



Integrating Technology

COMPANION RESOURCE
TO SUPPORT REFLECTION
AND FORWARD THINKING



Companion Resource to Support Reflection and Forward Thinking

Dear Educational Professionals,

Thank you for reading *Integrating Technology: A School-Wide Framework to Enhance Learning* and for choosing to delve more deeply into the ideas presented in the book through collaboration, discussion, and reflection.

To support you in beginning or sustaining a school-wide conversation around technology integration and reflection on the ideas in the book, we created this guide to use as a prompt for thinking and discussion. We recognize that it is rarely the case that all members of a school community will read the same professional development text, so we have designed this guide to support leaders of study groups and teams who have read *Integrating Technology* and who want to share the ideas in it with others and for individuals who want to engage more actively with the text themselves. We provide concise overviews of each chapter to help make sure all participants in your team or study group have access to the most important information. You will find spaces to write down your individual thoughts and ideas and Discussion sections intended to help facilitate constructive conversation and active participation.

At the end of each chapter overview you will find a Reflection section that includes broad, universally relevant reflection questions to spark group discussion and a selection of questions targeted not at roles but at professional aims, such as

- supporting student learning
- supporting professional learning
- supporting curriculum development
- supporting organizational systems and structures

We structured the reflection questions this way because in different contexts and situations, different roles might have different aims. For example, as a teacher your primary goal might be to support student learning, but you may also have additional leadership responsibilities that require you to provide professional development opportunities for your colleagues or to develop the curriculum. As a school leader, you may have responsibility for all of these areas, or only some, and so on. By reflecting through the lens of professional aims, you and your fellow study-group participants are encouraged to think more broadly about desired outcomes, rather than feeling restricted by the confines of your roles.

Finally, you can (and, we think, should!) use technology to enhance your own learning by reaching outside your school or organization and making contact with other educators who also think differently and holistically about technology integration. Whether you want to build an online study group, inform or complement a group or team in your own context, or just meet and talk to like-minded professionals from around the world, you can make valuable connections and participate in discussions around holistic technology integration through our Facebook group at <https://www.facebook.com/groups/IntechgrateBookCommunity>, by following Sarah and Katierose on Twitter using hashtag #Intechgrate, or making contact with us on our website, www.intechgrate.eu.

We look forward to working with you!

Sarah and Katierose

REFLECTION

Chapter

01

Purpose and Technology Integration: It's Not What You Have, It's How You Use It

Technology and Its Purpose in Education

Let's begin with a discussion that will be continued across the guide.

Discussion

What role does technology have in your school/organization/context?

Consider:

- Who is it for?
- What is it for?
- What is its role in student learning?
- Is it doing what it's supposed to?
- How do you know?
- How is the purpose of technology articulated and communicated to the learning community?
- How similar or different is the role of technology in your context to the role of technology in the world beyond school?

We believe that the primary experience students should be having with technology is one that is meaningful, relevant, and that enhances their learning. We feel strongly that "technology integration" is the way to do this, but it's

worth defining what we mean. In a global educational community, terms can have many meanings!

We define *technology integration* as:

The intentional planning and purposeful use of technology within education to enhance the content, process, or product related to the teaching and learning.

This approach means deliberately thinking about technology in two ways, as a tool *and* as a subject/discipline. For example, language can be both a tool and a discipline in its own right: we use language as a tool to communicate and learn about every other subject, and there are a progression of skills we need to learn to be able to use that tool effectively such as literacy, grammar, comprehension, and even how to use a pencil. In addition, language is its own subject with a further range of advanced skills specific to it as a *subject*, such as poetry structure or literary analysis. To explore this in more detail see Chapter 1, pages 2–3 in the book.

Thinking of technology as only a subject (i.e., something you “do” at a given time or in a specific place) made sense when technology was less ubiquitous than it is today. Now, however, technology is something many students (and most teachers) integrate seamlessly in their day-to-day lives for socializing, shopping, banking, creating, and almost any task you can think of. It now makes much less sense to sequester school technology to a day, time, or room and to exclusively treat it as a subject, because this does not reflect the reality of technology beyond the school walls and therefore does not prepare students to use it safely, responsibly, or critically.

Effective Technology Integration

Our book came about because we were struggling with one major question in the course of our work together in school: How can we work effectively with technology to support teacher and student learning?

By “work effectively” we meant that technology should

- have a clear educational purpose
- be manageable for teachers on a day-to-day basis
- be reliable and sufficient in quantity for our needs
- be strategically and deliberately planned for at the administrative level and, most important
- support student learning.

We found this question echoed back at us again and again as we met with other educators globally: technology integration wasn’t working right in their schools, and they didn’t know how to fix it. Problems we have encountered with the implementation and integration of technology include

- plenty of devices but no support for teachers to learn how to use them, or devices that don’t match the vision, capabilities, curriculum, or approach of the school/teachers/students

- keen and able teachers, but insufficient resources or unsupportive/uninterested leadership
- increasingly jaded and reluctant teachers due to unreliable infrastructure and resources
- a mismatch between the concept of technology integration and the constraints of the curriculum
- lack of a clearly defined purpose and vision for technology in the classroom resulting in a lack of direction for technology integration

Often schools had taken steps to try and address the issues being experienced but found that whatever they did lacked long-term, sustainable efficacy.

Discussion

What problems are teachers in your school facing when working with technology in the classroom?

Through our experiences and discussions with other educators we came to realize that effective technology integration at the organizational level relies on the holistic and deliberate development of six interdependent key elements. This holistic approach to technology is called the Intechgrate Model, which we introduce on book pages 6–7:

The Intechgrate Model: A Holistic Approach to Developing and Supporting Technology Integration in Education

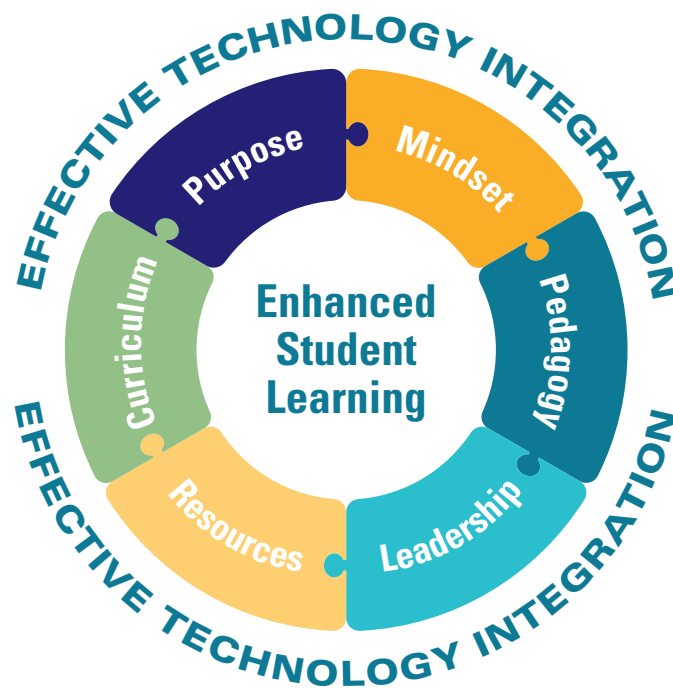


Figure 1

The model is structured like a jigsaw puzzle because that is essentially what effective technology integration is: without all of the pieces, the “picture” at the center of it all, which is enhanced student learning, is lost.

So, what are these six elements?

- **Purpose:** With *purpose* you define for yourself and your context the ideal current and future role of technology in the classroom and in education more widely. How should it support and benefit students and the learning process?
- **Mindset:** *Mindset* encapsulates the many factors that form our conscious and unconscious beliefs about technology and how these beliefs influence our practice in the classroom.
- **Pedagogy:** *Pedagogy* refers to the strategies, approaches, and processes we as teachers actively and deliberately employ to plan for, scaffold, and realize effective technology integration in the classroom.
- **Curriculum:** *Curriculum* refers to the written standards (be they school-level, national-level, or international-level) that underlie teaching and assessment and the ways we choose to approach them in the classroom to support technology integration.
- **Resources and Infrastructure:** A pedagogical approach to *resources and infrastructure* means developing and maintaining physical technology tools to deliberately support technology integration practice within and beyond the classroom.
- **Leadership:** Effective technology integration *leadership* refers to the development and provision of support and direction for technology integration through each of the other elements of the Intechgrate Model, at all levels of educational leadership.

At the pedagogical, classroom level, we believe that effective technology integration is when technology is used to support and enhance the 3 Cs of learning: Communication, Collaboration, and Construction of Understanding.

**The 3 Cs of Student Learning:
Communicating, Collaborating, and Constructing Understanding**

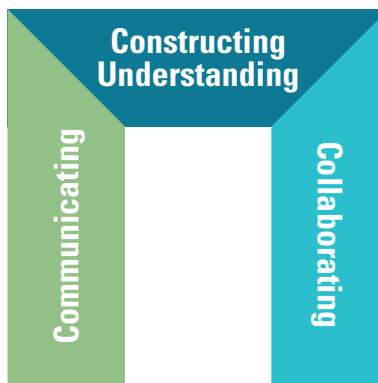


Figure 2

You can find an introduction to the 3 Cs on page 4, and in Chapters 4 and 5 we go into detail about how technology can be used to facilitate and enhance the twin pillars of communication and collaboration, so they can support students in the ultimate goal of constructing deeper understanding of their learning.

Reflection

Use the following questions to prompt reflection whether that be personal, group, team, school, or district reflection.

If your goal is supporting student learning:

- What does *learning* mean to you?
- What potential do you personally think technology could have to enhance student learning?
- In your past experience, when has technology been most and least effective in supporting and/or enhancing student learning?
- What makes it hardest for you to integrate technology effectively in your own teaching to enhance student learning?

If your goal is supporting professional learning:

- To what extent has the purpose of technology integration formed the core of your experiences or delivery of professional development about technology integration?
- What opportunities currently exist within your school's professional development sessions or structures to begin or continue the discussion of technology integration?
- Looking at the Intechgrate Model, which element(s) have you already received or delivered professional development on? Were those experiences deliberately and explicitly connected to each other?

If your goal is supporting curriculum development:

- How do you and your school utilize written curriculum when planning for teaching and learning? Is there a shared vocabulary and responsibility for the curriculum?
- How is your defined purpose of technology reflected in your curricula?

If your goal is supporting organizational systems and structures:

- What impact, positive or negative, does the way your technology systems, resources, and infrastructure are organized have on purposeful and effective technology integration?
- Do you feel that the technology systems, resources, and infrastructure in your context are deliberately designed to reflect the purpose of technology integration (supporting student learning)?

- How so? How not?
- In your opinion, what place should educational purpose have in guiding the organization and support of technology systems, resources, and infrastructure?

REFLECTION

Chapter 02

The Research on Technology in Education

Research into human beings—whether about education, cognitive development, or anything else—is by nature complex and nuanced because humans are complex and nuanced, and so are the influences from the world around us. In this chapter, we take a closer look at two perceived areas of concern when discussing technology within the classroom: screen time and student outcomes resulting from classroom technology. We sum up some of what the research says, what it doesn't say, and what the implications are for technology integration.

Screen Time

Discussion

Consider:

- What opinions and concerns do you already have about screen time?
- How have those opinions and concerns affected your teaching practice or your personal actions with technology?
- How were those opinions or concerns formed?

We use the term *screen time* to encompass so much, yet it means so little. It is important that we recognize that we simply cannot reduce all time spent looking at a screen down to a single concept of screen time. There are three factors we need to consider when we read and think about screen time:

- the age of the child
- what is happening on the screen
- what is *not* happening while the child is using the screen

The American Academy of Pediatrics (AAP) released a policy statement in 2016 titled “Media and Young Minds” (AAP 2016), which summarized the research into the effects on children aged birth to five of time spent using digital media and laid out recommendations for the quantity and type of screen time for children in this age bracket. Parents were advised that children under two should ideally have no screen time (apart from video chatting with relatives with parental guidance), and that children between two and five years of age should limit screen time to one hour per day. They also advised that when children are allowed screen time it should be with high-quality educational apps or TV programs that are not too fast-paced, and to end screen time at least an hour before bedtime. This is because the brains of babies and young children are in a critical phase of development where poor quality or excessive use of screens can do real damage. As children age, and their cognitive development changes, the risks and potential rewards of screen time change, and the guidelines for “safe” time limits increase.

What this means for us in education is that we need to take a balanced and deliberate approach to technology’s use in the classroom. Screens should never take the place of high-quality teaching; they should be an enhancement to it, based on student need. When technology is integrated in a purpose-based, deliberate way, the mindset, curriculum, pedagogy, resourcing, and leadership work together so that technology is never replacing teaching or high-quality learning time; it is enhancing it.

For more detail on the research about screen time, see Chapter 2, pages 10–12.

Student Outcomes

Discussion

First read the section in the book titled Student Outcomes on pages 12–13 and discuss what is meant within your context when talking about student outcomes.

Consider:

- What does success and successful learning look like in your student body?
- How are you measuring student success? Are you measuring the ability to be schooled, or is your measurement truly about learning?
- Does the measuring of student outcomes correlate to long-term success for our students both within the classroom and beyond? How do you know?

Collect your thoughts here prior to moving on.

The range of factors that influence student outcomes is truly enormous: leadership style, teacher attitudes and approaches, socioeconomic status, school culture, educational policy, and everything else that can influence how a human thinks, behaves, and learns.

Technology is just one small piece of a much bigger pool of factors. Having said that, it is a vital aspect of our professional diligence that we should question

whether or not new tools and approaches (in this case specifically related to technology) are going to help our students achieve success. It is of equal importance that as we ask that question we follow it with, “how do we define and measure success?” and when it comes to learning and schooling, this is no simple matter.

Test scores are a natural and logical choice for large-scale research into student outcomes because they are quantifiable, easy to compare, and easy to gather over large sample sizes. However, standardized reading and math scores can tell us only so much about a student’s learning or success. They rarely tell us how well a student understands the topic or their background knowledge. They don’t tell us about a student’s learning behaviors or disposition, or about their ability to think critically or apply solutions to complex problems. They don’t tell us how creative a student is, how well they collaborate, or how they communicate. One of the few existing large-scale pieces of research addressing technology’s impact on student outcomes was conducted by the Organization for Economic Co-operation and Development (OECD) in a 2015 report called *Students, Computers and Learning: Making the Connection*. This report formed the basis for many headlines that reported that not only does technology not improve student outcomes, it may actually lower them. However, this research is far from definitive for a number of reasons.

Turn now to Chapter 2 in our book and read the section Measuring Technology’s Impact on Outcomes, on pages 13–14.

The report essentially drew two conclusions:

1. Access to more devices does not increase test scores.
2. More time spent in low-quality learning engagements (drills, internet searches, and so on) does not increase test scores.

To us, this is not surprising; it simply echoes our core message that the value of technology as a tool for learning depends on our application of it, as educators and leaders. Furthermore, if we believe the true potential of technology in the classroom lies in supporting student communication, collaboration, and construction of understanding for lifelong learning, how can we measure those outcomes? This brings us back to what is a truly key question about student outcomes and education in general: Are we measuring what is valuable or valuing what is measurable?

Reflection

Research is often used by the media to inform and persuade opinion. We caution you, when you see an alarming, definite-sounding, or sweeping headline about research on any topic, to look at what questions the research was truly asking and, crucially, which were not asked. Use the questions below as a starting point for reflection and also as a reference whenever reading educational research.

When reading about educational research in general, consider

- If you are reading about research in the media, does the media accurately reflect what the research really says?

- What is the source of the research? Is the source reputable? Who funded it?
- What questions does the research ask, which does it *not* ask, and what questions does it actually answer?
- Have you read a variety of research on the topic to develop a well-rounded perspective?
- How will this research affect your approach to teaching and learning within the classroom?
- How does the educational reading you engage with affect your mindset related to education or, more specifically, technology within education?
- How is your opinion of technology within the classroom affected by headlines and news articles?
- What opportunities exist within your current school setting to support professional reading and dialogue?
- How could you support your wider educational community to engage with a research-based educational discussion?



REFLECTION

Chapter

03

Mindset: Teachers, Teaching, and Technology

The Role of Mindset in Teacher Use of Technology

Reflection

Describe yourself as a teacher in one sentence.

What influences have made you the teacher you are?

The impact that a teacher’s beliefs and values have on their ability and willingness to use technology effectively in the classroom is an important but often overlooked topic. Research (Drent and Meelissen 2008, Prestridge 2012, Sang et al. 2010) clearly shows that a teacher’s personal beliefs about technology are a pivotal factor in how willing they are to use the technology in the classroom and how *effectively* they do so, yet this is rarely addressed in teacher training or school development planning.

How Technology Mindsets Are Formed

Mindsets exist both at the individual level (how you personally feel about technology and why) and the institutional level (the prevailing school-wide attitude toward technology). There are a wide range of factors (of which we as practitioners are not always consciously aware) that influence mindsets around technology, and these factors have the power to fundamentally affect whether and how we engage with technology in the classroom.

Personal Technology Mindset

- Context (your setting) and culture (the predominant beliefs and attitudes in that setting)
- Personal experiences of education, including
 - › Your experience of school as a student—and how that shaped your view of what school should be like for the students you now teach
 - › Your education as a student teacher and the role technology played in that experience (if any)
 - › Your experience of continuing professional development, such as how technology is addressed in PD, and whether or how it is used as a tool to enhance your own learning
- Personal experiences in the teaching environment
 - › The positive and negative experiences you have had with technology in your teaching career
- Personal beliefs about technology in education
 - › For example, regarding screen time, play, academic outcomes, and so on

Discussion

Read the section titled *Factors Contributing to Mindset*, pages 19–27 and discuss with your group what the role of technology in your experiences so far in the following areas has been:

- home and societal culture

- school culture
- your experience as a student
- your teacher education
- your experience of school PD
- your day-to-day working life as a teacher.

Compare your experiences in these areas with others in your discussion group.

How have these experiences influenced your attitudes toward technology in the classroom?

Institutional Technology Mindset

The prevailing institutional mindset around technology in your context is likely to depend on the presence or lack of the following considerations:

- defined purpose for technology
- suitable curriculum
- leadership of technology
- friendly and responsive technical support
- high-quality, accessible pedagogical support and training
- high-quality, purpose-based professional development
- reliable and sufficient resources and infrastructure
- acknowledgment and response to teachers' personal technology mindsets and the factors that underpin them

A few teachers with very positive or very negative individual technology mindsets are not likely to sway the prevailing institutional mindset very far in one direction or the other; however, over time positive or negative institutional experiences add up to create a general institutional mindset around technology.

Discussion

Collect your thoughts in the spaces below.

Brainstorm three to five adjectives to describe the prevailing mindset toward technology in your organization, and write them below.

Whether positive or negative, what are the main causes of this institutional-level mindset?

What actions would be required to create a more positive institutional technology mindset?

Reflection

If your goal is supporting student learning:

- How do you feel about the role of technology in the lives of students in and out of school, and in your own life?
- Do your personal feelings about technology impact how and how much you use it in your classroom?
- What are the benefits to students using technology in a purposeful way in the classroom?
- What drawbacks do you see?
- If your mindset toward technology has been less than positive until now, what is one thing you could do to become open to using more technology in your teaching?

If your goal is supporting professional learning:

- What is the general mindset of the teachers in your school toward technology?
- What background factors (contextual, cultural, personal, professional) might be driving that mindset?
- What concrete steps could you take immediately to help to promote a more positive mindset?
- What alternative models to standard one-off PD days and events are there to address teacher confidence and capacity building (digital badges, peer mentoring/coaching, small-group instruction)
- What kind of support do teachers need to feel more positive about technology in the classroom on a day-to-day basis?
- How can you open a dialogue with teachers about their technology mindsets and the factors influencing them?
- Have you participated in, designed, or led an approach to technology professional development that was successful that you can share with the Intechgrate group?

If your goal is supporting curriculum development:

- Are your curriculum documents structured in a way that enables and supports, or hinders, technology integration?
- What frustrations and barriers might teachers who wish to integrate technology be experiencing at the curriculum level?
- Do teachers have reliable and easy access to the technology resources they need to realize the curriculum?

If your goal is supporting organizational systems and structures:

- What elements of technology infrastructure are most frustrating or difficult for teachers? Reliability, access, quantity, ease of use?
- To what extent have the resources and infrastructure been designed with pedagogical goals and needs in mind?
- How are teachers and pedagogical leaders involved in the proposal and decision-making process for implementation and improvement of systems and structures?
- What can be done in the short, medium, and long term to build or develop technical systems, structures, and resources to facilitate technology use and integration?

REFLECTION

Chapter 04

Pedagogy: Enhancing Student Communication

Discussion

What are the main purposes for student communication in the classroom?

Communication is one of the core elements of learning for students in any classroom. Communication encompasses activities and purposes including presentations, asking questions, giving feedback, and demonstrating learning. Students' ability to communicate their learning through traditional methods, such as writing or oral presentations, varies based on factors like age, language level, and confidence. However, we believe technology can be a valuable tool in supporting and enhancing student communication under the following categories:

- Student to Self: reflecting on own learning (e.g., learning journals, notetaking)
- Student to Other: communication with peers or teachers within their school (e.g., presenting, participating, discussing, questioning, giving feedback)
- Student to World: communication with others beyond the school, public sharing or publishing of work with the wider world (e.g., blogging, publishing ebooks, using social media, and developing digital citizenship skills)

(Structure adapted from Keene and Zimmerman 1997)

Using Technology to Support and Enhance Communication

Identifying where technology can be helpful in supporting and enhancing communication depends on identifying communication challenges facing students in your classroom, such as

- Students with English as an additional language may struggle to communicate understanding or prior knowledge.
- Time constraints and student behavior may make it difficult to manage individual student oral presentations.
- Younger students or emergent writers may struggle to communicate ideas or demonstrate language ability in written form.

Reflection

List challenges you and your students face in each of the following communication categories. Compare your thoughts with others' in your group.

Student to Self

Student to Other

Student to World

Figure 3

Our core message regarding technology integration is that it should be purposeful—this means that using it should in some way enhance the learning process. In this context, that means using technology as a tool to address the challenges you have identified above.

To do this, first consider what the root issue is behind a challenge you have identified and what solution is needed to address it.

Challenge	First graders have wonderful story ideas, but they cannot effectively communicate them in writing yet. Providing regular opportunities for oral storytelling, as well as recording those stories, is a logistical challenge.
Root Issue	Written language skills are not yet fully developed, and most classrooms setups cannot support regular one-on-one time to listen to and record oral stories.
Solution	Find a way for students to tell and record their stories that does not rely on writing or one-on-one teacher-student interaction

Figure 4

Now, consider what technology tools are available to you to facilitate that solution. In this example, tablets or netbooks running digital learning journals with audio-recording capability such as Seesaw or ebook-creation apps and software such as Book Creator would allow the students to tell, record, and even illustrate their stories digitally without being reliant on written language.

Discussion

As a group, choose one main challenge identified in the previous Reflection section, and elaborate on it in the following table to collect ideas about communication challenges and technology-based solutions. For some suggestions and examples related to these areas, reread Chapter 4.

Challenge	
Root Issue	
Solution	
Technology Tools	

Figure 5

Reflection

If your goal is supporting student learning:

- What curricular opportunities do your students have to communicate their ideas, knowledge, questions, understanding, learning, and opinions?
- Which students in your class might benefit from a different approach to communication? What challenges or strengths do they have?
- Are your current methods for student communication as individualized, inclusive, and inspiring as you would like them to be?
- Are your current methods for student communication always truly suited to the purpose?
- Focusing first on one task, in an ideal world, what kind or quality of communication would you like from your students? What would be the dream product or process?
- What technology do you have access to that might enable your students to communicate in that task in a more “ideal” way?

If your goal is supporting professional learning:

- What technology is available to teachers that could enhance student communication; how familiar and confident are teachers with the available technology?
- What approach to professional development would provide the most accessible, supportive, and sustainable model to build teacher awareness and confidence with the purpose, use, and applications of these tools?
- Can you embed these types of student communication approaches into regular staff development to model and demonstrate their potential and application?
- What are your options in terms of providing practical support for teachers using technology in their classrooms? Do you have access to technology coaches at the school, district, or state level? Would a peer mentoring and support system work? Are there confident technology users on staff who could pilot new tools and support colleagues?
- Does your school, institution, district, or state have a clearly defined, articulated, and shared vision for the purpose and application of technology in supporting elements of learning, such as communication?

If your goal is supporting curriculum development:

- Do you have a technology curriculum in place that facilitates, encourages, and enables technology as a tool to enhance student communication?

- Do your wider curriculum documents reference, embed, or integrate technology as a tool to enable and enhance student communication of knowledge, skills, and understandings?
- How could existing schemes, programs, and curricula be enhanced or supported by technology integration?
- What steps would need to be taken to begin to make explicit links for teachers between existing curriculum approaches and technology integration?

If your goal is supporting systems and structures:

- What physical resources and infrastructure are in place to enable student communication with technology?
- Are the resources and infrastructure that are in place sufficient in quantity, reliable, up-to-date, and supportive of pedagogy?
- Do your physical systems and structures meet the needs of students, teachers, and schools related to day-to-day formative assessment, differentiation, and communication?
- What human resources are required to provide necessary training and support?
- What would the next steps be in terms of gathering accurate information about current and near-future pedagogical needs and taking action to meet those needs through systems, structures, and resources?

REFLECTION

Chapter 05

Pedagogy: Enhancing Student Collaboration

Discussion

- How do you define collaboration within the context of the classroom?
- Why ask students to collaborate?
- How do students collaborate?
- When should they collaborate?
- How can you teach them to collaborate well?

Collaboration has always been an element of classroom learning, but in recent decades it has become increasingly valued and expected. Colleges, universities, and professionals emphasize that the *ability to collaborate effectively* is one of the twenty-first-century skills people need to be able to navigate an increasingly connected world, to be successful in emerging industries, and tackle complex global issues like climate change.

But what is collaboration? In general, collaboration is defined as the process of working together toward a common aim or to solve a common problem. We suggest collaboration is a *process* that involves applying a range of skills including communication, self-management, and problem-solving skills.

True collaboration is not straightforward, but few teachers receive in-depth training or the support to dive deep into the question of how to teach and facilitate it effectively.

Discussion

To prepare for the discussion start by reading pages 58–60 in Chapter 5 of our book.

- In your education or career as a teacher, have you explored the question of what collaboration is and is not?
- What support or guidance about how to teach collaboration have you had?
- What is the difference between collaboration and group work? Is there a difference?

Enhancing Collaboration with Technology

Technology already is an integral part of the conversation around collaboration within the classroom, mainly focusing on remote collaboration. We believe that technology's potential in the context of collaboration goes far beyond this. We frame student collaboration around three key purposes:

- forming understanding
- building community
- managing tasks and sharing information

To support each of these purposes students need to engage in a scope of collaboration ranging from partner work to working with students and experts from around the world. We organize this thinking in three categories:

- Within groups (e.g., partner work, small groups, whole class working on a task)
- Between groups (e.g., students of same age/grade collaborate between different classes, different subjects or students of different ages/grades collaborate on the same or different subjects.)
- Beyond school (e.g., connect with peers from different cultures and contexts, working with experts from around the world)

To help illustrate how technology could be used within the classroom to enhance student collaboration, consider the following example.

Purpose	Forming understanding	
Category	Within group	
Learning engagement	Students work independently to construct a mindmap illustrating what they know about the concept of human migration. Once completed, students then work in small groups to share what they know and create one collaborative mindmap.	
	<p>Without technology</p> <ul style="list-style-type: none"> ➔ Student behavior, volume, and logistics of space can make group work difficult to oversee and manage. ➔ It is feasible for only a fairly small group to work together in this way. ➔ Collating multiple individual mindmaps into one shared mindmap means redoing the mindmap from scratch. ➔ A whole-class mindmap would be difficult and time-consuming to create, involving multiple iterations. ➔ Only written text or drawings can be added. 	<p>With technology <i>Technology Tool:</i> Padlet (digital mindmapping)</p> <ul style="list-style-type: none"> ➔ Students can collaborate in groups of any size. ➔ Students need not sit together to collaborate, meaning the task can be quieter, easier to manage, and more focused. ➔ Adding or removing ideas from a mindmap can be done instantly and repeatedly, without remaking. ➔ A whole-class mindmap can easily be created. ➔ Text, drawings, images, video, links, and audio can be added.

Figure 6

Reflection

Choose a recent collaborative, non-technology-based learning engagement that you planned for your students. Use the following table to identify the purpose of the collaboration, category, or type of collaboration and learning engagement. Then reflect on the learning engagement using the “Without technology” column of the table, and collect aspects of the collaboration that were challenging. Finally, consider which technology tool you could use to address challenging aspects, or otherwise enhance this learning engagement, noting your thoughts in the “With technology” column.

Purpose		
Category		
Learning engagement		
Without technology	With technology <i>Technology Tool:</i> _____ _____	

If your goal is supporting student learning:

- How do you approach collaboration within your classroom?
- What skills and/or understandings do you explicitly teach to support your students' ability to collaborate effectively?
- What skills and/or understandings do you feel are essential for your students to master in order to develop their ability to self-manage within a group setting? How do you support that development and provide meaningful feedback?
- How might collaboration between groups or beyond school support or enhance the learning of your students?
- If you have used digital platforms, what opportunities did it afford, and what challenges did you experience?

If your goal is supporting professional learning:

- Do teachers have a shared understanding of the skills and process required for effective collaboration and the intended role of collaboration in relation to your school philosophy?
- Do staff members have opportunities to discuss context, skills, and/or understanding links between subject areas to create experiences for students to deepen their understanding?
- What opportunities exist for staff members to experience and practice collaboration in their own professional learning?
- Are digital platforms used at the staff level to support teacher inquiry and professional development?
- How might digital platforms and digital collaboration be modeled during professional development?

If your goal is supporting curriculum development:

- Does the curriculum articulate/support the development of collaborative skills and understandings?
- Should a technology curriculum outline learning goals for the skills and understandings needed for collaboration?

If your goal is supporting systems and structures:

- Are opportunities available for teachers to learn about and explore digital platforms that support collaboration?
- Does the infrastructure within your school support digital collaboration on a daily basis?
- What systems are in place to support teachers and students in becoming collaborative partners within the learning community?

REFLECTION

Chapter 06

Pedagogy: Integrating Technology in the Classroom

Reflection

Before we dive into the nuts and bolts of planning for and implementing technology within classroom lessons, take a moment to reflect on your current practice and mindset. This process will help you calibrate and identify where your current practice lives on the spectrum of technology integration. Take a moment to read the teacher descriptions on pages 80–81 of the book. Which do you feel you identify with most, and why? Can you recognize any of your colleagues in these descriptions?

Strategies for Technology Integration

Technology tends to exist within the classroom in one of three forms:

- **Self-Contained Lesson**—technology is integrated into a single lesson with the purpose of supporting student learning.
- **Embedded Integration**—technology is embedded into daily classroom routines and/or student learning experiences in an ongoing, day-to-day capacity.
- **Multilesson Project**—teachers and students engaging in multiple, connected lessons where technology integration and content knowledge are scaffolded over time to support an end project.

We believe that meaningful and embedded technology integration creates richer and more connected learning experiences for students. We have learned that simply using a technology tool during a lesson doesn't achieve the deep level of learning we wish for our students and creates an "add-on" for both students and teachers. Considering if and how technology can be used within a lesson needs to happen in the planning stages of the lesson and must be connected to the purpose/core learning of the lesson.

Discussion

Think about your past week of teaching, choose a time when you used technology with your students, and ask:

- What was the purpose of the lesson?
- How did you plan for the lesson and, more specifically, the integration of technology?
- What aspects of the lesson went well, and what aspects of the lesson were challenging?
- Was the purpose of the lesson achieved? If so, how did the use of technology enhance student learning?

The Intechgrate Approach

Whatever form technology integration takes in your classroom, the process for planning, scaffolding, and realizing technology integration should remain consistent, which is why we developed the Intechgrate Approach.

The Intechgrate Approach is designed to support teachers in making the shift to planning for and implementing technology integration in the classroom. The six steps outlined in the Intechgrate Approach apply to all levels of integration, all levels of teacher competency, and all levels of resources. Mindful consideration of technology throughout the planning process will be deliberate at first but over time will soon become a natural part of your planning process.

The Intechgrate Approach to Integrating Technology in the Classroom

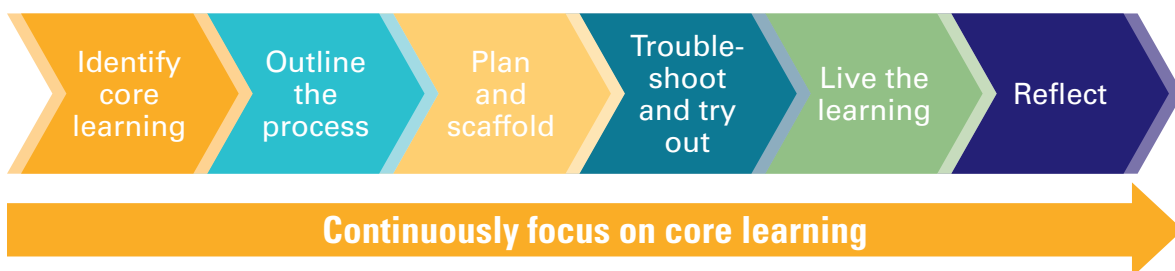


Figure 7

The first, and most important step, is identifying the core learning, followed by outlining the process. Turn to pages 84–86 and read the detailed descriptions of these two steps. In the examples, “Illustrating Integration: Persuasive Writing 1 and 2” (pages 86 and 87), you can see that the process each teacher chooses reveals a different core learning goal, as well as differing additional and incidental learning goals. These two approaches can be visualized as follows:

Illustrating Integration: Persuasive Writing 1—Levels of Learning

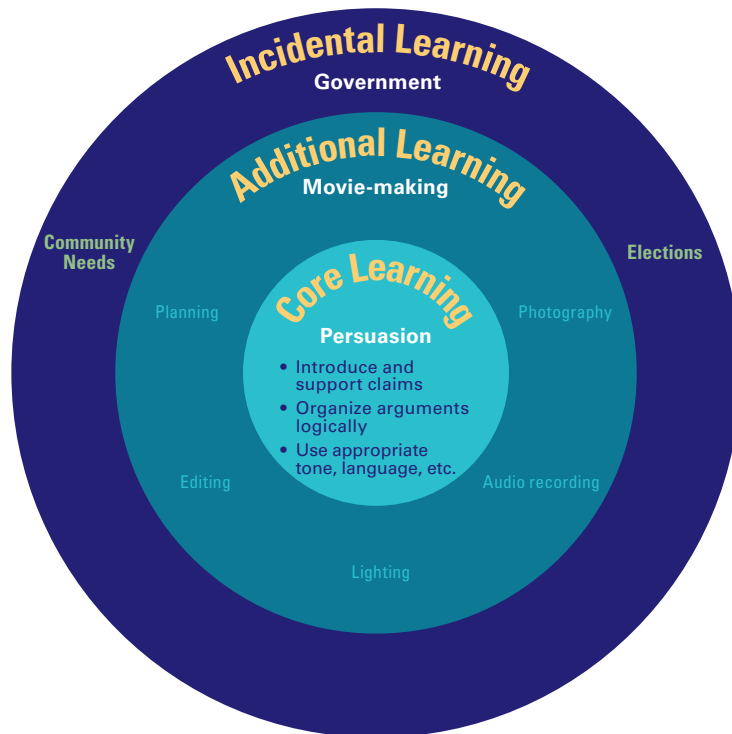


Figure 8

Illustrating Integration: Persuasive Writing 2—Levels of Learning

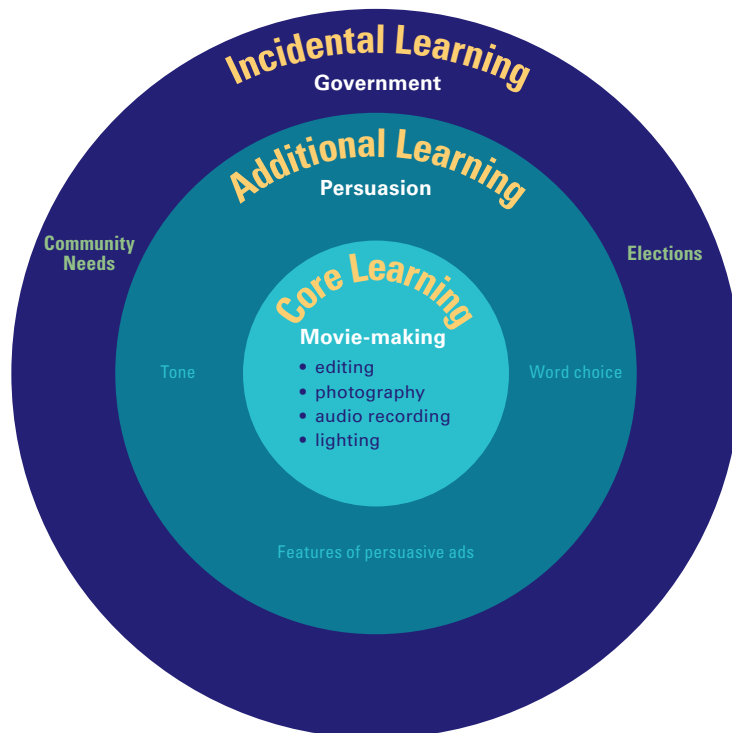


Figure 9

Discussion

Returning to your previous discussion about the lessons you taught using technology in the past week, fill in the learning levels graphic below. What was the core learning, and what else did students learn additionally and incidentally?

Levels of Learning

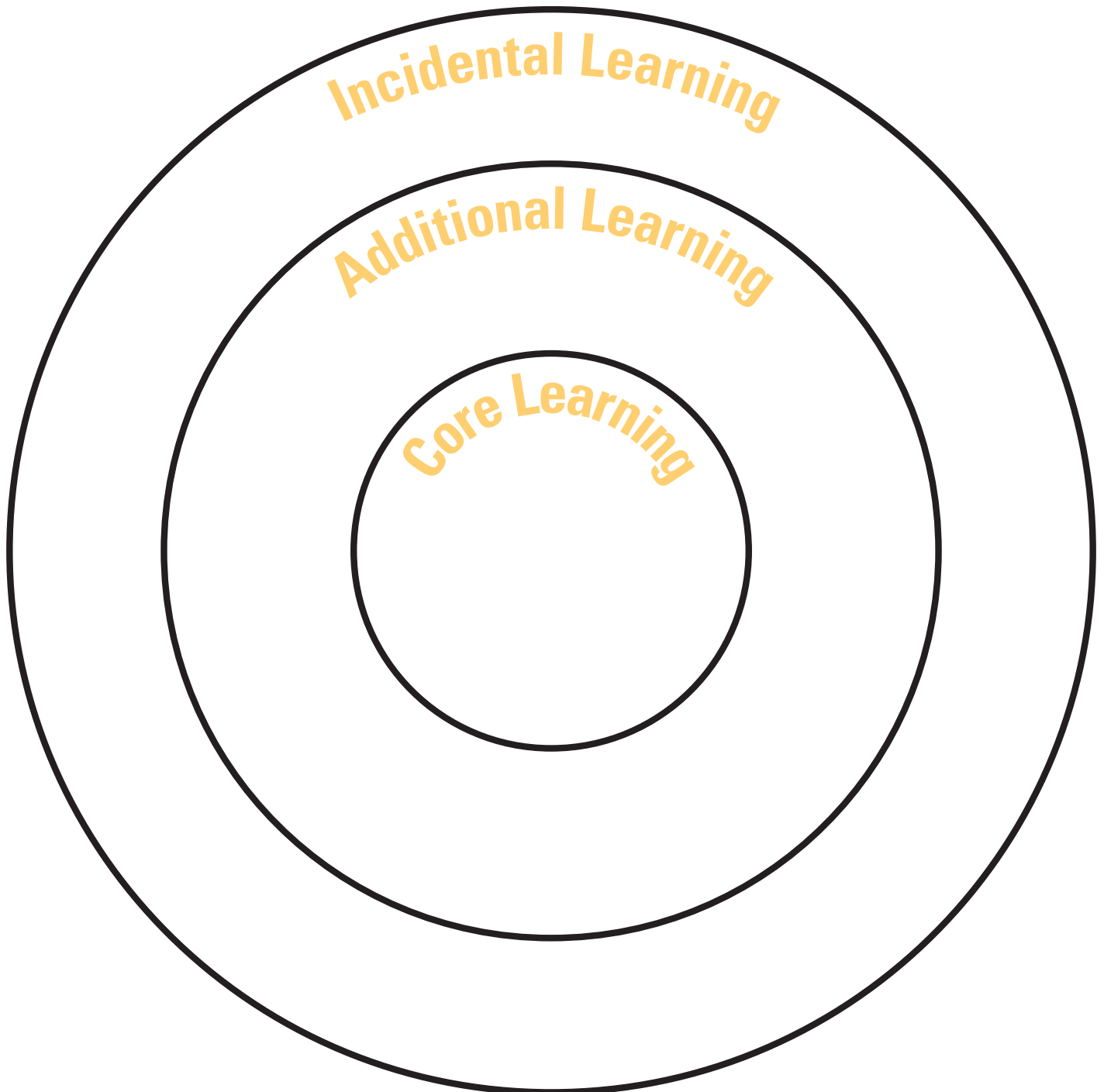


Figure 10

Reread the information about the Intechgrate Approach steps 3–6 on pages 89–99 and then discuss:

- Did the core learning ultimately turn out to be what you intended when you set out?
- If yes, how did you maintain focus on the core learning throughout the planning and teaching process?
- If no, why not? What could you do differently to change that?
- How does the Intechgrate Approach compare or contrast with how you currently plan for technology integration?
- What aspects of the Intechgrate Approach do you think are challenging? Why?
- How could you implement this approach in a way that works in your context?

Reflection

If your goal is supporting student learning:

- Have you planned using all six steps of the Intechgrate Approach to ensure a holistic path to integrating technology?
- Have you remained focused on the core learning for the lesson? If not, what can be done next time you integrate technology to maintain focus on the core learning?
- Did the students have the prerequisite skills needed to successfully engage in the lesson? If yes, how did you pre-assess students' skill level? If not, what can you do next time to get an accurate picture of the students' level of technology skill and understanding?
- Did the learning space within the classroom meet the needs of the students and support the integration of technology?

If your goal is supporting professional learning:

- What is your role in developing teacher skill and understanding related to technology integration?
- What is the school's current approach to integrating technology?
- How can you model the integration of technology when working with staff?
- What is the most effective way to support teachers beginning to integrate technology using the Intechgrate approach?

- How can you use staff meeting/staff development time to support the integration of technology?
- Is there a teacher currently integrating technology in a meaningful way who could model for and lead other teachers?

If your goal is supporting curriculum development:

- How does your current curriculum framework support technology integration?
- How does your current curriculum framework hinder the integration of technology?
- If you do not have a technology curriculum in place, would your school benefit from developing/adopting a technology curriculum that supports technology integration?

If your goal is supporting systems and structures:

- Does the staff feel supported to shift practice toward an integrated approach to technology within the classroom?
- Are the appropriate staff in place to support integrated technology instruction?
- Are there sufficient and appropriate resources in place to support technology integration?
- Does the school budget need to be adjusted in order to account for the use and repair of technology tools and devices?

REFLECTION

Chapter 07

Curriculum: An Integrated Approach to the Written Curriculum

First, read the book’s Chapter 7 introduction and section titled “What Is the Written Curriculum?” on pages 102–104.

Curriculum creates the backbone of how and what we plan and teach. The style and approach to all subject curricula, including technology, varies greatly depending on your context. The value of the written curriculum comes from teachers turning these raw ingredients of the *what* into engaging, powerful, and cohesive learning experiences that develop students’ current level of understanding. This becomes especially important when shifting your current use of curriculum (both general curriculum and technology-specific curriculum) to a more integrated approach.

Discussion

What do you believe is important for students to know, understand, and be able to do with technology? Collect your individual thoughts below, and then compare with the rest of your group.

KNOWLEDGE	UNDERSTANDINGS	SKILLS

Figure 11

Are these beliefs currently reflected in the technology curriculum in your context?

An Integrated Approach to Curriculum

Taking an integrated approach to existing written curricula means looking for commonalities between concepts and goals and finding a balance between the knowledge, skills, and understandings in both general and technology curricula. The aim is not necessarily to teach more but to teach differently. With a growing awareness of and familiarity with the commonalities and possibilities existing between all aspects of the curricula within your context, you will begin to see opportunities to integrate two or more subject areas to plan lessons that support students in learning about, with, and through the use of technology in an authentic context. There will always be technology knowledge, skills, and understandings that need to be explicitly taught, just as there are in every other aspect of the curriculum, but it is our belief that most aspects of all curricula benefit greatly from being taught and applied in context.

For example, we don't need to teach first graders a technology lesson on mouse skills and a separate English lesson on illustration. We can do those both at the same time by allowing students to learn *about* mouse skills *with* technology *through* creating digital illustrations to a text.

Discussion

Read the section in Chapter 7 titled "A Curriculum Continuum" on pages 106–110 and then discuss:

- Do your current curricula support an integrated approach?
- Are you already taking an integrated approach to curriculum?
- What do you think of the idea of using technology to teach differently, rather than teach more?

Now, individually or with a subject or grade-level partner, use the table below to brainstorm two possible ideas that support an integrated approach to curriculum.

TECHNOLOGY SKILL	SUBJECT(S) BEING INTEGRATED	LEARNING ENGAGEMENT
For example, mouse skills	English language visual arts	Students create digital illustrations for a text

Figure 12

Look at the following Continuum of Planning and Teaching Focus graphic and mark where these examples would fall on the continuum.

Continuum of Planning and Teaching Focus

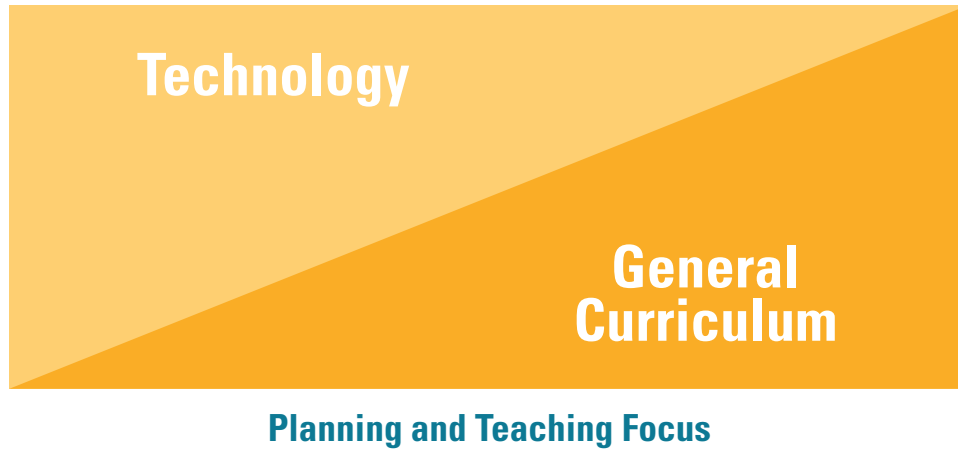


Figure 13

Designing a Technology Curriculum for Integration

We have reiterated several times that technology integration is less about what you have and more about how you use it. This is true of curriculum too, and as you have seen, it is possible to take the curriculum or curricula you already have and use them in a more integrated way. If you are lucky enough to have more ownership over the development, revision, or design of a technology curriculum specifically for your context, then you are in a wonderful position to articulate one that supports an integrated approach to learning and teaching.

Suggested phases of designing and developing a curriculum:

1. Take stock of current technology beliefs and implementation.
2. Do your research.
3. Define or refine your vision of technology and integration.
4. Focus on your students—what is most important for them to learn?
5. Gather feedback from the community.
6. Create a plan, timeline, and assign areas of responsibility.
7. Draft, synthesize, and gather feedback (and possibly redraft).
8. Implement, sustain, and embed.
9. Review, refine, and redraft—repeatedly!

You can read about these steps in more detail by referring to pages 116–126.

We make the point there that people tend to talk about *implementation* as though it were an event. When designing a curriculum and trying to implement it in a way that it will be used meaningfully and for the long term, it is important to recognize that implementation is actually a *process*. The day that you present a new technology curriculum to teachers or introduce a new approach to working with the curricula you already have is not the end of the implementation process: it is really only the beginning!

Reflection

If your goal is supporting student learning:

- Does your current technology curriculum support an integrated approach to technology in learning?
- Are your students learning key technology understandings and skills to develop as flexible technology users who make technology choices related to purpose?
- What transferable skills are currently outlined within your technology curriculum? Are they clearly articulated for application within the planning and teaching process?
- If you are currently well-resourced with technology, do you see students engaging with technology in the classroom in a way that enhances the learning process? If so, how?

If your goal is supporting professional learning:

- Would you and your staff have the time and interest to self-review the current technology curriculum in a way that supports professional development?
- What support/training would your staff need to engage in a curriculum development process?
- What contacts do you and your staff have beyond your own school who could inform your technology-integration curriculum-development process?

If your goal is supporting curriculum development:

- What aspects of your current technology curriculum support an integrated approach to technology skills and understandings? What aspects of your curriculum do not?
- Is there a current cycle for review of your technology curriculum? If not, when would be an ideal time to review your current curriculum?
- Do you, as an individual school, have the pedagogical freedom to engage in a review process, or does a review need to be done at a district/county level? If so, how can your school support the professional conversation within that review?

If your goal is supporting systems and structures:

- Do the systems and structures within your school support or hinder the implementation of your current technology curriculum?
- What would need to be discussed related to systems and structures if your school were to move toward a more integrated approach to technology curriculum?

REFLECTION

Chapter

08

Resources, Systems, and Infrastructure: A Pedagogical Approach

Resources, systems, and infrastructure are often the part of education that teachers, and even leaders, have the least control over; decisions and budgets are often set at the national, state, or district level, which individual schools have very little, if any, control over. However, technology integration must be an *educational* discussion, and as educators we have a right and a responsibility to be a part of the whole discussion to ensure that technology is being resourced, supported, and implemented in schools in a way that enhances teaching and learning.

First, we need to be on the same page with our terminology, as the definitions of these words can differ slightly. Begin by reading the text titled “Some Definitions” on pages 129–131.

What Is a Pedagogical Approach to Technology Resources, Systems, and Infrastructure?

In most organizations, technology systems and infrastructure are planned, managed, and overseen by technology specialists, including network administrators and technology or IT directors. This makes sense: large-scale technology is complex and expensive and requires specialist knowledge and training to put in place and manage effectively. Understandably, given the skill and training required, it is quite rare (though not unheard of) for the head of the technology department in an educational setting to be a teacher as well as an IT specialist. This can mean that decisions about technology tend to be driven primarily by technical priorities rather than pedagogical. In an educational setting, the primary goal of all the technology resources, systems, and infrastructure should be to support teaching and learning, yet for many schools, it is challenging to establish or sustain an active and strategic collaboration between the technical and pedagogical approaches to technology.

We can illustrate the difficulties a disconnect like this cause with a metaphor. Imagine that a new hospital is being built by two companies. One company knows that this hospital is going to be a specialist facility for a

certain type of medicine and has intimate knowledge of what type of work the doctors will do, the schedules they will follow, when surgery will most often be scheduled, and so on. The other company is in charge of designing the floorplan, purchasing the medical equipment, and so on. If those companies don't talk to each other, that hospital is not going to be a very functional space for the doctors or their patients. To bring the metaphor back to real life, this kind of disconnect between pedagogical purpose and need and technology resourcing has obvious educational ramifications, and it also cannot fail to have a negative impact on individual and institutional mindsets around technology.

Discussion

- What or who is in charge of your school or organization's technology resources, systems, and infrastructure?
- What steps are taken to align pedagogical and technical priorities?
- What communication and collaboration links currently exist between the technical and pedagogical leadership teams?
- What drives the development of technology resources, systems, and infrastructure?
- Would you describe your school's approach to technology resources, systems, and infrastructure (in terms of acquisition, management, ongoing development, leadership, etc.) as "pedagogically driven"?

Establishing a Pedagogical Approach to Resources, Systems, and Infrastructure

A range of barriers exists for many schools in implementing a pedagogical approach, including:

- lack of open communication between leadership, teaching, and technical staff
- conflicting pedagogical and technical priorities
- lack of shared vocabulary and mutual understanding
- top-down or centralized technology management and leadership

However, opening lines of communication and collaboration is a key step to making this approach possible. Read the section titled "How to Take Action" on pages 132–133 and then think about how you could take steps to make links, break down barriers, and open up communication and collaboration between pedagogical and technical staff and leadership.

You could consider

- inviting technical staff to observe or participate in some lessons integrating technology
- involving technical leadership in discussions about pedagogical development (e.g., curriculum, teaching practice, school mission)
- ensuring technical staff are actively invited and welcomed to school events to create personal connections
- polling staff about the specific barriers and concerns they have with technology resources, systems, and infrastructure and discussing them with technical leaders
- scheduling a regular collaboration meeting between school and technical leaders to share information, ideas, and issues

Reflection

If your goal is supporting student learning:

- If the technology resources, systems, and infrastructure you have available are inadequate or unsuitable, how can you work with what you have to make the biggest difference to student learning?
- What do you believe should happen in the short- and long-term to solve any issues you have?
- Have you clearly communicated any issues with technology to your leadership team and technical colleagues?
- Can you use what you have differently? If you have a dedicated computer lab in our school or bookable laptop carts, might it be helpful to distribute some or all of those devices to classrooms or teams? If you have devices in your classroom but there aren't enough, could you consider using them more for small groups, differentiation, and workshop/station activities?
- How articulated is your short-, medium-, and long-term vision for technology integration and implementation? How clearly has that vision been communicated to the IT team responsible for resources, systems, and infrastructure?

If your goal is supporting professional learning:

- What lines of communication currently exist among your organization's teachers, IT specialists, leadership, and administration?
- How could IT specialists and teachers be brought together to benefit from each others' knowledge and form a shared understanding of the vision for technology integration?
- How can teachers be helped to feel more empowered and confident to express wishes, raise concerns, and take action when technology resources, systems, and infrastructure are creating barriers to teaching and learning?

If your goal is supporting curriculum development:

- To what extent have resources, systems, and infrastructure been considered when creating, revising, or implementing our technology curriculum?
- Do teachers have what they need at a practical level to be successful in delivering the curriculum?
- Do the resources, systems, and infrastructure effectively support the skills and understandings we want our students to have with technology?

If your goal is supporting organizational systems and structures:

- How familiar are you with your individual school's visions for technology integration? What skills do you hope students will learn, and how do you use technology on a day-to-day basis?
- What barriers do you face that impede collaboration and communication between technical and pedagogical teams?
- Who could you reach out to at the leadership or pedagogical level to find out more about the pedagogy of technology integration?
- To what extent have the resources, systems, and infrastructure currently in place been planned with the student at the center?
- What short-, medium-, and long-term changes would appear to make the most difference to teachers and students?
- Who could you approach at upper leadership levels to propose these changes, and what solutions can you offer as to how they could be funded or implemented?

REFLECTION

Chapter

09

Leading Technology Integration

Leadership is one of the six elements of the Intechgrate Model in its own right, because it is so important. Pedagogy, curriculum, resourcing, mindset, and purpose are each equally important, but even with these elements in place, without committed, purpose-focused leadership, technology integration can be only so successful. Teachers and students rely on leaders to set the tone of the pedagogical discussion, to decide the priorities for development, and to create the conditions necessary for sustained and meaningful development.

We tend to think of leaders as being principals, or coordinators, but teachers have a vital leadership role of their own—for their students, as well as their colleagues. Teacher leaders may have more social capital with their colleagues and extensive knowledge of real-world, day-to-day classroom constraints and opportunities, student needs, and the curriculum.

Discussion

Read pages 137–138 and then discuss:

- Who are the leaders in your context at the administrative and teacher level?
- Who leads technology?
- Over which element(s) of the Intechgrate Model do those leaders have influence?
- To what degree, and in what way?
- Who else in your context could contribute to the leadership of other aspects of technology integration?
- What steps can you take to begin to build your leadership team and your influence?

By this point you and your group may have formed an idea of which elements of the Intechgrate Model need to be developed in your context, and even what you think should be done. For a leader, there are three immediate considerations:

- What are the strengths, needs, and challenges we face with regard to each element that needs action?
- Do you have the necessary influence to take action over those elements?
- How should you take action in a way that will be effective, supportive, and lasting?

Strengths, Needs, and Challenges

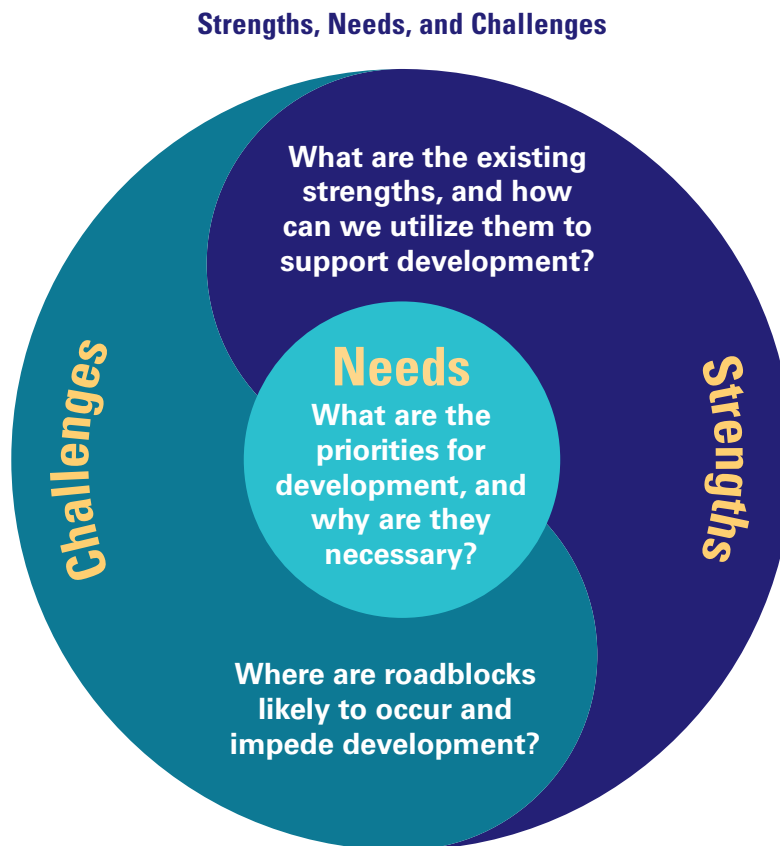


Figure 14

In the table below, collect your ideas (individually or as a group) about the strengths, needs, and challenges you face currently for each element of the Intechgrate Model.

	STRENGTHS	NEEDS	CHALLENGES
Vision and Purpose			
Mindset			
Pedagogy			
Curriculum			
Resources, Systems, and Infrastructure			
Leadership			

Figure 15

For guidance on how to approach this, consult Figure 9.3, Prompts for Assessing the Status Quo, on pages 140–141.

Influences on Development

A number of factors at the internal and external levels influence the degree of control leaders may have over different elements of the model.

The Impact of External Systems on Internal Development Processes

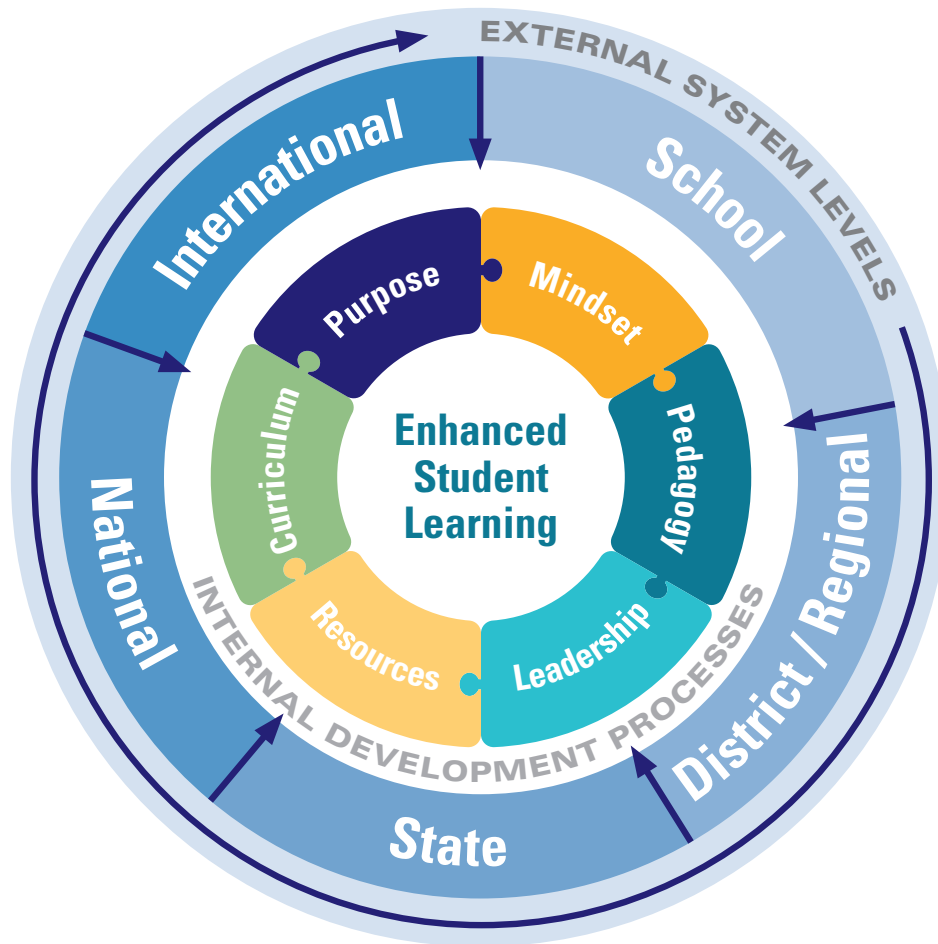


Figure 16

For example, perhaps an overly prescriptive or disciplinary curriculum is a challenge in your school, but this curriculum is imposed at the national or local level. Or perhaps there is a predetermined curriculum-review cycle in place at your school that you are still only halfway through. Maybe more funding is needed for technology resources and infrastructure, but the board of directors, or school owner is against technology in the classroom, or the state has a funding plan that is not open for negotiation.

On the other hand, external or internal factors can also be positive drivers for change, such as a keen and competent group of teachers who want to make technology integration happen, or new governmental policy that pushes the importance of technology.

Finally, barriers presented by these factors are not always insurmountable. It might take creative planning, relationship building, public lobbying, fundraising, or even patience, but positive change is always possible.

Discussion

- What factors might negatively influence technology development in your school/ context?
- What factors might positively influence technology development in your school/ context?
- What action could be taken to work around factors presenting barriers to change?

Planning for Meaningful, Lasting Development

Effective technology integration leadership requires flexibility, sensitivity, and deliberateness in how you address the development needs of different elements of the Integrate Model, from organizational to personal needs.

As you respond to one need, address one challenge, or capitalize on one strength, the nature of school development will naturally change in response to your actions, with new needs, challenges, and strengths arising all the time. This phenomenon is not unique to technology, but perhaps the pace of change can be somewhat faster than in other areas of school because technology itself changes so fast.

We liken this to a horse race with six horses, one for each element of the model.

Leading Technology Integration—a Horse Race

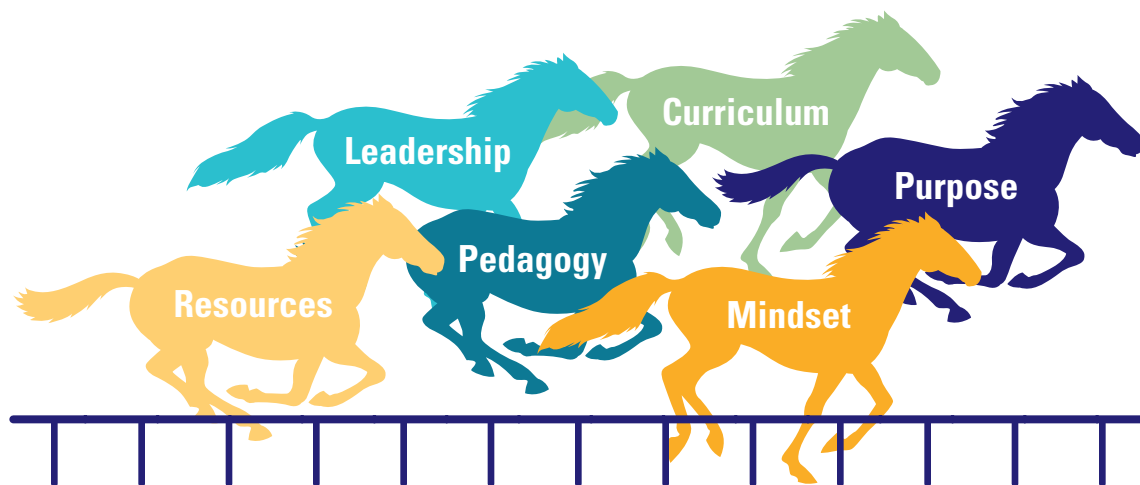


Figure 17

Different elements, at different times, will pull into the lead, forcing the other horses to try to keep up. Just like a real race, the horses will not, and cannot, all run at exactly the same rate and the same level toward a neck-and-neck joint victory, but they should, at least, all be running in the same direction! For example, as pedagogy develops and pulls ahead, it puts pressure on

resources and curriculum to develop in response, so much that they may even pull ahead of pedagogy and mindset. We hope, though, that the firm favorite to win will always be *purpose*, leading the pack throughout.

These three guidelines, which we elaborate on in greater detail on pages 158–161, will help to keep development on track even as you juggle these dynamic and constantly evolving elements.

1. Meaningful change occurs in response to need.
2. Leader-led isn't necessarily best.
3. You should control the pace of development.

As you move forward, we encourage you to do the following:

- Keep your valuable and intimate knowledge of your unique context front and center in your planning. What works for one school may not work for another. You know your context best.
- Strive to maintain a balanced approach in terms of how you ask your staff to invest their time and energy. Not every element of development can happen as quickly or intensively as we might wish, but ultimately investing more time in a longer development process will likely result in more sustained and embedded change.
- Think strategically about every aspect. From pedagogical development, to training, to resources and infrastructure, to curriculum, each component of the Intechgrate Model affects and is affected by the others and requires careful thought.
- Remember the power you, as a leader, have to influence mindset, guide development, and encourage agency in those around you. Successful development in any area depends a great deal on the approach and attitudes of leaders. If you believe in the potential and importance of effective technology use and integration to support student learning, and you strive to realize that belief, you can make a positive difference in the experiences of the teachers and students in your school, whatever your leadership role may be.

Discussion

- What developments have been undertaken in the past (with regard to technology or any other area) that were unsuccessful—why were they not successful? What can be learned from that experience?
- What are teachers' day-to-day needs in the classroom?
- What is the priority right now? Which horse should start the race?

REFLECTION

Chapter 10

Taking Integration Forward

In reading the previous chapter reflections and engaging in deep and meaningful reflection and discussion, you have taken apart the jigsaw puzzle of the Intechrate Model, looked closely at all the pieces, and thought about what they mean for you, in your context. Next comes the exciting and challenging task of putting that puzzle back together and creating a plan to take technology integration forward.

Whenever change is happening there is a range of factors that hinders or supports that change. You can imagine these factors functioning as opposing teams in a tug-of-war where the aim of one side is to move the status quo while the other seeks to keep it still.

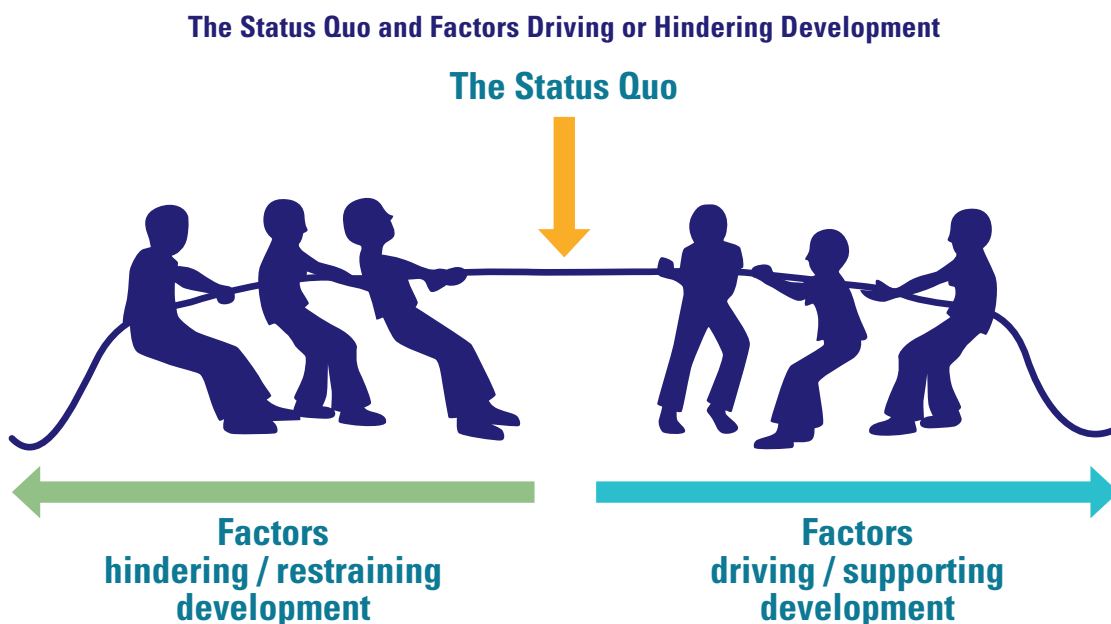


Figure 18

Chapter 10 includes resources designed to support you in identifying the factors in your context that drive or hinder development and resources to make a plan to either use or mitigate those factors. For printable, online versions of these resources, visit [Hein.pub/Tech-Resources](https://hein.pub/Tech-Resources).

What's Next? Intechgrate in Your School

The task of reimagining the role of technology in education is a journey that we encourage the entire educational community to undertake together. Like many journeys, this one is likely to have delays and detours as well as successes and awakenings, and it can happen only one step at a time. Meaningful, lasting change is never quick or easy, but each step we take brings us closer to a future where technology fulfills its potential as a truly purposeful, meaningful tool to enhance student learning.

You have already taken more than one step on this journey by reading the book and taking the time to engage with the ideas in it more fully through reflection and discussion.

We look forward to continuing to be a part of this journey in your school and warmly invite you to connect with us and with a whole community of educators who are on the same journey by joining our Facebook group at <https://www.facebook.com/groups/IntechgrateBookCommunity>, connecting on Twitter using hashtag #Intechgrate, and visiting our website at www.intechgrate.eu.