

**M.Ed. –SEMESTER-II**  
**Paper CC8: EDUCATIONAL TECHNOLOGY AND ICT**

*VANDANA*  
*ASSISTANT PROFESSOR, DEPARTMENT OF EDUCATION*  
*N.A.S COLLEGE, MEERUT*

**Unit-III, Chapter-2**

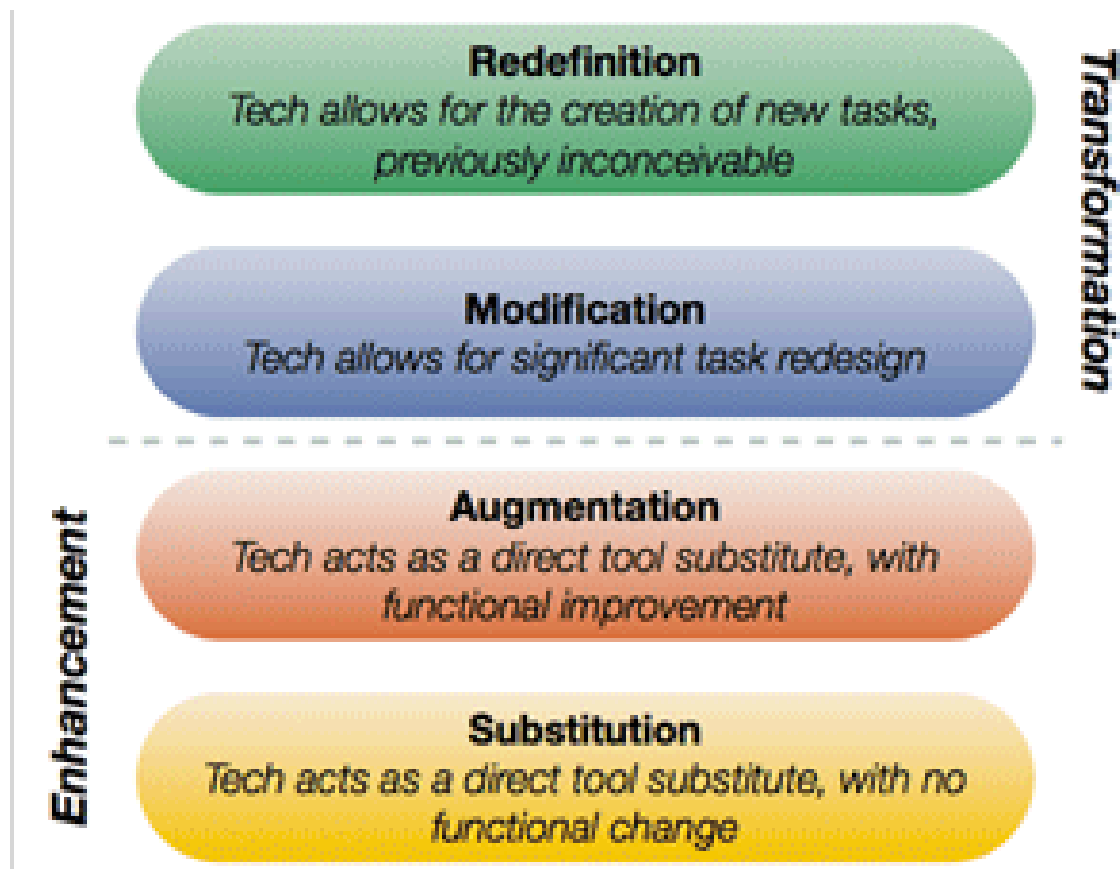
Dear Students,

We will start our chapter-2 of Unit –III, **Technology supported instruction.**

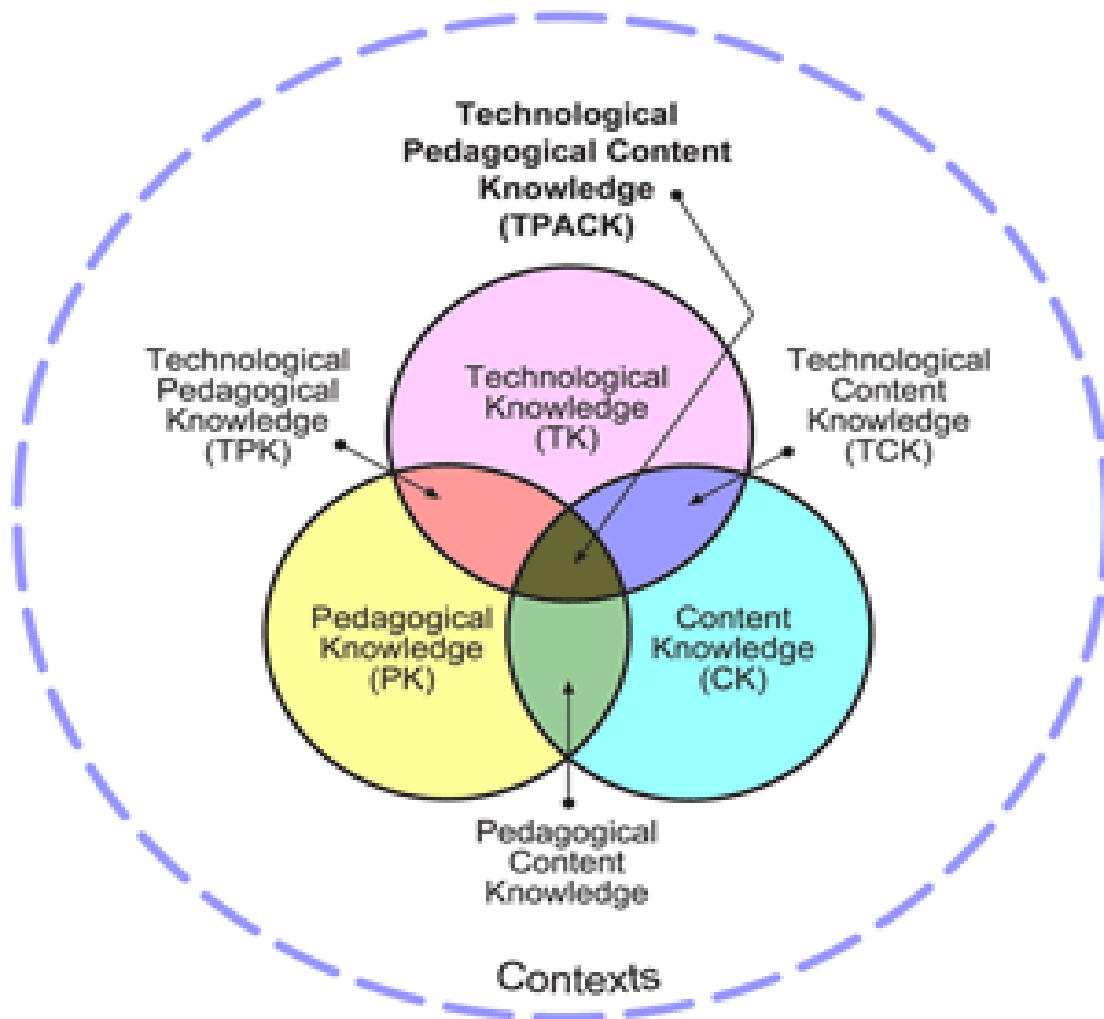
## **Technology Supported Instruction**

### **Frameworks for Technology Integration**

Two commonly used models for technology integration are known as SAMR and TPACK.



The SAMR (Substitution, Augmentation, Modification, and Redefinition) model, created by Dr. Ruben Puentudura, guides the process of reflecting on how we are integrating technology into our classrooms. The ultimate goal of technology integration is to completely redefine how we teach and learn, and to do things that we never could before the technology was in our hands.



The TPACK (Technological Pedagogical Content Knowledge) framework lays out the knowledge that educators need in order to successfully integrate technology into their teaching.

## Levels of Technology Integration

The four levels of classroom technology integration have been observed in schools:

1. **Sparse:** Technology is rarely used or available. Students rarely use technology to complete assignments or projects.
2. **Basic:** Technology is used or available occasionally/often in a lab rather than the classroom. Students are comfortable with one or two tools and sometimes use these tools to create projects that show understanding of content.
3. **Comfortable:** Technology is used in the classroom on a fairly regular basis. Students are comfortable with a variety of tools and often use these tools to create projects that show understanding of content.
4. **Seamless:** Students employ technology daily in the classroom using a variety of tools to complete assignments and create projects that show a deep understanding of content.

Despite the dramatic differences in resources and abilities from classroom to classroom, school to school, and district to district, it's possible to integrate technology tools in ways that can impact engagement and learning for all students.

## How to Integrate Technology

Successful technology integration is more than just getting the tools into the classroom; here are some ideas on how to engage students and enliven your lessons with those tools.

When technology integration in the classroom is seamless and thoughtful, students not only become more engaged, they begin to take more control over their own learning, too. Effective tech integration changes classroom dynamics, encouraging student-centered project-based learning.

Technology integration can successfully occur in any classroom.

The Technology integration requires following steps.

- Getting Started
- Integrating Technology Across the Access Spectrum
- Getting to "Seamless" Integration
- Tips for Shared Hardware
- Creating a Professional-Development Plan
- Hardware and Equipment
- Using Technology for Feedback and Assessment
- The Role of Digital Citizenship

## **Getting Started**

The first step in successful tech integration is recognizing the change that may need to happen inside of yourself and in your approach to teaching. When any teacher brings technology into the classroom, he or she will no longer be the center of attention. The level of refocused attention will, of course, depend on the amount and the type of technology (e.g., mobile device, e-reader, laptop, interactive whiteboard) being brought into the classroom. However, this does not

mean that the teacher is no longer essential to the learning process. While students may be surrounded by technology at home, it is dangerous to assume that they know how to use it for learning -- this is commonly referred to as the "myth of the digital native." Most students still need a guide to help them use digital tools effectively for learning and collaboration.

## **Integrating Technology across the Access Spectrum**

Technology integration depends on the kinds of technology available and how much access one has to technology. Technology integration also depends on who is using the technology. For instance, in a classroom with only an interactive whiteboard and one computer, learning will still remain teacher centered and integration will revolve around teacher needs, which are not necessarily student needs. Still, there are ways to use an interactive whiteboard to make it a tool for your students. Even with one computer in the room, there are ways to integrate that one machine into your classroom and still make sure that you and your students are indeed doing things that you couldn't do before, not just doing the same things you did before in a quicker, more efficient way.

Below you will find a quick overview with suggestions of what kinds of tools and activities are best matched with various levels of technology access. All of the resources linked to, are either free or offer free versions.

### **If your class has an interactive whiteboard and projector**

- Try interactive websites such as [Brain POP](#).
- Dig in to [Scholastic's whiteboard activities page](#).

- Show online videos related to the lessons.
- Explore [virtual math manipulative](#).
- Check out the native software that came with the board.
- Use the videoconferencing tool [Skype](#) to connect beyond the classroom.

**If there is only one computer in your room:**

- All of the above, plus...
- Assign one student to be the class scribe and take notes.
- Start a collaborative class blog.
- Check out the [Skype an Author Network](#) website.
- Try voice thread, a collaborative multimedia conversation tool.
- Let students access review or intervention materials on a rotating schedule.
- Curate resources for students via a [Livebinder](#)
- Build a [Google Site](#) to house class content.
- Encourage skills practice, research, or the creation of collaborative stories using [Google Docs](#).
- Record [Screen casts](#) for providing onscreen instruction.
- Find more [free resources and ideas from Eduptopia blog post](#).

**If you have a pod of three to five computers in the classroom or access to a library with a pod of computers:**

- All of the above, plus...
- Encourage individual student blogging using [Kidblog](#).

- Have students create digital stories using [Voicethread](#).
- Explore student-created multimedia presentations using Microsoft PowerPoint, [LibreOffice](#), [Prezi](#), or [Google Docs](#).
- Use [Edmodo](#), [Schoolgy](#), or [Moodle](#) to manage course content, assignments, and assessments.
- Get the students to create cartoons using [ToonDoo](#).
- Have students make videos using [Windows Movie Maker](#) or [Animoto](#).
- Build websites with students using [Weebly](#) or [Wikispaces](#).

**If you have access to a laptop cart or a computer lab:**

- All of the above, plus...
- Enable students to work through course content at their own pace through the use of screen casts, e-books, and other digital media.
- Use [Poll Everywhere](#) or [Socrative](#) to poll students.
- Start live class discussions with [TodaysMeet](#).
- Explore enhanced digital note taking with [Evernote](#).

**If your students have 1:1 laptops or net books:**

- All of the above, whenever you want, for however long you like (especially if students take their laptops or net books home).

**If you have access to a handful of mobile devices:**

- Have students create videos using the [Animoto](#) app
- Record group discussions using a voice recording app.
- Have students record reading aloud for fluency checks.



- Assign student-created comics using the [Puppet Pals app](#).
- Offer e-books for required readings.
- Upload and access course content using the [Edmodo](#) or [Schoology](#) apps.
- Conduct research.
- Foster skills practice using apps specific to subject area.
- Collaborate using apps like [Whiteboard](#).

### **If your students have 1:1 mobile devices:**

- All of the above, plus...
- Use them as multifunction devices (e.g., e-book readers, calculators, platforms for taking notes).
- Try out a tool like [Nearpod](#) to project information onto student devices.
- Check out mobile apps for student polling from [Poll Everywhere](#) or [Socrative](#)

### **Getting to "Seamless" Integration**

To begin to move your tech integration to the point where it is "seamless," consider these questions:

- What skills are applied to nearly all tools (e.g., saving a file, naming a file, finding a file, and logging in and out of accounts)? Have your students mastered these basic skills?

- How many different tools will you introduce this year? How many is too many?
- How will technology help your students better understand content -- will it push them to a deeper understanding that could not have been achieved without technology?
- What level of integration do you want in your classroom by the end of the school year? What specific steps must you take to achieve that goal? What is a realistic goal based on time and resources?

## **Tips for Shared Hardware**

In schools that are not 1:1, sharing resources can be a huge challenge. Here are some quick tips for sharing resources effectively:

- Hold an introductory session with your students when introducing a new tool.
- Use the tool yourself first before putting your students in front of it.
- Have a plan for collecting student work.
- Communicate with other colleagues that may want to use the resources as well.
- Manage time with the resources wisely. Set goals for work completion with your students.
- Communicate with your administration about how and when you will be using shared technology.

## **Creating a Professional-Development Plan**

Once you have discovered what level of access you have and what possibilities this access affords you, it is time to address your own comfort level with the technology that is in your classroom. This can be achieved through self-assessment and/or the use of a fellow teacher or an instructional coach in your school or district. Once you know your comfort level, then you can begin to build a professional-development plan for yourself. This can be done alone, as part of your "grade team," or as part of your school or district's personal-growth plan. You can also begin to seek out professional-development opportunities online and outside of your district or school to begin to connect with other educators exploring the same challenges and seeking solutions.

It doesn't matter what your comfort level is with technology in your classroom -- without a continuous professional-development plan, you will never be as effective as you can be. Many schools and districts have made the mistake of placing technology into classrooms without a comprehensive plan for training teachers. Often, this technology sits unused or underused. If you are a teacher in a situation where technology has been "thrown" at you with no professional development, be thankful for the new tool(s) that you have at your fingertips -- and then do your best to learn about how they can transform and improve your teaching and have a positive effect on student learning. You can do this either on your own or by asking for help from your colleagues, mentors, or professional learning community.

Unlike many other aspects of teaching, technology changes constantly. Just as in any industry, it is vital that educators stay current with new trends and developments in both pedagogy and new technologies. If

you have a tech-integration specialist at your school, then use this person to your full advantage, as they are the front line for the tools you have or may want to bring into your classroom.

## **Hardware and Equipment**

While hardware and software vary across classrooms, schools, and districts, one thing can be guaranteed across the board: technology, no matter what kind it is, will fail.

This inevitable part of tech integration is often the number-one fear of classroom teachers everywhere. Whether you are taking the steps to integrate technology into your classroom on your own or as part of a school wide or district initiative, this fear must be the first hurdle to overcome.

### **Here are some basic tips for when technology goes away**

- Have a nontechnology backup plan.
- Just as we always tell our students that failure is OK, we learn from failure, and that failure is part of the learning process, so must we, as adults, follow our own advice.
- Model troubleshooting with your students.
- Report the problem (and know to whom this reporting should be done).
- Ask for help. Have someone who knows how to fix the problem show you how for next time.

## Using Technology for Feedback and Assessment

One of the most exciting aspects of bringing technology into your classroom -- and into your students' hands -- is the enhanced opportunity for timely and meaningful feedback.

*Quick Checks:* If you want to know if your students grasp enough of a particular concept before you move on, you can use tools such as [Poll Everywhere](#), [Socrative](#), or [Mentimeter](#) to get a quick snapshot of the class. By creating a short quiz or open-ended response question using one of these tools and having your students use an internet-enabled device to answer, you can get quick and easy feedback that will help inform your instruction.

*Personalized Feedback:* Through the use of course-management tools such as [Edmodo](#), [Schoolology](#), or [Moodle](#), it is now possible for teachers to provide personalized feedback quickly and efficiently to their students. All three tools provide the ability for teachers to leave personalized comments and notes on student work, and they provide a messaging service for students who may want to send emails with questions or concerns about the course.

Screencasts can also provide personalized feedback on student work. A teacher can record his or her computer screen while viewing student work, pointing out areas for improvement and areas where a student has excelled. Some great tools for this are [ScreenCast-O-Matic](#) and [Jing](#).

In addition, [Evernote](#) is a powerful note-taking tool that can be accessed through any Internet-enabled device through a web browser or the mobile app. It allows users to record audio notes, and it can be a great way to provide personalized feedback to students. Teachers can share these recordings, which are embedded in notes created through

the app or website, with students through email. This can be a great way to keep students updated on their progress or to provide feedback on a particular assignment asynchronously. Because the feedback is recorded, students can also rewind and relisten for better comprehension or to refer back to if they like.

*Please note, all of these kinds of tools require that students have access to Internet-enabled devices on a regular basis and that they hand in their work digitally.*

## **The Role of Digital Citizenship**

Our students are constantly immersed in technology, yet that does not mean that they know how to use it for learning. We also cannot assume that they know how to use it responsibly either. Just as we teach our children how to handle bullies on the playground, or as we admonish a student for copying someone's work and handing it in as his or her own, we must take the time to explicitly teach about cyber bullying, copyright, plagiarism, digital footprint, and proper conduct online.

Of course, what we teach and how we teach it depend on grade level. We probably wouldn't teach first graders about the nitty-gritty details of copyright law, but we might teach them what kinds of information are safe or unsafe to share online. Likewise, while we may quickly review safe and unsafe information with high school students, we are more likely to focus on digital footprint and plagiarism.

It is worth your time to spend some time early in the year setting expectations for online conduct, use of information found online, and staying safe when using digital tools. For more on teaching digital citizenship, you can visit [BrainPOP](#), [Common Sense Media](#), or Edutopia's [Digital Citizenship Resource Roundup](#).

Since it's clear that tech integration is here to stay, it is not a question of whether teachers integrate technology into their classrooms, but rather how to do it best. By taking small steps, teachers can begin to reap the benefits that technology can bring to their teaching and to student learning. This process does not have to be painful, and no one will become a tech-integration whiz overnight. However, even with limited access, with careful planning, some risk taking, and an open mind, teachers can successfully use technology to enhance their teaching and bring learning to life for their students.

## **Benefits of Technology Integration in the Education Sphere**

The future of the educational system is practically determined by the development of technology. Some educators and experts are against the trends of implementing EdTech tools and apps in every single aspect of the schooling system, mainly because technology is a source of distraction for students. However, proper technology integration guides students towards greater understanding of all concepts covered in class.

## **Advantages of Technology Integration in the Education Sphere**

The teaching strategies based on educational technology can be described as ethical practices that facilitate the students' learning and boost their capacity, productivity, and performance. Technology integration in education inspires positive changes in teaching methods on an international level

## **1. Technology makes teaching easy**

Aren't you tired of giving theoretical explanations your students cannot understand? You simply cannot discover a way of presenting tough concepts that makes the concept clear for each and every student in the class. Technology has that power! Thanks to audio-visual presentations, your students will understand exactly how the knowledge is applied in practice. You can use projectors and computer presentations to deliver any type of lesson or instruction and improve the level of comprehension within the class.

## **2. Technology helps you track students' progress**

You are no longer limited to a plain-old diary and notes about every student. That would only get you confused. Today, you can rely on platforms and tools that enable you to keep track of the individual achievements of your students. [MyStudentsProgress](#) and [theTeacherCloud Progress Tracker](#) are great online tools that enable you to do that, but your school can also develop personalized software that would serve that purpose.

## **3. Educational technology is good to the environment**

Can you imagine the amount of paper and number of trees that would be saved if every school decided to introduce digital textbooks? Of course, that goal is far from realistic at this point, but you can make a change when you start from your own class. For example, you can instruct your students to take online tests and submit their papers and homework through email. You can also encourage them to use eReaders to go through the literature you assign.

## **4. Thanks to technology, students enjoy learning**



Students are addicted to Facebook, Pinterest, Instagram, Digg, and other websites from a very early age. The internet can distract them from the learning process, but you can also use their inclination to spend time online for a good purpose. Making learning enjoyable. Use touch-screen technology and online presentations to make the classes more interactive. You can also rely on technology when you want your students to take part in discussions. Set up a private Facebook group for your class and inspire constructive conversations!

### **5. Technology makes distance learning more accessible than ever**

Without the wonders of the internet, people wouldn't be able to get access to any type of information at the very moment they think of it. Today, distance learning is one of the most trending learning methods. Virtual lessons are slowly taking the place of traditional lectures.

Students can organize their time in a way that works for them, and they can easily gain the knowledge they are interested in. For example, let's say one of your students shows great interest in Astronomy, but the traditional curriculum does nothing to feed that hunger for knowledge. You can recommend him/her to take beginner's course at [Coursera](#), [Udemy](#), or any other online service that offers high-quality virtual lectures.

### **6. Students and teachers can access information at any time**

This is possibly the most obvious benefit of technology. When old-school teachers were students, they had to spend hours in the library looking for the information they needed. Today, technology integration makes everything different and simpler. Students can easily access newspapers, scientific articles, studies, and any other type of content online. They can write better, deeper academic papers because they can support their arguments with more evidence. When you give a

lecture the students don't understand, they can find simpler instructions and information with a single Google search.

## **7. Technology makes collaboration more effective**

Think about the way collaboration looks like in a traditional classroom setting. You organize groups, assign the projects, and suddenly the class becomes a complete mess. Some students express their opinions too loudly and firmly, while others don't get an opportunity to be heard. Online tools and apps offer a unique setting for students to engage in a group project. They can do the work from home; the team is connected through the Internet and everyone is inspired by the focused environment.

### **Don't Underestimate the Power of Technology**

You stand no chance of being called "the cool teacher" if you keep neglecting the use of educational technology in the classroom. The benefits of technology integration described above should convince you of the fact that this form education is great for both students and teachers.

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