

TPACK is a technology integration framework that identifies three types of knowledge instructors need to combine for successful edtech integration – technological, pedagogical, and content knowledge (a.k.a. TPACK). While TPACK is often [compared with the SAMR Model](#), they are very different in scope.

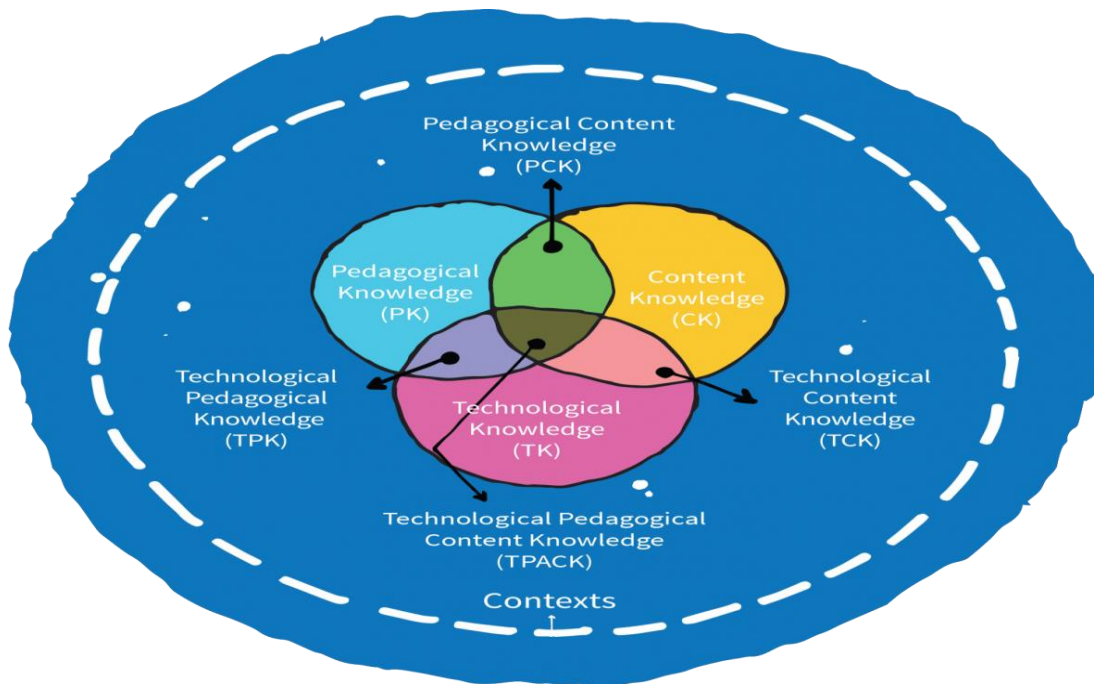
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Later, we'll take a look at the differences of these frameworks in more depth. But to quickly give you a little context, the SAMR Model is really designed to provide a high-level gauge of the degree of technology use, but some consider it to be overly simple and somewhat confusing. The TPACK framework, on the other hand, provides more of a map for understanding how to integrate technology into the classroom effectively. Let's dive into the purpose and elements of TPACK.

[What is the TPACK Framework All About?](#)

The TPACK framework was [introduced by Punya Mishra and Matthew J. Koehler](#) of Michigan State University in 2006. With it, they identified three primary forms of knowledge: Content Knowledge (CK), Pedagogical Knowledge (PK), and Technological Knowledge (TK).

Look at the diagram below. You'll notice that the three primary forms of knowledge are not entirely separate. In fact, the intersections of each are critical because they represent deeper levels of understanding.



The center of the diagram, otherwise known as TPACK, represents a full understanding of how to teach with technology. Keep in mind that this is not the same as having knowledge of each of the three primary concepts individually. Instead, the point of TPACK is to understand how to use technology to teach concepts in a way that enhances student learning experiences.

Let's say, for example, that you deliver content to your students via your learning management system (LMS). Even if you have sufficient knowledge of the content you're teaching (CK) and of your LMS (TK), you might still subject your students to an entire online course of text-based PDFs.

While this is an adequate display of both content and technical knowledge, you could argue that it is not enhancing the learning experience. However, if you recognized how your content could be presented in more interactive and engaging digital mediums – e.g., video, class discussion, game, etc. – and you knew how to make that happen via your LMS, then you just leveled up to Technical Content Knowledge (TCK).

[Key Differences Between the TPACK and SAMR Tech Integration Frameworks](#)

As mentioned before, the SAMR Model is quite different from TPACK. And because more educators know about SAMR, it's worth taking a few moments to address how they're different and the implications they have on your instructional strategy.

To do that, here's Kellie Ady, our Director of Instructional Strategy, discussing the differences between TPACK and SAMR with our former Senior Instructional Designer Bradley Kemp.

Why Is TPACK Important?

Most instructors and administrators recognize the benefits technology can have in the classroom—whether that be preparing students for a technology-driven world or helping to simplify course, school, and district management. But too many view technology as a silver bullet to the challenges they face. It's sometimes assumed, consciously or not, that the mere presence of digital tools will improve education.

This is exactly why the TPACK framework is important. It's easy to think that adding a great LMS to your class strategy is going to enhance learning. But TPACK shows us that there's a relationship between technology, content, and pedagogy, and the purposeful blending of them is key.

If nothing else, TPACK can be a helpful mantra urging you to step back and look at your whole strategy and the nuanced connections between all of its moving parts. In [a study conducted by the ASCILITE](#), or the Australasian Society for Computers in Learning in Tertiary Education, researchers found that the TPACK framework enhanced teacher candidates' ability to use technology in their learning and later in their professions.

"This present understanding of the use of TPACK," author of the study Dr. Dorit Maor explains, "also paves the way for educators to engage students in collaborative learning and to develop the concept of digital pedagogies. Digital pedagogies may be the concept that can encompass all: teaching approach, students' attitudes, and desired learning outcomes."

She goes on to say that the framework should also be used to develop new forms of professional development "to promote a better understanding of the synergy between technology and pedagogy." Given its potential impact on teachers, teacher training,

professional development, and student outcomes, claiming that TPACK is an important concept in education may be an understatement.

An Example of How to Incorporate the TPACK Framework in Your Classroom

Now that you know what the TPACK framework is and why it's important, let's look at how it can be applied in the classroom. Below is an example of how you can use your technological, pedagogical content knowledge to enhance a lesson.

Below is an example inspired by [a video by Sophia.org](#).

Your Original Lesson Plan

Imagine you are a 7th grade life sciences teacher. The topic is "cell anatomy." Your objectives are to describe the anatomy of animal cells and explain how the organelles work as a system to carry out the necessary functions of the cell.

The traditional strategies or activities might go as follows:

1. Walk through the cell's anatomy and the basic functions of each organelle, referencing the diagram in the textbook
2. Break the class into small groups. Task each group with labeling their own diagram of cell anatomy and researching a single process to present to the class later on. You may want to choose the process for them to avoid duplicate presentations.
3. Have each group present the cell process they researched to the class.

Got it? Okay. So how might the TPACK framework be used to enhance this lesson?

Applying Technological, Pedagogical Content Knowledge to Your Lesson

As mentioned before, the TPACK framework is based on three primary forms of knowledge. So your first step should be to understand your primary forms of knowledge in the context of this lesson.

- **Content Knowledge (CK)** – what are you teaching and what is your own knowledge of the subject? For this lesson, you'll need a solid understanding of cell anatomy and processes.
- **Pedagogical Knowledge (PK)** – how do your students learn best and what instructional strategies do you need to meet their needs and the requirements of the lesson plan? In this case, you'll need to understand [best practices for teaching middle school science](#) and small group collaboration.

- **Technological Knowledge (TK)** – what digital tools are available to you, which do you know well enough to use, and which would be most appropriate for the lesson at hand? For this lesson, students will need to label a diagram and present, so the ability to fill in blanks with an answer key, find images from the internet, create slides, etc. are important.

Now that you've taken stock of your primary forms of knowledge, focus on where they intersect. While the ultimate goal is to be viewing your lesson and strategy through the lens of TPACK, or the center of the model where all primary forms of knowledge blend together, taking a moment to consider the individual relationships can be helpful.

- **Pedagogical Content Knowledge (PCK)** – understanding the best practices for teaching specific content to your specific students.
- **Technological Content Knowledge (TCK)** – knowing how the digital tools available to you can enhance or transform the content, how it's delivered to students, and how your students can interact with it.
- **Technological Pedagogical Knowledge (TPK)** – understanding how to use your digital tools as a vehicle to the learning outcomes and experiences you want.

Now let's weave all this technological, pedagogical content knowledge (TPACK) together and enhance the activities of our original lesson plan. The ideas below are examples of activities that can be added to the original list. Remember, the goal is to be purposeful in applying each form of knowledge.

1. After walking through the different parts of a cell's anatomy, break your students into small groups and have them collaborate on completing a Check for Understanding quiz via your LMS. Include an interactive question that provides a diagram of a cell with blank labels and requires students to drag and drop the proper labels in place from an answer key (in Schoology's LMS it's called a "**Label Image**" question).
2. Give each group a device with recording capabilities. Have each member of the group choose an organelle to personify, and have them record each other explaining who they are (or which organelle they are) and why they

are important for the cell. Finally, have them upload their videos to a media album so your students can watch each other's videos on their own time and leave comments.

3. Instead of researching a cell process (e.g., cell respiration, energy production, etc.) in one type of cell, have your students compare the process between animal and plant cells and make conclusions regarding the differences they find. Require each group to construct an artifact of their research by creating a one-page brief in Google Drive or Microsoft OneDrive, a flowchart comparison, or a video explanation. This can be turned in via an assignment in your LMS for credit.
4. Armed with their knowledge of cell anatomy, function, and processes, have your students analyze the connections between different animals and plants in their natural habitats. Have each group infer what might happen when one animal or plant is placed in a habitat other than its natural one. Each group should compile evidence to make their case (articles, videos, etc.) using Padlet, Evernote, or other similar tool.

Broad Benefits of the TPACK Framework

You don't have to go all in with TPACK to gain something from it. Whether you apply it to every lesson or revisit it from time to time, this framework can help you think more strategically about how you're using technology in the classroom. Try it. You may be surprised at what your lessons and strategies can become through the meticulously thoughtful lens of the TPACK framework