their learning.</li> <li>• I want to help my students develop better collaboration skills.</li> <li>• I want to students to think critically about current world events.</li> <li>• I want to allow my students to demonstrate their learning in creative ways.</li> <li>• I want to help my students practice appropriate digital citizenship.</li> <li>• I want my students to develop good character as they prepare to enter the real world.</li> </ul>
<b>7 P's of Quality Blended Teaching</b>	<p>The 7 Ps of Quality Blended Teaching are participation, pacing, personalization, place, personal interaction, preparation, and practice with feedback</p> <p>A problem of practice could be recognizing and addressing a challenge in one of these areas.</p> <p>Examples:</p>



## Problems of Practice Pathways

- I want to enable 100% participation in class discussions.
- I want my students to pace themselves to learn as quickly as they are able or as slowly as they need to.
- I want my students to personalize their learning by selecting learning activities that will help them the most.
- I want to open up learning experiences that take place outside of my classroom.
- I want to create additional opportunities for students to personally interact with me and with one another.
- I want to increase students' out-of-class preparation before classroom activities.
- I want my students to receive timely, effective feedback on their practice.

<b>Student Access</b>	<p>Students may have challenges with access to traditional learning opportunities because of disabilities, illness, and/or participation in extracurricular activities like sports or the arts. They may also have limited access to materials that are necessary for improving their understanding of the subject. Such materials may include books, primary resources, lab equipment and resources, art supplies, concert or theatrical performances, etc.</p> <p>A problem of practice could try to address challenges of access for students in your class.</p> <p>Examples:</p> <ul style="list-style-type: none"><li>• <b>Student Absence from Class:</b> I want to make it easy for students who miss class for illness or extra curricular activities to stay caught up.</li><li>• <b>Transient Students:</b> I want to make it possible for students who move between schools regularly to quickly assess what they know and do what is needed to participate with the class.</li><li>• <b>Resources:</b> I want students to have access to the educational materials used as part of our learning in class.</li></ul>
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## 1.4 Examples of Problems of Practice

Here are some examples of teachers who used blended teaching to solve a problem of practice. As you read through them, see if some resonate with desires you have for your classroom.

### Scenario 1

**Problem of Practice:** A teacher wants students to take more ownership for their educational practices and attitudes.

**Blended Approach:** Students set weekly and daily goals which are recorded online, where the teacher has immediate access to them. Goals can include completion goals (setting a certain number of assignments and assessments to complete), performance goals (setting a specific standard of how well the assignments are done), or a mindset goal (setting a goal for asking for help or focusing better), for example. Students share their goals with their team and teacher online. At the end of the week, they reflect online about their experience. The teacher can respond online or in-person to areas of concern as needed.

**Setting:** LPS (Leadership Public Schools) Richmond in Richmond, CA

**Site:** [Daily and Weekly Goal Setting](#)

## Scenario 2

**Problem of Practice:** A chemistry teacher wants his students to “learn for themselves and by themselves.”

**Blended Approach:** The teacher employs a flipped classroom. He creates videos of content the students need to know as well as tutorials on how to do certain chemistry operations. The students watch these videos at home. In class, the students apply what they learn at home in a variety of activities. The teacher walks around the class, answering questions, giving guidance, tutoring as needed, and “putting out fires.”

**Setting:** Woodland Park High, Colorado

**Site:** [Flipped Chemistry Course](#)

## Scenario 3

**Problem of Practice:** A writing teacher wants her students to receive immediate feedback and to value the writing and feedback processes.

**Blended Approach:** The teacher has students write a specific type of paragraph online in a shareable document. While the students write, the teacher opens the students’ documents on her computer and gives feedback on them. Later the teacher and students discuss how to give good feedback. The students are then paired with another student to give each other online feedback. The teacher chooses five feedback comments and shares them in an in-person whole class discussion about the strengths and weaknesses of the feedback comments.

**Site:** [Learning to Give Feedback](#)

## Scenario 4

**Problem of Practice:** A middle school teacher wants parents to be better informed and involved in their child’s education.

**Blended Approach:** Students use an app called Seesaw to record their work. Anything recorded on Seesaw is immediately available to parents who are connected to their child’s profile. Students can add video and audio components to explain their work.

**Setting:** Trailblazer Elementary School in Colorado Springs, CO

**Site:** [Seesaw Record](#)

## Scenario 5

**Problem of Practice:** Students hurry through math assignments without really learning how to approach math problems and do them correctly.

**Blended Approach:** Students have individualized online learning agendas with standards, instructional videos, and text exercises. Students check off each objective within a standard as they complete them and pass an online mastery quiz. Teachers use the agendas to track student progress. When the students have finished each objective, the teacher reviews the progress and assigns them to create a mastery video, in which the students show how they work an easy, medium, and difficult problem within the standard. Teachers review the video to determine if the student is ready for the final mastery assessment.

**Setting:** ReNEW DTA, a charter school for pre-K through 8th grade in New Orleans, LA.

**Site:** [Thinking Mathematically](#)

Creatively addressing problems of practice with a blended approach can transform your classroom and help you create a strong, effective learning environment.



## 1.5 Pedagogy Centered, Technology Supported

The power of the blend is that it opens a whole new set of pedagogical possibilities for teachers. Although blends can improve outcomes for students, they can also make things worse for them. As with traditional teaching, the teacher's strategic planning and skill will make all the difference in the quality of the blend.

One way to begin thinking strategically about a blend is to consider the 3 M's—media, modality, and method.

### Definitions: Media, Modality, Method

**Media:** The physical tools or technology used in the classroom. They can be digital media, such as tablets, computers, or cameras, or they can be non-digital, such as whiteboards, books, or science equipment.

**Modality:** The environment, where learning takes place. Modalities are generally the in-person classroom, the online classroom, and the blended classroom.

**Method:** The strategies and pedagogies of the teacher. They may be general methods (such as discussions) or discipline specific pedagogies such as experimental labs in chemistry.

See [Media, Modality, and Methods](#) video for a more full explanation.

Although all three M's impact learning, they are not equal in importance. No media or modality will be effective if it is not used as part of meaningful and strategic methods or pedagogies. Modality and media have an indirect effect on learning outcomes because they influence the *types* of strategies and methods that a teacher can use. But the teacher's methods directly influence student learning and outcomes. Table 3 shows good and bad examples of blended learning strategies and pedagogies. Evaluate each and see what made the difference: media, modality, or method.

**Table 3**

*Good and Poor Examples of Blended Learning*

Good Example of Blended Learning	Poor Example of Blended Learning
A math teacher uses adaptive software. She allows students to progress at their own pace and has one-on-one or small group sessions for students who struggle with a particular concept.	A math teacher has students who finish their math assignment early uses apps on a classroom set of tablets to play math games.
A history teacher sends students links to two different viewpoints of a historical event. Students read/watch the content at home. In class, the teacher puts students in groups of four and has them summarize each viewpoint and discuss why they are different. How does the creator's viewpoint affect the depiction of what happened? How can people really know what happened and why?	A history teacher records a lecture and has students view it before class at home. In class they do a worksheet with questions about the lecture.
A foreign language teacher utilizes station rotations in his classroom. At one station students choose from a list of writing assignments and write using google docs. Another student at that station reads the document online and gives suggestions or asks questions.	A foreign language teacher uses a video streaming service to show his students a weekly video in the target language. This enhances listening skills and allows

**Good Example of Blended Learning**

At the next rotation students meet online with a native speaker and have a short conversation, which uses new vocabulary.

Finally, at the last station students meet with the teacher to discuss and practice new grammar rules and language structure.

**Poor Example of Blended Learning**

students to hear the language spoken by native speakers.

These examples illustrate that blended teaching is powerful only when the modality and the media are used to support, not replace, pedagogy or method. As in any teaching setting, good blended teaching does not depend on technology but on the teachers' understanding of her students, her knowledge of the content, and her ability to plan strategies that will use technology to meaningfully combine online and in-person spaces, increase the number and quality of student interactions, use data to effectively meet students' needs, and personalize instruction in order to increase student ownership of their education, their engagement, and their ability to develop and use 21st century skills.

The chapters in this book will help you get started.



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## K-12 Blended Teaching Competencies

Charles R. Graham, Jered Borup, Michelle Jensen, Karen T. Arnesen, & Cecil R. Short

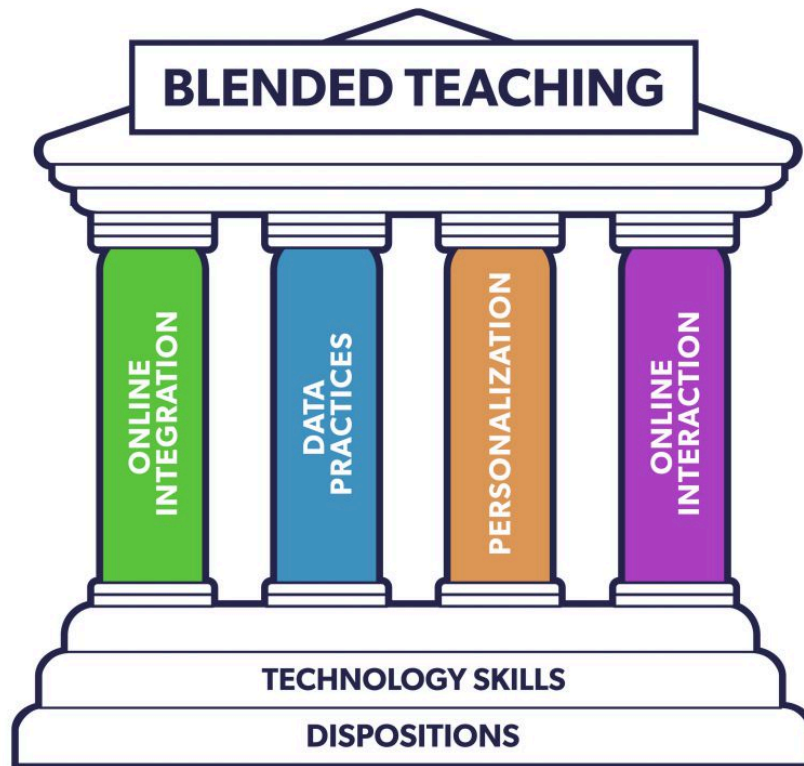


### 2.1 Blended Teaching Competencies

In [Volume 1 of K-12 Blended Teaching](#) we introduced four competencies shown in Figure 1, with each competency represented by a pillar built on a solid foundation of blended dispositions and technology skills. The four core blended teaching competencies—(1) Online integration, (2) Data practices, (3) Personalization, and (4) Online interaction—can be mastered by any teacher in any subject area. These competencies are built on a foundation of positive dispositions and basic technology skills.

#### Figure 1

*Blended Teaching Foundations and Core Competencies*



We will provide a brief introduction to these competencies in this chapter with more in-depth coverage in each of the subject-specific sections. Check out your readiness for blended teaching in each of these areas by taking this [Blended Teaching Readiness Self-evaluation](#).

Test Your Blended Teaching Readiness: <http://bit.ly/K12-BTR>

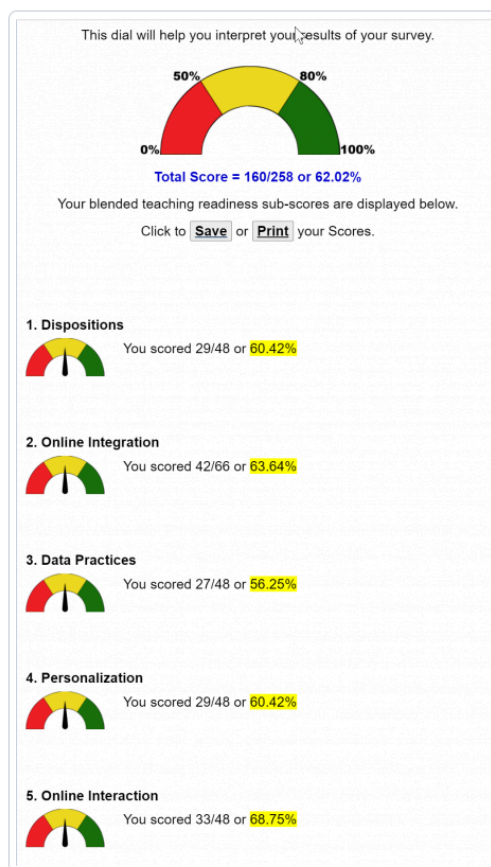


**Check out how ready you are for blended teaching?**

As shown in Figure 2, the results of the blended teaching readiness instrument will give you a score in each of the competency areas. The scores will help you to understand which competency areas you might want to start with as you build your personal skillset with blended teaching.

**Figure 2**

*Example results from the Blended Teaching Readiness Survey*



This volume differs from Volume 1 of the K-12 Blended Teaching series in that it focuses on examples of blended teaching in a specific content area. The four competencies of online integration, data practices, personalization, and online interaction are still key skills for successful blended teaching. However, those skills may look distinct when practiced in different content areas. We have represented this idea on the cover of this book with the blended teaching tree as shown in Figure 3. The individual branches represent blended teaching in the many distinct educational disciplines all of which are nourished by the common core set of teacher competencies.

**Figure 3**

*Core Competencies in the Content Areas*





## 2.2.2 Mastery Learning Orientation

Blended classrooms lend themselves to mastery-based learning instead of time-based learning. Students advance in their learning as they master skills and content, not as they spend a certain amount of time on them. This approach significantly reduces the amount of whole-class direct instruction. Technology is a helpful tool for managing mastery learning.

- How do I feel about students learning at different paces in my classroom?
- Do I value students having enough time to master a learning objective before they move to the next one?
- Do I think I could develop the flexibility to manage such a classroom?













## 2.2.3 Value of Data-Driven Decisions

A reliance on data (Figure 4) to make decisions about instruction and individual pathways to learning is at the heart of a blended classroom. This data may include formative and summative assessment results, attendance, student goals, demographics, and measures of engagement. It can help teachers recognize strengths and weaknesses, progression, and reasons for students' lack of progress.

- How do you feel about using technology to keep track of various aspects of student learning?
- Do you feel data could help you not only understand your students better but also help them progress and become better learners?

**Figure 4**

*Example of a Mastery Tracker Showing Student Progress*

Students  		 1	 1	 1	 1
SORT: Last, First  A - Z 		Obj1.1 	Obj1.2 	Obj1.3 	Obj1.4 
Student 1	<div><div>3</div><div>0</div><div>1</div></div>	MASTERY	MASTERY	MASTERY	REMEDIATION
Student 2	<div><div>2</div><div>2</div><div>0</div></div>	MASTERY	NEAR MASTERY	MASTERY	NEAR MASTERY
Student 3	<div><div>3</div><div>0</div><div>1</div></div>	MASTERY	MASTERY	REMEDIATION	MASTERY
Student 4	<div><div>2</div><div>1</div><div>1</div></div>	REMEDIATION	NEAR MASTERY	MASTERY	MASTERY
Student 5	<div><div>2</div><div>2</div><div>0</div></div>	MASTERY	NEAR MASTERY	NEAR MASTERY	MASTERY
Student 6	<div><div>4</div><div>0</div><div>0</div></div>	MASTERY	MASTERY	MASTERY	MASTERY

## 2.2.4. Growth Orientation

Becoming a successful blended teacher will require you to take risks. You may fail at times, but these failures can help you learn and improve.

- How eager are you to learn new things and try innovative ways to do things?
- Are you willing to take risks that may temporarily leave you feeling inadequate? (Are you willing for your cake to fail now and then?)
- Do you enjoy learning and trying new things?

## 2.2.5 Emphasis on Life Skills

In a blended learning environment, technology can be used to develop real life skills such as communication, collaboration, creativity, and critical thinking.

- Do you currently use pedagogies that help your students develop life skills? If not, how can you start?
- Do you believe these life skills are part of your responsibility as a teacher?
- Are you willing to consider using technology to develop these skills?

## 2.2.6 Value of Online Learning

Because blended learning is “the strategic combination of in-person with online teaching,” valuing online learning is as important as valuing in-person learning.

- Do you believe online activities can enhance the way children learn?
- Do you feel online activities can give students opportunities to learn they can not get in the traditional classroom?
- Can you see ways online learning can help you personalize or individualize curriculum?

It is natural to feel a little uneasy about some of these dispositions. Maybe you are suspicious of online learning, or perhaps giving students more control makes you feel uneasy or out of control. Perhaps you worry that if you emphasize life skills, you won’t be able to teach the content you are mandated to teach. Any new venture may feel risky; however, the fact that you are reading this book shows that you are ready to learn! And learning can change dispositions.

You can begin to see yourself as a teacher in new ways and to grow and learn along with your students, adding an excitement to learning that will enhance any methods you learn and choose to use. The key is just to begin. Beginning is the basis for personal growth—you have to start somewhere!



## 2.3 Basic Technology Skills

If you feel uncomfortable with all the technology tools out there, you are not alone. However, it is important to note that technology is not ultimately the focus of blended learning. *It is about helping students learn.* Once you start applying blended teaching, you will find that technology will become as invaluable and comfortable a tool to use in improving the learning experience of your students as a whiteboard, a book, or a worksheet is.

Here are some of the important knowledge and skills you can develop as a blended teacher.

### 2.3.1 Basic Literacy

You will need to become familiar with and use technologies on your own, troubleshoot issues that may arise, and find quality online content for use in your classroom.

- What technologies do you currently feel comfortable with? How did you learn to use them?
- Make a list of technologies you know of but that you don’t use. Which one would you like to learn? How can you do so?

### 2.3.2 Digital Citizenship

Digital citizenship consists of modeling and teaching copyright laws and fair use, ensuring privacy and protection (passwords, no bullying, etc.), ensuring honesty, and ensuring access.

- What concerns do you have in any of these areas?

### 2.3.3 Learning management systems

Many blended teachers use learning management systems (LMS) to organize their classrooms. They keep grades, give announcements, and create content pages, quizzes, assignments, and discussion boards in the LMS.

- Does your school already use an LMS? Which one? How familiar are you with it? How can you learn more? Is there another teacher or a coach in your school who could help you?

## 2.3.4 Educational Software

Blended teachers have resources for finding content-specific educational software that helps them meet their learning objectives.

- What content specific educational software are you aware of? Does your school already subscribe to any?
- Are there any free sources you can use?

## 2.3.5 Media Creation Tools

These tools help teachers create or edit online materials to meet specific needs. They are also tools that students can use to create.

- What media creation tools are you familiar with?
- How could you use them to create materials for your classroom?
- How could you let your students use them to learn or to demonstrate learning?

## 2.3.6 Communication Tools

Blended teachers use a variety of tools for communicating with their students, parents, administrators, and other stakeholders. They also leverage these tools to help students communicate and collaborate with each other.

- How can greater communication with students, parents, administrators, and others help enhance your teaching ability and your students' learning experiences?
- What tools do you already use to interact with others? Could some be adapted to use with students and others?
- What new tools (such as [Flipgrid](#)) could you incorporate into your classroom?



## 2.4 Online Integration

Online Integration focuses on the teacher's ability to make and implement decisions related to selecting when and how to effectively combine online and in-person learning as part of core instruction.

Online integration is the one competency that is truly integral to blended teaching. Why is this so? If you don't have some kind of strategic combination of online and in-person instruction, you don't have blended teaching. However, don't let this overwhelm you. All of the other competencies we will discuss provide specific tools to use in integrating the online and in-person space.

- What part of your instruction could be moved online so that you have more time to spend one-on-one or in small groups with students?
- How could you make this content available to students in the online space?
- What parts of student learning are especially well suited to in-person learning?
- How can using the online space help make learning more interactive and personalized?

Read more about [online integration practices](#) in the in K-12 Blended Teaching (Volume 1).



## 2.5 Online Interaction

Online Interaction focuses on the teacher's ability to facilitate online interactions with and between students. Online interaction in a blended teaching classroom broadens the opportunity for students and teachers to communicate with one another about their learning. Online interaction might include digital instruction, discussions, and feedback.

In 1989, Michael Moore defined three different types of learning interactions: (1) Student–content, (2) Student–instructor, (3) Student–student. Moore explained that each type of interaction contributes to a quality learning experience. Though Moore defined these types of learning interactions in a discussion about distance learning, they also apply to online interactions that occur in blended teaching.

Online student–content interaction occurs when students engage with online learning materials by reading, listening, watching, and/or reflecting. Online student–instructor interaction occurs when students have opportunities to apply what they have learned from their content interactions, demonstrate new knowledge, and receive feedback in an online forum from the teacher as the “expert.” Finally, online student–student interaction occurs when students communicate online with one another—sharing their understanding and building on what they have learned.

One of the key elements to being able to leverage the advantages of blended learning is the ability to create a positive, supportive, and safe space—not only in the physical classroom, but in the online space as well. Just as students must develop an understanding of the rules, routines, and procedures for communicating and participating in-person, they must also learn the guidelines for online interaction.

Read more about [online interaction](#) in K-12 Blended Teaching (Volume 1).

## 2.5.1 Online discussions

One of the major interactions that can happen in an online setting is the use of discussions. The advantage of online discussions is that they are one of the few online activities that can combine all three types of interactions. Students usually read or view materials to prepare for the discussion (student–content interaction), then share their thoughts with their peers (student–student interaction) in a forum that is moderated by the instructor (student–instructor interaction). As a result, online discussions can be critical in helping students achieve course outcomes because they provide students with a variety of interactions.

### Discussion Variations

Online discussions can happen synchronously (in real time) or asynchronously (not in real time). The advantages of an asynchronous discussion is that it allows additional flexibility in time, place, and depth of reflection. Online discussions can also range from low fidelity (mostly text based with no communication cues) to higher fidelity (video communication with more communication cues). Higher fidelity discussions that utilize video or audio discussion platforms contain many of the communication cues that we are used to having in person.

### Learning Objectives

It takes careful thought and preparation to create an effective online discussion. Once you have established guidelines, you must figure out how an online discussion can support and improve student learning. It is helpful to keep in mind what you want students to know and take away from the online discussion. You might want to communicate this rationale with students, highlighting what you hope they will gain from their participation.

Once you have determined your objective(s), consider how you are going to make sure that students meet them. You may want to think about the source material students will need to read or watch prior to participating, how the online discussion will inform in-person discussions, and whether the discussion will be started, continued, or finished in the online setting.

### Effective Prompts

All good online discussions begin with well-planned discussion prompts. You may wish to consider a range of question types depending on the specific objectives and what you want students to take away from the discussion. These questions can take a variety of forms, similar to any in-class discussion. As Davis (2009) described, you might consider asking the following types of questions:

- Exploratory questions: probe facts and basic knowledge
- Challenge questions: interrogate assumptions, conclusions, or interpretations
- Relational questions: ask for comparisons of themes, ideas, or issues
- Diagnostic questions: probe motives or causes
- Action questions: call for a conclusion or action
- Cause-and-effect questions: ask for causal relationships between ideas, actions, or events
- Extension questions: expand the discussion
- Hypothetical questions: pose a change in the facts or issues
- Priority questions: seek to identify the most important issue(s)
- Summary questions: elicit synthesis

These question types can be mapped to Bloom's Taxonomy, ranging from those that focus on factual information such as exploratory questions, to others that require more in-depth synthesis and evaluation.

Online discussions are more productive when teachers give participants explicit instructions. You will want to model the nature of the posts you are expecting. Directions may also include a number of factors such as post length, style of writing, specific formatting conventions students are expected to follow, required references, expectations for number of replies, who will respond to whom, and when initial posts and response posts are due. You can group these aspects into categories of structure, content, flow, and timing. Each aspect of these categories is described in Table 1.

**Table 1**

*Characteristics of Online Posts*

Category	Factor	Description
<b>Structure</b>	Length	How long should posts be? Can you include a range of the number of words expected? Should the post be a certain number of sentences or paragraphs?
	Style	How formal do you expect the language to be? While it might be more conversational, the tone should still be academic in nature. Helping students strike this balance is important to model in online discussions.
	Formatting	Are there any guidelines you want students to follow when posting , such as a specific title for the subject line? Should students use a greeting and a closing in their responses? Is there specific content you want in each paragraph?
<b>Content</b>	Requirements	Are there sources/references the students need to connect to or cite in their responses? What ideas must students present in their posts?
<b>Flow</b>	Replies	How many posts/responses are required to adequately participate in the discussion? How will students know who to respond to?
<b>Timing</b>	Due Dates	When are initial posts due? Do students have enough time to understand the material or discussion before posting?

## Managing Discussions

One of the mistakes that teachers who are new to blended learning often make is using their LMS to create whole class discussion activities. It can be okay to have a class discussion board for sharing general ideas about class or asking general questions, but these are not ideal for creating student-student interactions. If the discussion group consists of more than 10 members, it becomes very difficult for each member of the group to read all the posts and know what has been said and what has not been said. Additionally, large discussion groups make it more difficult to create a sense of community, whereas members of a small group have a better chance of getting to know one another.

For managing discussions, breaking your class into smaller groups can be helpful. You might consider creating groups with between 4 and 6 members (certainly fewer than 10). If you want all students to get a sense of the discussion happening throughout the entire class, groups can have their discussion and then report to the entire class with a synthesis activity. Another strategy is to assign specific roles within the small discussion group to focus students' contributions. Over a series of weeks, these roles can rotate so that each student has an opportunity to fulfill each role. Several possible discussion roles might be facilitator, devil's advocate, connector, explorer, and summarizer (North, 2017).

When facilitating online discussions, it is also important to strike the right balance in terms of teacher interaction. Too little teacher interaction and students can feel like no one is listening. Too much and you run the risk of dominating the discussion which can limit or hamper students' interactions, both in terms of quality and quantity.

You will also want to establish guidelines for giving students credit for discussion board participation, and provide ways to allocate points for posting regularly, responding to classmates' posts, staying on topic, and responding in a thoughtful manner. Assessing the quality as well as the quantity of the students' online posts is important. Using rubrics will allow students to have clear guidelines of your expectations for the quality of their posts.

## 2.5.2 Feedback

Effective feedback highlights strengths and areas for improvement for student work, is given promptly and respectfully, and motivates students to improve. Feedback should build relationships, offer praise, suggest corrections, and offer support. In a blended classroom online tools can be used to facilitate these goals. Online rubrics within most learning management systems help teachers to quickly assess and communicate expectations to students. Feedback templates may be used to provide feedback about common weaknesses by completing a digital form for each student. Video and audio comments can allow for more complex feedback.

### Peer Feedback

Quality peer feedback can allow teachers to spend their time more effectively. For instance, you can implement a three-before-me policy that requires students to receive feedback from three peers before submitting the project to you for feedback. John Hattie's (2008) review of research found that 80% of feedback that students receive comes from their peers. Unfortunately, 80% of that feedback is incorrect! As a result, you should help students learn how to provide quality feedback to their peers. For instance, you can create specific rubrics and then help students understand how to use those rubrics while providing feedback (2008).

### Teacher Feedback

Student to teacher feedback can improve learning for all students. Again, John Hattie's seminal synthesis of over 800 meta-analyses relating to student achievement highlights the need for student-provided feedback. Hattie explained, "the most important feature was the creation of situations in classrooms for the teacher to receive more feedback about their teaching" because it created a "ripple effect back to the student" (2008, p. 12). Online communication can help students provide you with meaningful feedback because their comments can be anonymous. It can also give students the opportunity to provide you with feedback at any time. For instance, you could create an anonymous feedback survey using Google Forms linked in the sidebar of a course website that students can access while they are working on assignments.

## Supporting Learning with Online Interaction

Sometimes teachers don't see a need to communicate online if students have the opportunity to do so in-person. However, there are advantages and disadvantages to both in-person and online communication. The challenge is leveraging the advantages of both in-person and online interaction. Some of the strengths of online communication include:



- **Flexibility:** Students can contribute to the discussion at the time and place that is most convenient and comfortable to them.
- **Participation:** All students can participate because time and place constraints are removed. The discussion is not limited to the time that class is meeting or to the students that are present or feel most comfortable speaking in front of others.
- **Depth of reflection:** Students have time to carefully consider their claims, provide supporting evidence, and engage in deeper, more thoughtful reflections (Mikulecky, 1998; Benbunan-Fich & Hiltz, 1999).

Notice how the strengths of online communication are some of the weaknesses of in-person communication.

## 2.5.3 Conclusion

Online interaction facilitates student learning by taking advantage of the strengths of both in-person and online communication. You can begin or improve your blended teaching by considering the advice and guidelines recommended in this chapter.



## 2.6 Data Practices

Data Practices focus on the teacher's ability to use digital tools to monitor student activity and performance in order to make informed choices about interventions and to help all students progress.

Read more about [data practices](#) in K-12 Blended Teaching (Volume 1).

### 2.6.1 Performance Data

Performance data shows direct measures of how students perform on assessments. It may include measures such as grade books and state and national exams. Performance data can also be found in mastery or performance dashboards in an LMS.

### 2.6.2 Activity Data

Activity data are indirect measure of student participation and engagement. It includes attendance, participation, LMS log-in times, and engagement. Some of this data can be found in LMS dashboards; other data could come from one-on-one interviews or observations.

### 2.6.3 Learner Profile Data

Learner profile data are measures of a learner's background, interests, goals, and preferences. These data are just as important to data-driven instruction as performance data and activity data if teachers want to provide data-driven instruction and help students to personalize their learning.

Read more about [learner profile data](#) in section 4.1.3 in the Personalization chapter of K-12 Blended Teaching (Volume I).



## 2.7 Personalization

Personalizing instruction focuses on the teacher's ability to implement a learning environment that allows for student customization of their learning goals, pacing, time, place, and/or path. It is the process by which teachers shift their focus from a classroom in its entirety to individual students. Through personalization, students begin to understand how they learn and how they become life-long learners. Helping students learn how to learn is a goal that almost all teachers have for their students; the question therefore becomes, "How do I empower to students to personalize their learning in my classroom?"



Personalization means allowing a student's needs and desires to motivate what, when, where, and how the student meets the learning outcomes for a course (Patrick et al., 2013). This involves the teacher giving the students more freedom while still guiding and facilitating the learning process in the classroom. It is helpful to think about how learning can be personalized across various instructional elements, dimensions of personalization, and levels of student agency.

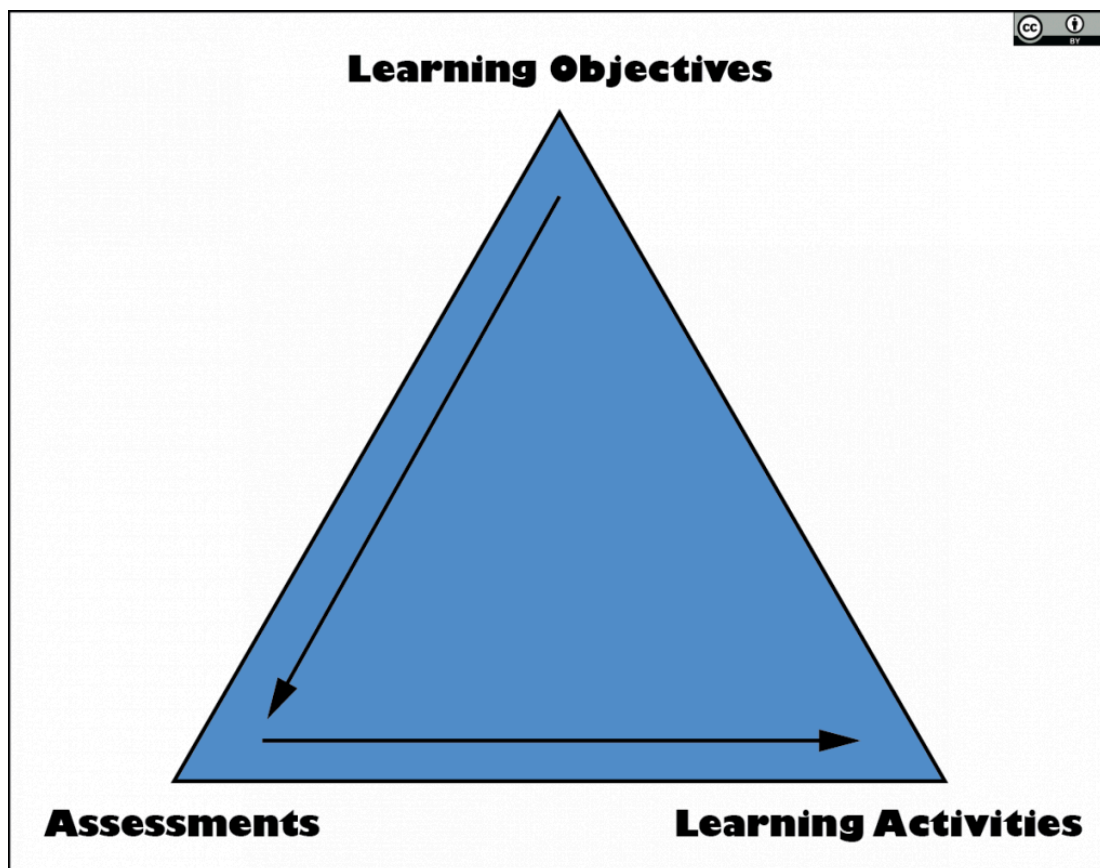
Read more about [personalization](#) in K-12 Blended Teaching (Volume 1).

## 2.7.1 Personalization Across Instructional Elements

Learning can be personalized along any of the three elements that commonly make up instruction: learning objectives, assessments, and learning activities (Figure 5). Describing the personalized learning of these elements helps explain what is being personalized.

**Figure 5**

*Instructional Elements According to Backward Design*



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While some assessments may have mandated times, places, and formats, other assessments may offer students some flexibility in demonstrating their knowledge or ability. For instance, some assessments can be personalized by allowing students to choose how they show their understanding; the level of mastery they hope to attain on the assessment; how quickly an assessment must be completed; or even when and where the assessment should be completed—such as at home or in an alternate school environment during class, before school, or after school.

Similar to assessments, learning activities can also be personalized by allowing students to choose from various kinds of activities, formats, or media to use in preparing for assessments; how quickly learning should occur; when and where

study or completion of learning activities should occur; with whom the student would like to work; or even the learning habits students aim to develop while completing the learning activities.

We further discuss how these instructional elements can be personalized by describing the various dimensions of personalized learning below (Figure 6).

**Figure 6**

*Dimensions of Personalized Learning*



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## 2.7.2 Goals

Teachers often feel pressure to make sure their students meet certain outcomes by the end of their time together. These learning outcomes and requirements are usually designated on the district, state, or even national level. However, students can benefit from being encouraged to set, track, and achieve their own short-term goals throughout their learning. As teachers help their students to make Specific, Measurable, Attainable, Relevant, and Time-Based (SMART) Goals (see Figure 5), they show that students are responsible for their own learning and give students the tools to reach their potential (Graham et al., 2019).

**Figure 7**

*SMART Goals*



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It is important that both teacher and student work together to set appropriate goals to help the student reach the outcomes for the course and for personal growth. These goals, which can be academic (performance-based) or behavioral (habit-based), will allow the student to feel accomplished as they reach their own milestones throughout the course. The personalization of goals and the individual process of setting them will help motivate struggling students, showing them that they are growing in meaningful ways, and challenge advanced students, allowing them to set goals at their own level. Students and their teachers can also decide on personalized means of assessing if the students are reaching their goals and the learning outcomes for the course.

#### Not a Personalized Goal

The teacher decides that students will work towards 80% mastery of an assessment for a specific state standard.

#### Personalized Goal

Students aim for different levels of mastery, based on their previous performance data.

## 2.7.3 Time

Photo by [Ales Krivec](#) on [Unsplash](#)



Like most people, students often have a preferred time of the day in which they are mentally more astute and a preferred amount of time they can efficiently spend on a single task. As teachers get to know their students, they may begin to understand what these times are for each student. Personalizing time in a classroom allows students to focus on their more difficult content areas while they are more alert. In a full-day class, this may mean allowing some students to write in the morning, while others may choose to do so after lunch. In a period-based schedule, this may mean working with students to adapt the times and dates assignments are due, motivating students to work on their assignments at a time that cognitively works best for them. Additionally, some students may wish to work at home or

on a project before or after school. Personalizing time means allowing students to have access to the materials they need when they need them. It should also be noted that allowing students to work at a time that is best for them may also mean allowing them to work at a pace that is best for them.

Not a Personalized Time	Personalized Time
The teacher chooses when the whole class will participate in an instructional activity.	Students choose how to spend their time during a class's "flex" time.

## 2.7.4 Place

The personalization of place consists of both the location in which the students are learning and the people with whom they are learning (Graham et al., 2019). Personalizing place in a classroom allows students to learn the types of environments and interactions that are most conducive to their individual productivity while in a structured, low-stakes setting. This knowledge will benefit them as they graduate and move on to more high-pressured environments, such as college and careers. Teachers can open the space in their classroom to allow students to work in different groups or stations, or they may allow more freedom in what happens in the classroom or at home. The teacher can be in only one place at a time, so technology often plays a role in allowing students to have flexibility in the location of their learning by providing them with access to learning materials.

It is important to note that personalization is not always a separating process. There are many ways to group students in a classroom: in pairs or in small groups, with similarly skilled students working together, or with students on a spectrum of skills helping and tutoring each other (Graham et al., 2019). Teachers must decide how much freedom they give their students in determining both the other students in their groups and their roles within their respective groups.

Not a Personalized Place	Personalized Place
The teacher creates a seating chart and each student is expected to sit in his or her assigned seat.	Students are given a choice of where to sit based on several flexible seating options.

## 2.7.5 Pace

Personalizing pace allows students to adjust the speed at which they complete learning activities and content. While teachers may need to set a minimum pace at which student are allowed to work, adjusting the flow of material for each student helps to ensure that those who need more time to absorb the material are not left behind, while those who may grasp a particular concept more quickly are able to advance to activities that allow them to further develop their knowledge.

Not a Personalized Pace	Personalized Pace
The teacher determines when the class begins and ends working on a lesson or unit.	Students are able to work through units at the speed that works best for them, working ahead or slowing down as needed.

## 2.7.6 Path

A personalized learning path consists of students choosing how they will achieve a specific learning outcome or personalized goal. While the personalized goal or learning outcome is the end result, with personalized paths the students are able to decide the learning activities they complete as they strive to reach that goal. These options can take a variety of forms: students choosing assignments from a list of different learning activities that all teach the same principle, students deciding whether they would rather listen to instructions through a recording or read them on a page, or students each choosing how they will show mastery at the end of a unit. While these methods help the students to

feel ownership and connection to their learning, it also can prevent the tedium of grading worksheets or multiple-choice exams for every unit.

#### Not a Personalized Path

The teacher determines the sequence of activities that everyone in the class will complete.

#### Personalized Path

Students choose from among a list of activities that will help move them towards mastery.

## 2.7.7 How to Begin Personalizing, Levels of Learner Agency

Photo by [Paul Melki](#) on [Unsplash](#)



While the task of personalizing a classroom seems daunting, it is important to realize that teachers do not need to start implementing all five dimensions of personalization across learning objectives, assessments, and learning activities all at once. There are some domains that may already fit within a classroom's structure and others that may follow later. For example, a teacher may begin by helping students set their own goals, which might eventually develop into the personalization of path. The most important criteria are that a teacher starts with a student-centered mentality, builds a support system, and has a personalization plan in mind.

### Becoming student-centered

The task of personalizing a classroom requires more than just a structural change in a classroom. It also requires the humility and patience to allow students more autonomy in their learning. The teacher must step away from a lecturing role and into the role of a facilitator and a guide, which often means getting to know the students in a more personal way. While it may be unfeasible to sit down with every student on a regular basis, even simple connections like sending surveys about students' preferences and needs can go a long way. These surveys can contain both multiple-choice sorting questions (Do you prefer reading instructions, watching video instructions, or both?) and open-ended, interest-



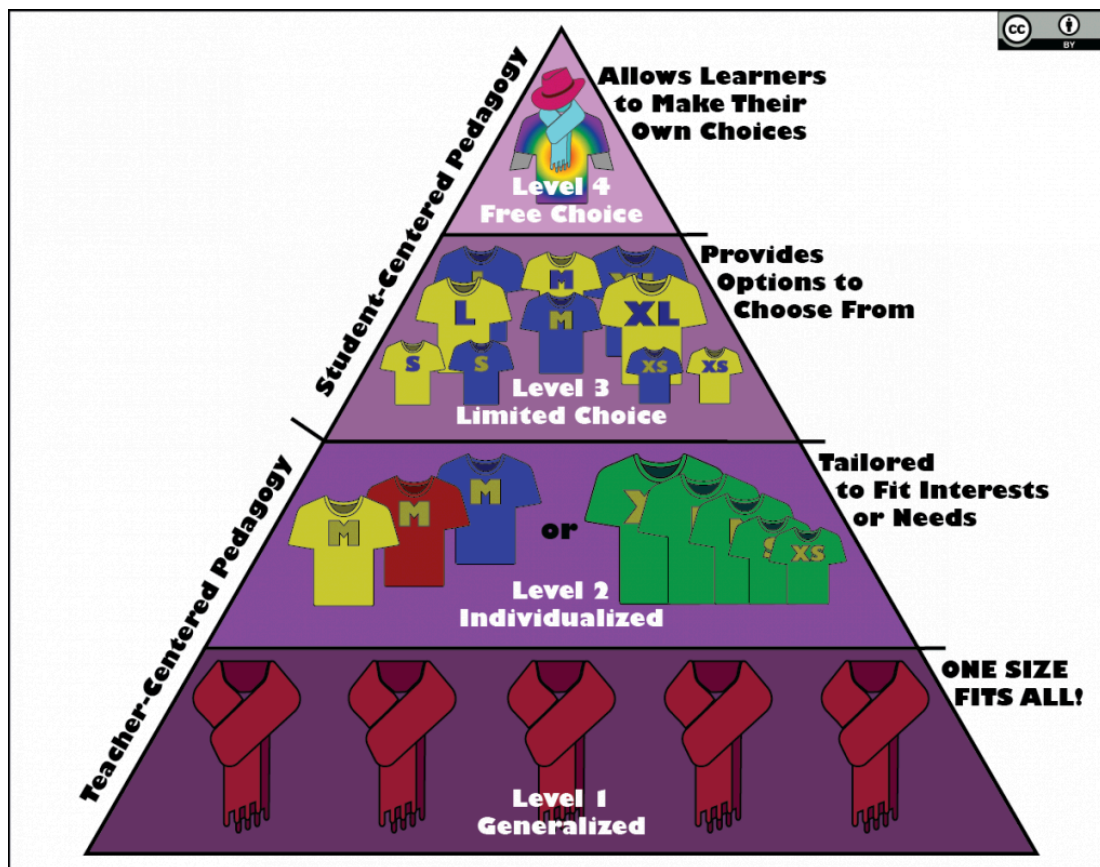
based questions (What do you like to do in your free time?) (Graham et al., 2019). The answers to questions like these can be used to develop a more student-centered classroom.

Short (2022) notes that teaching can incorporate four different levels of learner agency for personalization (See Figure 6). These levels are outlined as follows:

- Level 1 - Generalized Instruction. At this level, the instruction is largely teacher-centered and takes a “one-size-fits-all” approach to learning.
- Level 2 - Individualized Instruction. Instruction includes some differentiation, individualization, or adaptation. These modifications come from the teacher making decisions based on students' needs, interests, and abilities, or from technology that measures student knowledge or abilities and adapts instruction based on such data.
- Level 3 - Limited Choice. Students have some choice over their learning related to the goals, time, place, pace, and/or path of their learning. At this level, teachers provide students with options to choose from such as various levels of mastery to work toward, various forms of assessment to complete, or various videos to watch.
- Level 4 - Free Choice. Students fully direct the goals, time, place, pace, and/or path of their learning. At this level, students have full autonomy in directing their learning. It may be uncommon in K-12 contexts for students to reach this level all the time but there are opportunities for students to practice this level of agency. For example, students may freely choose the topic of an essay or whom to work with for completing a project.

**Figure 8**

*Short's Taxonomy of Learner Agency*



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These four levels of agency can be applied to any of the five dimensions of personalized learning (goals, time, place, pace, and path) and to any of the three elements of instruction (learning objectives, assessments, and learning

activities).

## Personalization plan

Personalizing learning is not the same as giving students free reign in the classroom. In order to truly help students, teachers need to find balance between the overall structure of the classroom and the flexibility of student choice within that structure. As the teacher begins a school year with a plan of what decisions the students will be able to make and which ones the teacher will resolve, the teacher will be more prepared to help students reach their full potential. However, in order to truly be student-minded, teachers must remember to maintain a flexible mindset as they create personalization plans. Once teachers begin to understand the unique individuals in their classrooms, they will be able to fine-tune their initial plans for personalization in a way that supports those students.

### Teachers Talk: Results of Personalization



[Watch on YouTube](#)

Personalization is by no means easy, but it is feasible. As teachers approach their classrooms with the students' needs in the center of their pedagogy, the needs and desires of the students will frame how the learning outcomes are presented, achieved, and demonstrated. Students and teachers will benefit from the preparation and dedication that each will put forward in the learning process.



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## A Framework for Evaluating Blended Teaching

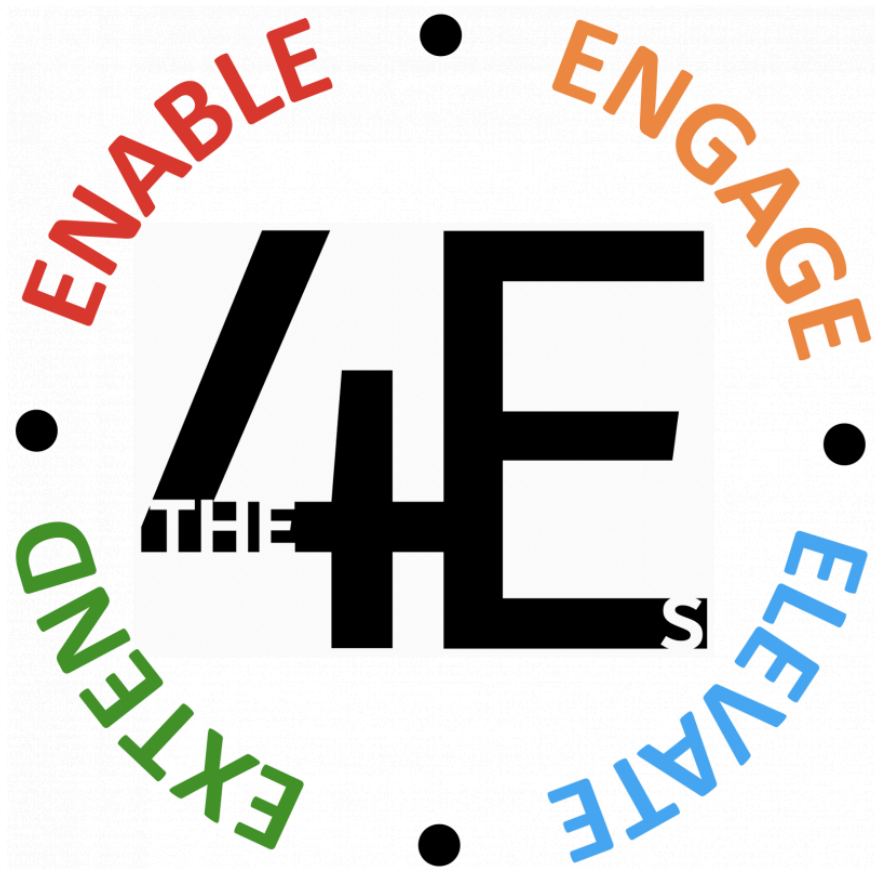
Jered Borup, Charles R. Graham, Cecil R. Short, & Joan Kang Shin

In the first chapter, we explored several scenarios and purposes for blending your students' learning. Regardless of your reasons for blending, it's important to evaluate your teaching and students' learning. Blended learning is the strategic combination of online and in-person instruction. But how will you know if your blended learning strategies are producing the intended results? As you implement your blended learning strategies, it's important that you examine and evaluate their effectiveness and how it has (or hasn't) benefited students' learning. Building on previous research and frameworks such as [David Merrill's \(2009\) e3](#) and [Liz Kolb's \(n.d.\) TripleE](#) frameworks, we identified four evaluation criteria to determine the effectiveness of your blended learning strategies (see Figure 1). Specifically, our 4Es framework asks if your blended learning strategies:

- ENABLE new types of learning activities.
- ENGAGE students in meaningful interactions with others and the course content.
- ELEVATE the learning activities by including real-world skills that benefit students beyond the classroom.
- EXTEND the time, place, and ways that students can master learning objectives.

### Figure 1

*The 4 Es*



"The 4Es" created by Jered Borup, CC BY SA



### 3.1 Enable

#### Guiding Question

Do your blended learning strategies ENABLE new types of learning activities?

[Kimmons et al. \(2020\)](#) used the RAT framework to explain that blended learning strategies can use technology in ways that replace, amplify, or transform learning activities (see Figure 2).

**Figure 2**

*The Rat Framework*

**R** EPLACES

Technology sustains current practice without making meaningful changes to the learning activity.

**A** MPLIFIES

Technology incrementally improves the learning activity in ways that may result in some improvements in learning outcomes.

**T** RANSFORMS

Technology fundamentally changes the learning activity in ways that may result in significant improvements in learning outcomes.

Education has a long history of using technology to simply replace or digitize learning activities that were previously done without technology. For example:

- handwriting an essay is replaced by typing an essay.
- writing on a chalkboard is replaced by writing on a digital whiteboard. Chalk on a board is replaced by pixels on a screen.
- reading a textbook is replaced by reading an eBook.

These replacements can be a fine use of technology. As long as students have access to the technology, digitizing learning activities can reduce costs following the initial investment to purchase the technology. Additionally, replacing a learning activity using technology can make some learning activities more efficient than they would be without technology. For instance, an essay typed in a word processor can be revised more easily and quickly than a handwritten essay. However, simply replacing an activity will not improve learning outcomes. Best case scenario, students will achieve the same learning outcomes—only more quickly and/or cheaply.

To enable new types of learning that improve learning outcomes, teachers need to use blended learning strategies that move beyond replacing to using strategies that actually amplify or transform learning activities from what could be accomplished without technology.

Amplifying a learning activity requires teachers to introduce technology in ways that enable incremental improvements while the core of the activity remains largely the same. For instance, teachers may find that many of their students have met the target learning outcomes when they are reading students' essays. As a result, the teachers may choose to amplify the essay writing process by having students work in a collaborative document that enables better collaborative opportunities, peer reviews, instructor feedback, and editing. Students can also include multimedia elements to enhance what is written in the essay. Or teachers may use technology in ways that allow students to publish and share their essays in authentic ways. Teachers may also use technology to improve pre-writing activities by engaging students in an online discussion activity to brainstorm and formulate ideas for their essays. What's important to recognize is that the core activity is still the same—writing an essay—but technology enables incremental improvements and enough of these improvements could impact learning outcomes.

Transforming a learning activity is different than amplifying it because the teachers' goal isn't to improve the activity; rather, it's to use blended learning strategies in ways that introduces a new learning activity that they wouldn't be able to do without technology. For instance, rather than making improvements to the essay, teachers may choose to transform

the learning activity by holding a film festival where students write a script, edit a video, and then “premiere” their videos to their classmates and others that are invited to participate.

## 3.2 Engage

### Guiding Question

Do your blended learning strategies ENGAGE students in meaningful interactions with others and the course content?

Engagement is a term with many different meanings. [Borup et al.'s \(2020\)](#) review of research identified three dimensions of engagement:

- Behavioral engagement: the physical behaviors required to complete the learning activity.
- Emotional engagement: the positive emotional energy associated with the learning activity.
- Cognitive engagement: the mental energy that a student exerts toward the completion of the learning activity.

Teachers will often refer to these three dimensions of engagement when they talk about engaging students’ hands, hearts, and heads (see Figure 3).

**Figure 3**

*The Three Dimensions of Engagement*

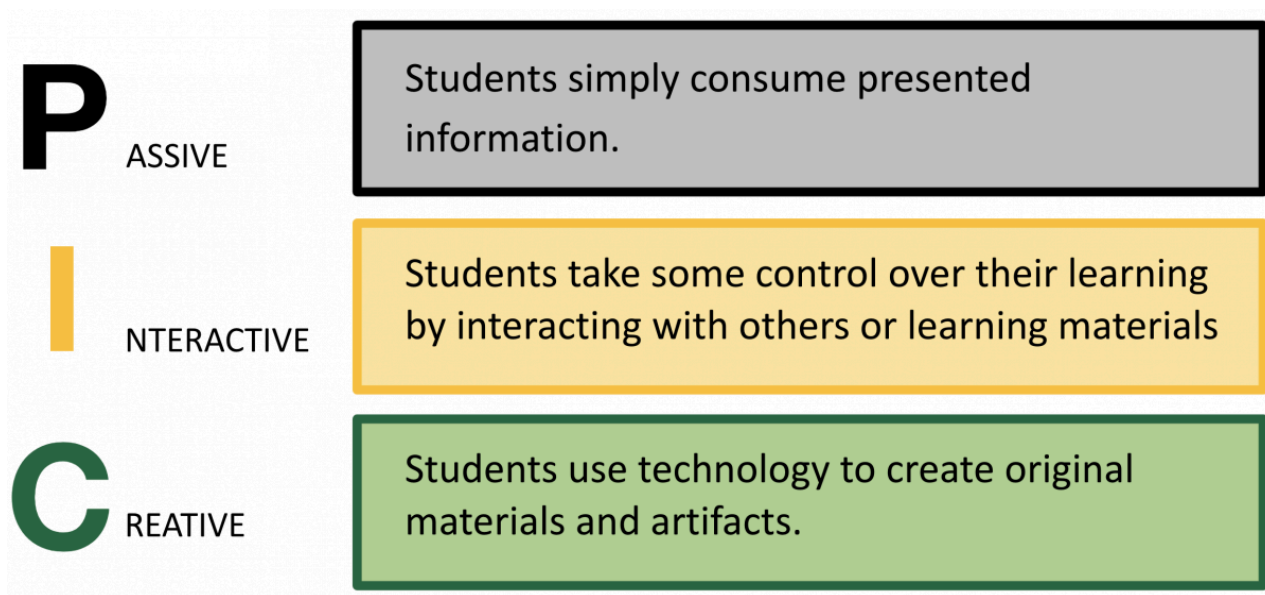


"Engagement" created by Jered Borup using images from Pixabay, CC BY SA

Of the three dimensions of engagement, behavioral engagement is the easiest to observe and categorize. Specifically, [Kimmons et al. \(2020\)](#) used the PIC framework to identify three types of behavioral engagement: passive, interactive, and creative (see Figure 4).

**Figure 4**

*The PIC Framework*



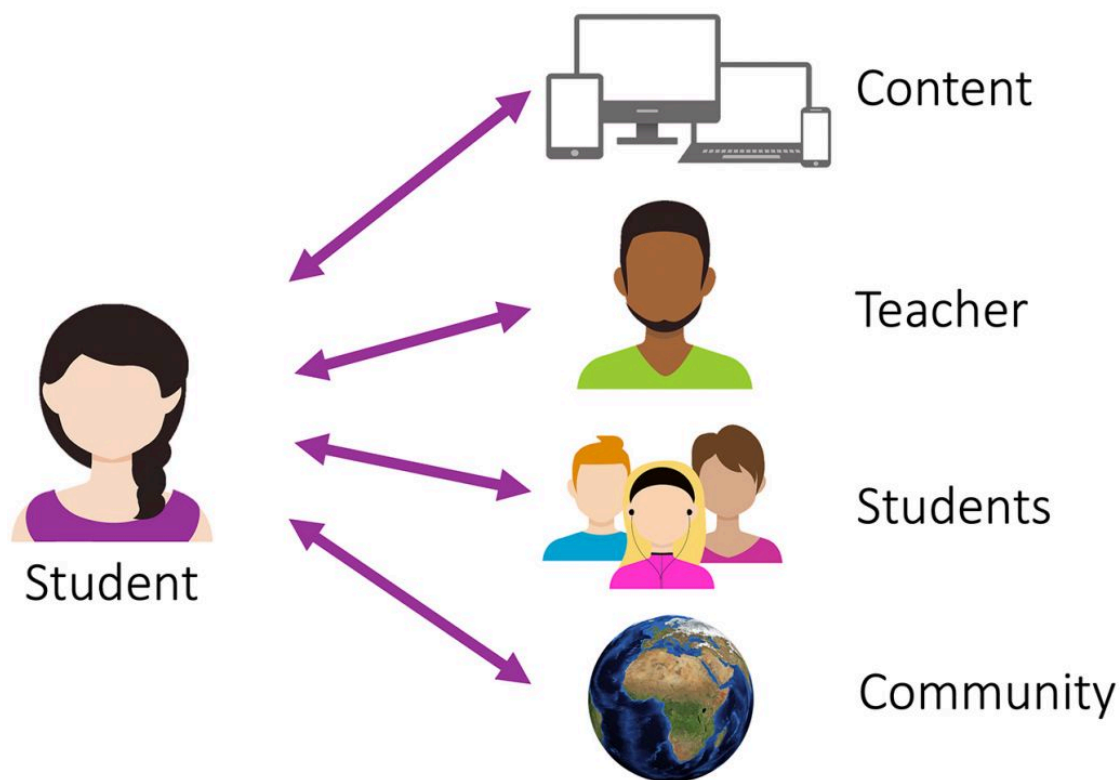
Passive learning examples include students watching a video, listening to a podcast, and attending a lecture. In some ways, these passive learning tasks represent the lack of engagement because they don't require or even allow for students to make meaningful choices or contributions.

Interactive activities are dynamic and require students to actively participate. Interactive activities include tasks where students are interacting with online content and tools. Interactive activities can also include opportunities for students to communicate with others such as the teacher, other students, and those outside of the classroom (see Figure 5).

**Figure 5**

*Four Types of Interaction*

# Four Types of Interaction



Creative activities go beyond participation to actually creating something original like a blog post, edited video, or digital poster. Table 1 shares some additional examples of online passive, interactive, and creative activities.

**Table 1**

*Examples of Passive, Interactive, and Creative Activities.*

Passive	Interactive	Creative
<ul style="list-style-type: none"> <li>• Watching a video.</li> <li>• Listening to a podcast.</li> <li>• Reading an online article.</li> </ul>	<ul style="list-style-type: none"> <li>• Playing educational games.</li> <li>• Participating in an online discussion.</li> <li>• Asking a virtual guest speaker questions.</li> </ul>	<ul style="list-style-type: none"> <li>• Writing an essay.</li> <li>• Editing a video.</li> <li>• Making an infographic.</li> <li>• Creating a website.</li> </ul>

It's important to note that each type of behavioral engagement is important at different stages of the learning process. For instance, students may passively listen to a short lecture or watch a video before interacting with their peers regarding their thoughts about what they learned during the passive activity. Similarly, if students are tasked with creating a video essay, they will likely start with passive activities to develop a background understanding of the topic or to learn how to use the video editing program. Students could then interact with their peers to collaboratively create the video. Instructors can also consider when and where passive learning activities occur. For example, sometimes a flipped classroom trades having a passive video watching experience online to make time and space for an interactive/creative learning experience in-person.

When evaluating your blended teaching, it's important to see the value of passive learning activities while also understanding that these types of activities are limited in terms of deepening students' learning. Passive activities like watching a video or reading an article alone do not require students to demonstrate their comprehension of content or encourage higher levels of cognitive engagement, such as applying, evaluating, or creating. Too much time spent in



passive learning activities will limit your students' engagement so be sure to leave ample time for interactive and creative activities.

The following table provides examples of how technology can be used to replace, amplify, and transform activities that don't originally include digital technology (see Figure 6). As you read the table, notice that passive activities can be amplified or transformed by using technology to make the learning less passive and more interactive. Similarly, teachers can amplify and transform activities that are already interactive by using technology to adjust the time and place of the interactions or by allowing students to move beyond interactive activities to creative activities.

**Figure 6**

*Examples Showing the Use of Technology to Replace, Amplify, and Transform No-tech Activities*

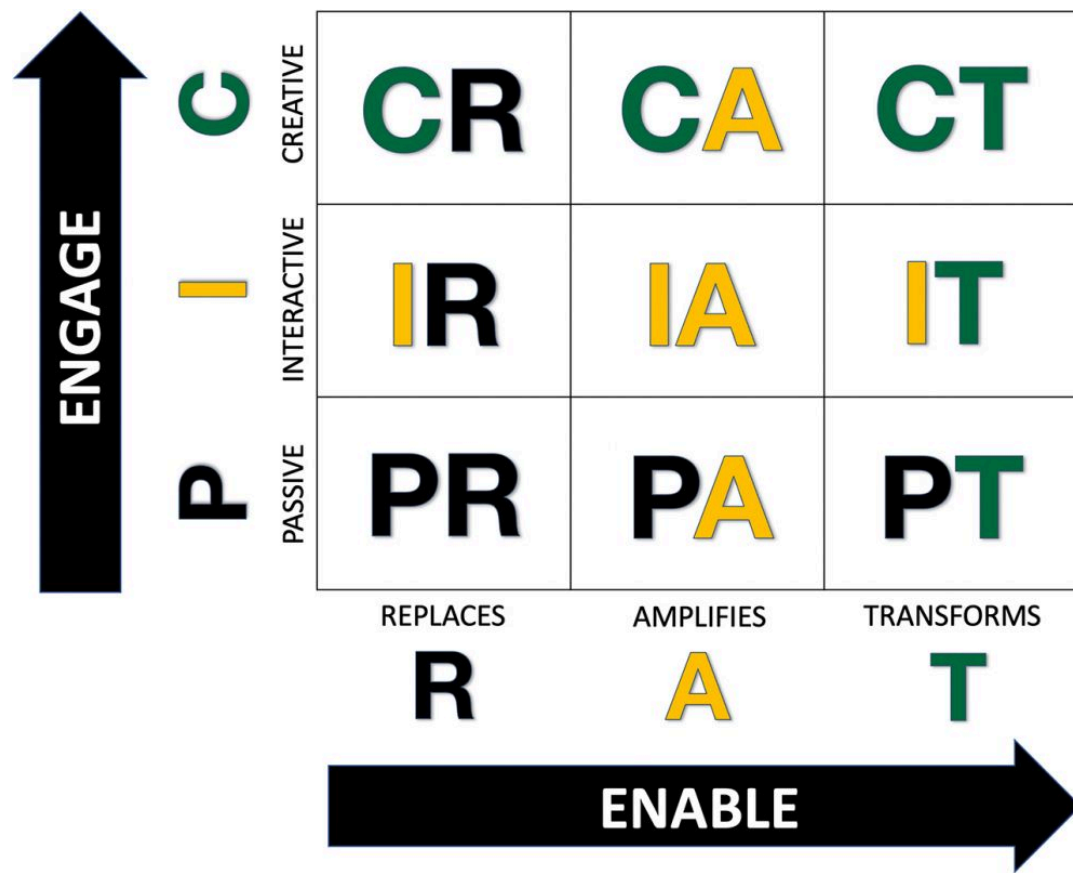
<b>NO-Tech Activity</b>  <b>CREATIVE ACTIVITY</b> Students color and label a paper map of the continents.  <b>INTERACTIVE ACTIVITY</b> Students engage in a classroom debate to demonstrate persuasive techniques.  <b>PASSIVE ACTIVITY</b> Students listen to an in-person lecture to learn new concepts.	Students label an online map and selecting colors for each continent.	Students use a tool like ThingLink to add videos and images that highlight the different attributes of each continent.	Rather than create a map, students collaboratively create a travel website that highlights the different continents for visiting extraterrestrials.
	During class time, students engage in a "silent debate" where comments are written on a discussion forum rather than spoken aloud.	Students engage in a debate that combines in-person communication with asynchronous online communication to increase student participation and reflection.	Rather than engage in a class debate, students collaboratively work on a school-wide or community campaign that includes digital campaigning using posters and public service announcements.
	Students watch a video or online lecture.	Students watch a recorded lecture using a tool such as EdPuzzle that requires students to periodically answer multiple-choice questions.	Rather than watch a lecture, students learn concepts using adaptive learning software that automatically adapts what is taught based on student performance.
	REPLACES <b>R</b>	AMPLIFIES <b>A</b>	TRANSFORMS <b>T</b>

[Kimmons et al. \(2020\)](#) combined the PIC and RAT frameworks to form the PIC-RAT matrix that allows teachers to to chart how technology is being used in their blended learning strategies (see Figure 7). The matrix is a helpful tool for teachers to consider what the technology is adding to the activity. Ask yourself the following questions:

1. Is the technology being used to increase student engagement by making learning activities more interactive and/or creative?
2. Is the technology being used to simply replace activities or to amplify and transform activities?

**Figure 7**

*The PIC-RAT Matrix*

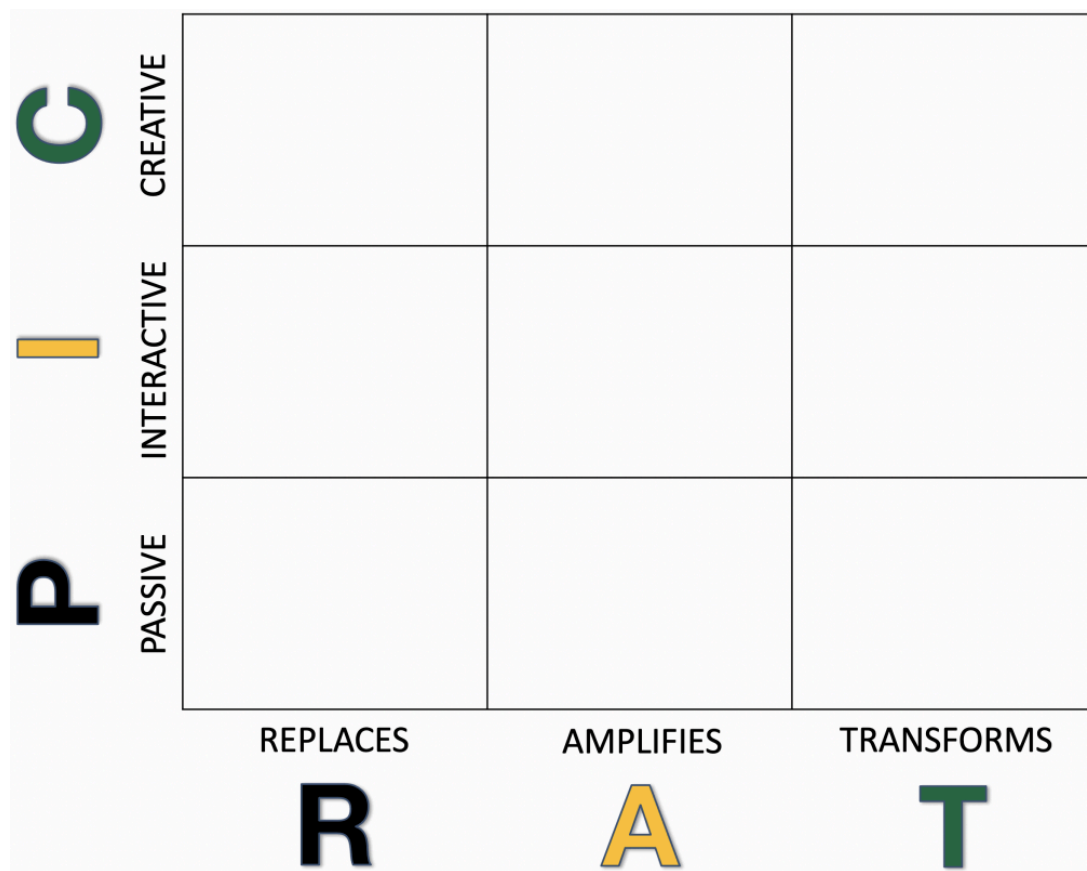


When planning new blended or online activities, we recommend starting by focusing on the learning objective(s), then pulling out a piece of paper or pulling up a word processing document and filling out the PIC-RAT matrix (see Figure 8) with various ways that technology could be used to teach the learning objective(s).

**Figure 8**

*Blank PIC-RAT Framework for Brainstorming Activities Using Technology*





Moving up and across the matrix will likely improve the learning activity, but it's also important to note that the PIC-RAT matrix doesn't actually measure the quality of the learning activity. It's possible for teachers to transform a learning activity by having students create something that wouldn't be possible without technology and still not actually improve students' learning or experience. In fact, it is possible to transform students' learning for the worse. For instance, using the example shared above, a teacher may transform an essay writing activity so that students create an edited video instead. While this transformation may be positive for many students, there could be some students who detest making an edited video and refuse to participate. Similarly, a teacher may transform a passive learning activity into a creative learning activity that isn't as aligned to the learning outcomes. As a result, when amplifying or transforming a learning activity to increase students' behavioral engagement it's important to consider the other two dimensions of engagement—emotional engagement and cognitive engagement. Students will perceive the activity as “busy work” if teachers only engage their hands but fail to also engage their hearts and minds (see Figure 9).

**Figure 9**

*Busy Work*

# Busy Work

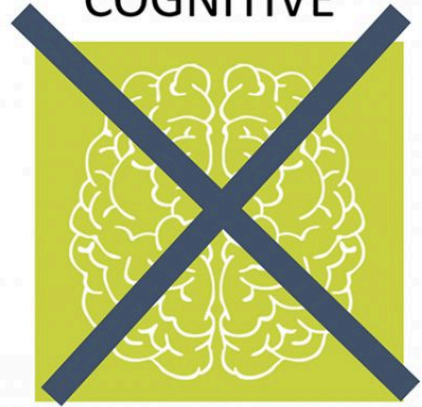
## BEHAVIORAL



## EMOTIONAL



## COGNITIVE



As you go through these chapters, you have the opportunity to reflect on what you have learned and to design your own activities in the [Blended Teaching Workbook](#). Click on the link to access your workbook. Make sure you save a copy and keep it available, so you can return to it as you go through the chapters.



### **Blended Teaching Workbook**

In your workbook is a copy of the PIC-RAT grid. Use it to brainstorm activities you could use in your classroom. You can access the workbook [here](#).



## **3.3 Elevate**

### **Guiding Question**

Do your blended learning strategies ELEVATE the learning activities to include real-world skills that benefit students beyond the classroom?

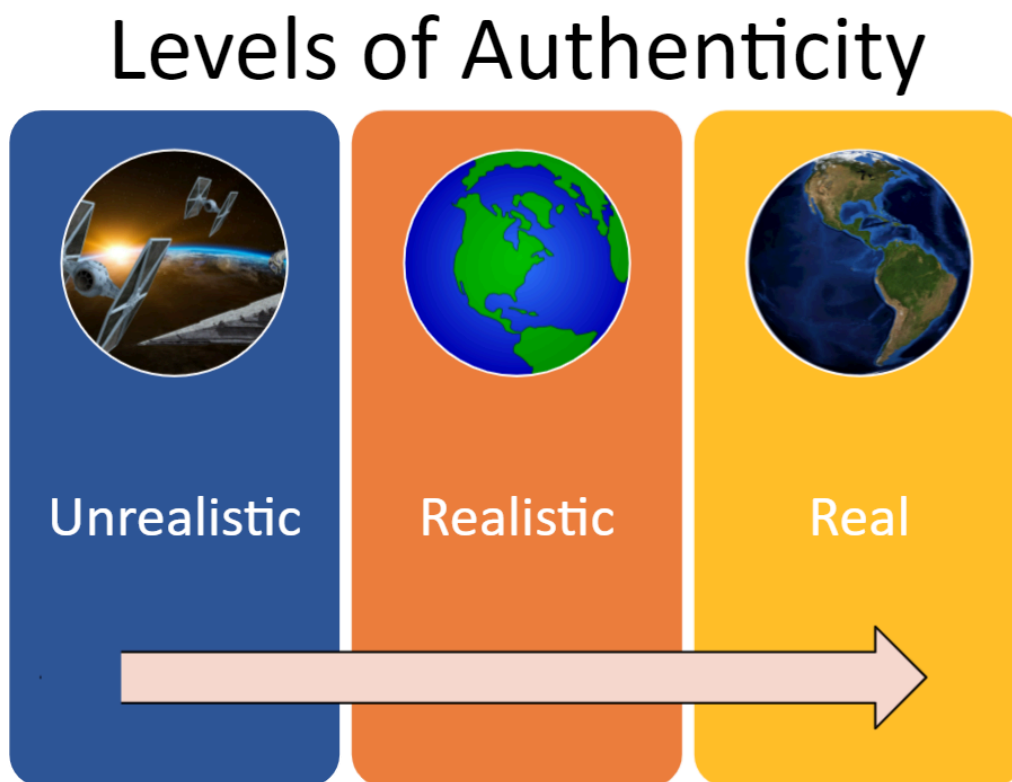
In addition to creating learning activities aligned with the course learning objectives, teachers' blended learning strategies can elevate students' learning to also include real-world skills that benefit students beyond the classroom. For example, the Partnership for 21st Century Learning stresses the need for students to develop the 4Cs—communication, collaboration, critical thinking, and creativity skills (<https://www.battelleforkids.org/networks/p21>). While widely-referenced and important, the 4Cs also take a somewhat narrow view of the skills that students need to succeed beyond the classroom. For [Ontario's education agenda](#), Michael Fullan (2013) expanded on the 4Cs to include character education and citizenship. Social-emotional learning is also critical for human development. These skills are best developed in a social learning environment. Clearly, students can't develop communication, collaboration, and citizenship skills in isolation. Even critical thinking and creativity skills are best developed when working with others. This provides more support for balancing passive activities with interactive and creative activities while urging teachers to elevate their instruction.

Learning activities are also best elevated when activities are situated in authentic tasks and projects. There are three levels of authenticity when you are considering the problems and stakeholders that students will be working on and with (see Figure 10).

- **Unrealistic:** These scenarios and problems can be out of this world—literally! Stakeholders and problems can be science fiction and include anything from time traveling to establishing a colony on Mars. They are intended to make the unit more exciting and emotionally engaging while still requiring students to demonstrate important knowledge and real-world skills.
- **Realistic:** These are scenarios and problems that feel like they are real but aren't. Real people can even serve as stakeholders but they are really just acting. For example, students might simulate creating a new business by coming up with a new product and working in groups to come up with the name of the product, a business plan, and a marketing plan. It is completely realistic, but they won't be really starting a new business!
- **Real:** This is the gold standard because you have real people who are really interested in and will benefit from students' work. These stakeholders can be of any age and in and out of the school. For example, students could work in groups to discuss some problems in their community, such as littering in their local park or school grounds. They might create memes, GIFs, and short video public service announcements to urge people to keep the park and playground clean that they can post on social media and distribute through local government social media.

**Figure 10**

*Levels of Authenticity*



"Levels of Authenticity" created by Jered Borup using images from Pixabay, CC BY SA

Authentic assessments are often renewable rather than disposable. Consider the target audience of most assessments—who it is that students are completing assessments for—their community, their teacher? Often assessments are completed for an audience of one, the teacher. The teacher then evaluates the assessment, provides

the student with some feedback, returns the assessment to the student, and hopes that the student uses the feedback to enrich their learning before the assessment is discarded in the trash can (or on the floor, or left on a desk) when class ends. These assessments are often seen as "disposable assessments." They are meant to be used and then discarded without retaining any real-world value.

"A 'renewable assessment' differs in that the student's work won't be discarded at the end of the process, but will instead add value to the world in some way." ([David Wiley, 2016](#)).

A movement toward assessments that can exist in a world that is larger than the four walls of a singular classroom can make learning more authentic and elevate what students learn and do beyond content-based curriculum and contexts. For example, a community college instructor found that having her students write an openly licensed textbook that would be shared with other students instead of traditional essays caused them to "write better than they've shown me in the past" ([Short et al., 2024](#)). Students want to know that their work matters and is destined for more than the nearest trashcan.

Table 2 gives some examples of renewable and disposable assessments.

**Table 2**

#### Renewable and Disposable Assessments

##### Renewable Assessments

- Students create a documentary about the life of a war veteran in their community.
- Students create tutorial videos to help teach math concepts to peers.
- Students create artwork to beautify the walls of city buildings.
- Students create a picture dictionary to share with younger students.

##### Disposable Assessments

- Multiple choice exam
- Short essay quiz
- 5-page paper to check understanding or ability
- Spelling test

##### Additional Resources

- [Renewable assignments: Student work adding value to the world](#)
- [Non-disposable Assignments in Intro to Philosophy](#)
- [From Consumer to Creator: Students as Producers of Content](#)
- [Are your assignments renewable or disposable?](#)
- [What is Open Pedagogy -> Killing the disposable assessment](#)



## 3.4 Extend

### Guiding Question

Do your blended learning strategies EXTEND the time, place, and ways that students can master learning objectives?

Another way that blended learning strategies can improve learning activities is by extending the time, location, and ways that students complete learning activities. Attempting to extend students' learning time and location is nothing new. For instance, students have long had flexibility in the time and location that they completed homework. However, too often students are tasked with completing homework without adequate support resulting in frustration for both students and parents, as hilariously shown in the following video clip.



[Watch on YouTube](#)

Using technology teachers can not only provide students with more sensory-rich learning materials, within a learning management system (LMS) they can also provide them with digital scaffolding and direction to successfully complete learning activities using those materials. For instance, it's relatively easy for teachers to create short instructional videos that can help students to learn new concepts or complete learning tasks. [One teacher \(Farah, 2019\)](#), explained that creating instructional videos allowed him to "clone" himself so students could receive his help in the moment they needed it, not when he was presently available to help them. Once teachers feel comfortable making quick videos, they can use them to provide targeted scaffolding anytime students find something confusing or difficult. This allows the teacher to tailor instruction to specific students or classes.

This use of technology can also provide students with the flexibility in the pace of their learning and allows teachers to implement mastery-based grading. For instance, when learning activities are clearly organized in an LMS, students can complete and submit assignments that the teacher can then review and provide feedback on until students achieve

mastery. Providing quality feedback efficiently is especially important in a mastery-based grading system. Although detailed feedback is always time-consuming, technology can help lighten the load as we will see in the following chapters of this book.

Teachers can also extend the ways in which students complete learning activities. For example, teachers may provide students with multiple learning paths to choose from using a choice board. A choice board is a graphic organizer, usually in a grid of 4, 6, or even 9 spaces, with activities that students can choose to do. Often teachers design them to appeal to their learners' interests, talents, and abilities. Creating multiple activities that all lead toward mastery of your learning objectives allows students choice in their learning path—hopefully with choices that will motivate them and inspire them to do their best work. Once learning has been extended, teachers can also provide students with opportunities to form their own learning path and/or set learning goals.

### 3.5 Conclusion

Combining in-person and online instruction doesn't mean that the blended learning will be high-quality—or even good. As you begin to blend your students' learning, you will likely find that some lessons or even entire instructional units don't go as well as expected. The opposite will also be true and you will find that other blended lessons and units go incredibly well. As blended teachers it's important to carefully evaluate what works and what needs to be improved or even replaced. The 4Es framework can help you recognize quality blended teaching and learning. Specifically, as you plan new blended instructional units or evaluate previous blended instruction, ask if your instructional unit would or did:

- ENABLE new types of learning activities.
- ENGAGE students in meaningful interactions with others and the course content.
- ELEVATE the learning activities by including real-world skills that benefit students beyond the classroom.
- EXTEND the time, place, and ways that students can master learning objectives.

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# Appendices

Appendix A: Acknowledgements
Appendix B: Research
Appendix C: New Content in the Series



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# Appendix A: Acknowledgements



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## Appendix B: Research

This book was written for practitioners and so does not reference research throughout, as you might see in an academic publication. However, the editors are researchers in the area of K–12 blended and online teaching.

If you are interested in the research related to the K–12 Blended Teaching Readiness model that is used to organize this book, below are some references that you can look up. Also, please feel free to reach out via email to [charles.graham@byu.edu](mailto:charles.graham@byu.edu) or any of the other editors.

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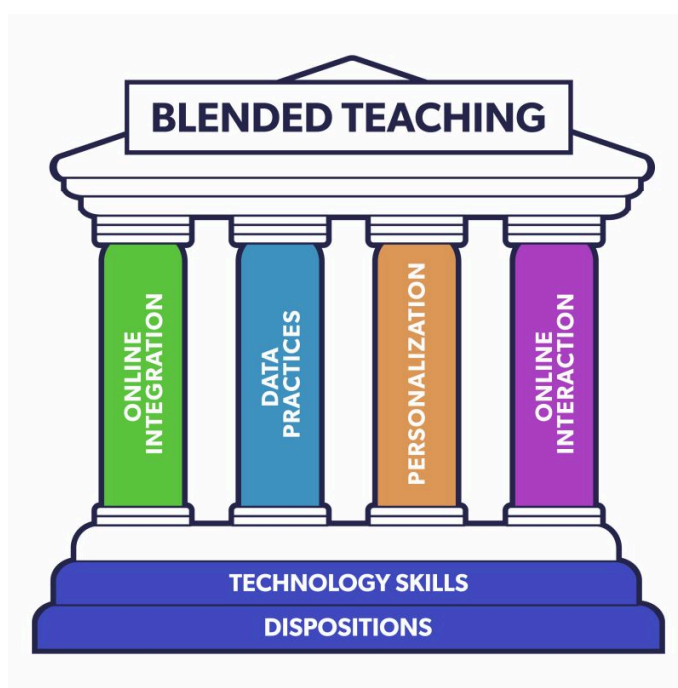


## Appendix C: New Content in the Series



### K-12 Blended Teaching Competencies

This series is a follow-up to [K-12 Blended Teaching: A Guide to Personalized Learning and Online Integration \(Volume 1\)](#). Volume 1 took a competency-based approach to planning and implementing blended learning. The competencies in Volume 1 were organized into the following areas: Online Integration, Data Practices, Personalization, and Online Interaction, with a final chapter that discussed how all of these areas come together to design blended learning. These competencies are built upon a solid foundation of blended learning dispositions and technology skills.



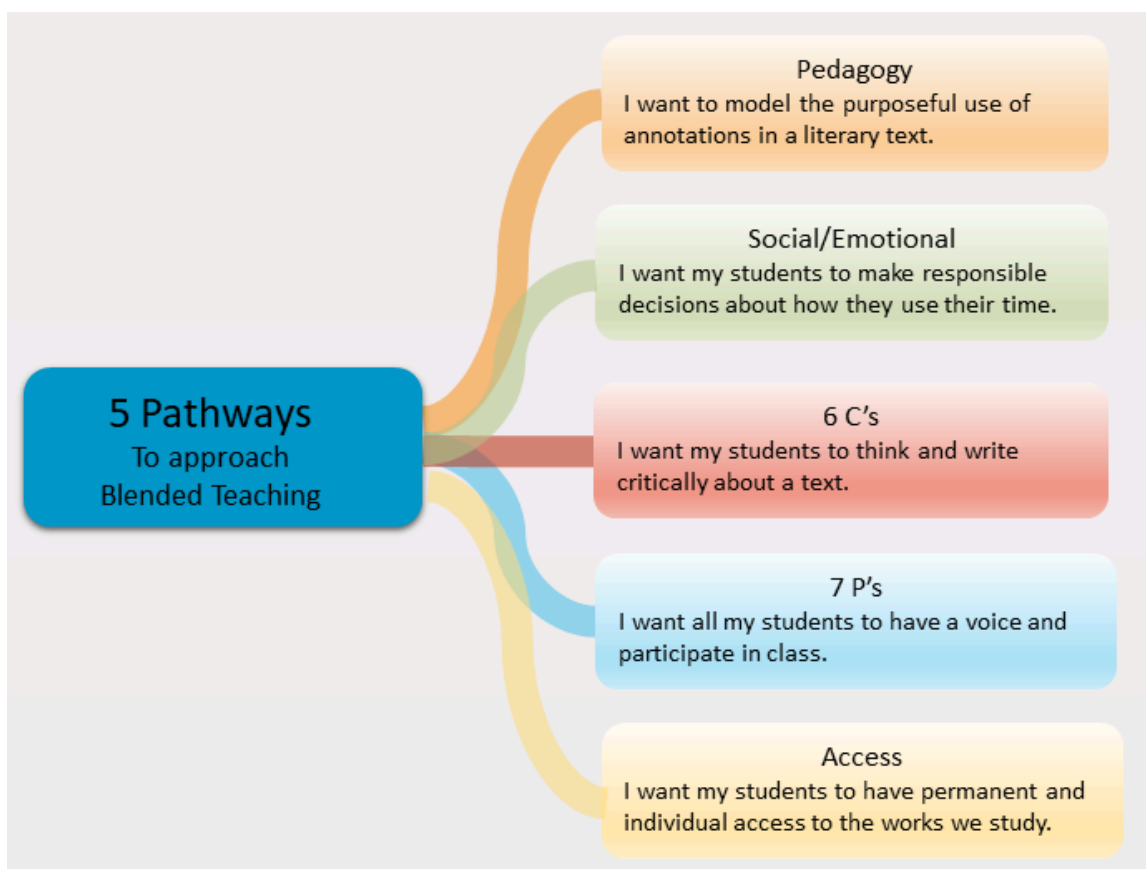
You can read more about these ideas by following these links to Volume 1.

- Cover - [K-12 Blended Teaching \(Vol. 1\): A Guide to Online Integration and Personalized Learning](#)
- Chapter 1 - [Blended Teaching Foundations](#)
- Chapter 2 - [Online Integration](#)
- Chapter 3 - [Data Practices](#)
- Chapter 4 - [Personalizing Instruction](#)
- Chapter 5 - [Online Interaction](#)
- Chapter 6 - [Blended Design in Practice](#)



## Problems of Practice

Instead of using the competency-based approach from Volume 1, the Volume 2 series explores blended learning within various K-12 contexts through a problems of practice approach. These problems of practice are organized into the areas of Pedagogy, Social/Emotional Learning, the 6 C's of 21st-century learning, the 7 P's of transformational blended learning, and Access. Examples of these problems of practice are illustrated in this volume's [Chapter 1: Introduction to K-12 Blended Teaching](#). Below is an image from the English Language Arts edition that demonstrates some discipline-specific problems of practice.



## New Content on Personalization

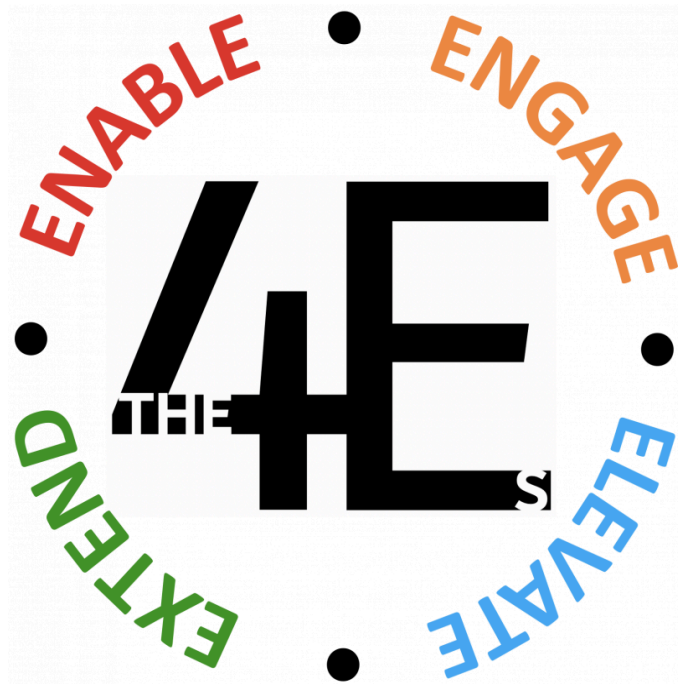
[Chapter 2: K-12 Blended Teaching Competencies](#) offers an overview of the competencies from Volume 1, but also provides new understandings of what some of these competencies look like in practice. Worth specific exploration are new understandings of what personalized learning looks like in K-12. Chapter 2 provides a framework for designing personalized learning that examines the relationships between the data used for personalization, who or what is controlling the personalization, what is being personalized, and the extent to which learners are practicing agency and ownership over their own learning. These new understandings of personalized learning come from working alongside the teachers who contributed their practices to this book.



## New Content on Evaluating Blended Teaching

[Chapter 3: Evaluating Teaching with the 4Es and PICRAT](#) presents a new framework for evaluating blended teaching practices. Volume 1 used PICRAT to help explain some of the designing that goes into blended teaching. Volume 2

builds on Volume 1 by providing both PICRAT and a new 4E framework for evaluating blended teaching. This new framework focuses on evaluating the ways in which blended teaching Enables, Engages, Elevates, and/or Extends learning in meaningful ways.



## New Teacher Video Resources

Much like Volume 1 offers resources such as blended teaching videos, artifacts, and reflection questions, the books in Volume 2 have their own resources worth accessing.

Each edition of this series is filled with **teacher quotes and videos** about teachers' experiences with K-12 blended teaching. Our hope in creating this book is that it can largely be seen as a book created through collaboration with teachers for teachers. The videos and quotes throughout this book should not be seen as optional content, but rather as the core content used to explore examples of blended teaching across content areas and grade levels.



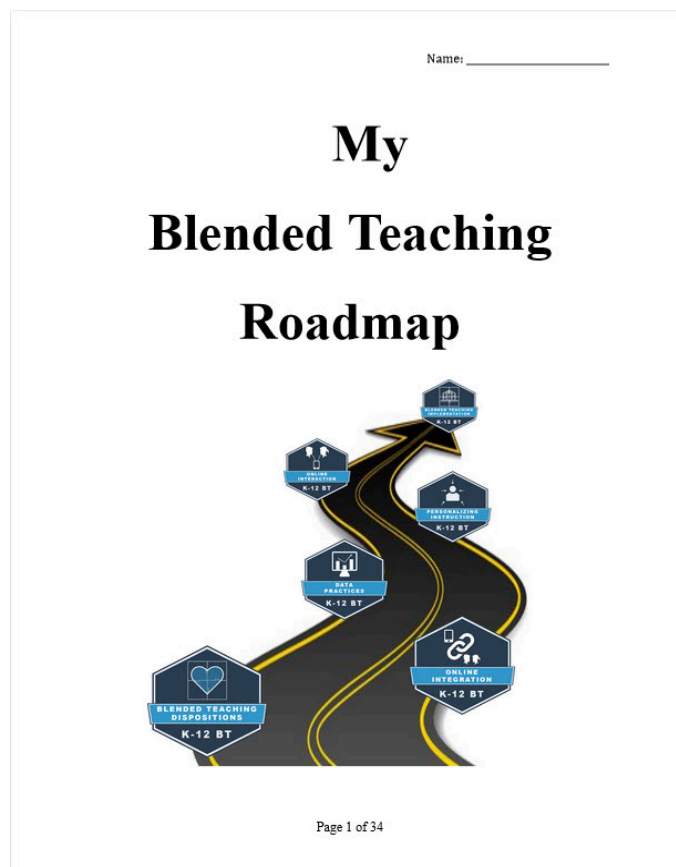
## Other Resources

The other key resources to be aware of in using this book for training, professional learning, or blended teaching implementation are the **Blended Teaching Readiness Survey**, the **Blended Teaching Roadmap**, and the **Blended Teaching Workbook**.

## Blended Teaching Readiness Survey



Each chapter of Volume 1 begins with a link to the **Blended Teaching Readiness Survey**, a brief readiness self-assessment survey. This survey can be helpful as you prepare for blended teaching regardless of whether you are taking a competency-based approach or a problems of practice approach. The survey takes 2-3 minutes per section of the survey. These sections include questions about your dispositions and abilities to use online integration, data practice, personalized learning, and/or online interactions. It provides users with a sense of their current aptitude for blended teaching specific to each competency. You can learn more about the Blended Teaching Readiness instrument and use it yourself here: <http://bit.ly/K12-BTR>.



The [Blended Teaching Roadmap](#) is a resource introduced in Volume 1 for guiding teachers in designing, developing, and implementing blended teaching. Like Volume 1 itself, this resource takes a competency-based approach to help educators implement blended teaching. Appendix C of Volume 1 provides links to examples and Google Docs to reference and use in creating a plan for blended teaching. To use the Google Doc, you should make a copy of the Blended Teaching Roadmap that you can edit and own.



### **Blended Teaching Workbook**

This is an example of what the callout boxes for the Blended Teaching Workbook look like. You will find these scattered throughout the book. You can access the Blended Teaching Workbook [here](#).

The [Blended Teaching Workbook](#) is a new resource introduced in the Volume 2 series. This resource takes a problems of practice approach to designing, developing, and implementing blended teaching. References to the Blended Teaching Workbook are scattered throughout each series edition with links to the Google Doc used to create the workbook. To use the Google Doc, you should make a copy of the Blended Teaching Workbook that you can edit and own.

We hope that you enjoy the book we have put together, and encourage you to share it with others! Thank you again for exploring our work!



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