

# TECHNO- PEDAGOGICAL MODALITIES IN TEACHING -LEARNING

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## Abstract

*The present 21<sup>st</sup> century is undergoing a revolutionary change where technology has intervened in all walks of life..With the technologically advanced world ,the teacher should also keep pace and aware of the new technologies and the way to integrate them in education so as to enhance learning in their students,Teachers of all levels of education should be able to incorporate new techno-pedagogies and impart their lessons. TPACK consists of seven different areas (1) Content Knowledge(CK) (ii)Pedagogical Knowledge (PK) (iii) Technology Knowledge (TK)(iv) Pedagogical Content Knowledge(PCK) (v) Technological Content Knowledge (TCK)(vi)Technological Pedagogical Knowledge (TPK) (vii) Technological Pedagogical Content Knowledge(TPCK. Modalities such as multimedia learning, smartphones,PDA,googledocs,livetext,edmodo,\grammarly,mindomo,shoodle,lams,pinterest,skype,tablets and podcasts etc are used for teaching-learning*

**Key words:** Techno -pedagogy, multimedia learning, Technology knowledge,Tecnological pedagogical content knowledge

## Introduction

The present 21<sup>st</sup> century is undergoing a revolutionary change where technology has intervened in all walks of life to be social,economic,political or cultural.Edcation is no exemption to be adversely affected by the intervention of technology and it has also seen many appropriate changes that has brought a totally new look to the concept of education in the modern times.With the technologically advanced world ,the teacher should also keep pace and aware of the new technologies and the way to integrate them in education so as to enhance learning in their students which is the major aim of education,Teachers of all levels of education should be able to incorporate new technologies and impart their lessons through latest trends that will affect the learners to a great extent.

There is the age of knowledge management where teacher is not only a person or medium to transfer knowledge but teacher act as a manager to manage properly his content by integrating new technologies in his pedagogy.Management include all the aspects from planning to communicate and to executing the same concept in a better manner and with a new style every time.

Technology has become an integral part of our life and teaching-learning patterns of 21<sup>st</sup> century. It is the medium of daily activities and power of modern societies. Today's classroom require teachers to educate students varying abilities and many more characteristics. To meet these challenge, teachers must employ not only theoretically sound but also culturally relevant pedagogy. The value of technology in teaching is its ability to meet better the newly emerging educational needs of an information society, and to improve the quality of learning. The Internet, blogs, smart phones, tablets replace our textbooks and used to grow our integrating techno-pedagogical learning has a long history of challenges but it has become the strong basement to achieve success in learners. The roles of teachers have changed and continue to change from that of instructors, facilitators and creators of learning environment. Teachers are learning how to teach with emerging technology to shape how they learn. Ed-tech in the classroom prepares students for their future and set them for this increasing digital economy classroom.

Techno-pedagogy is becoming increasingly important for the development of the knowledge society. Literally pedagogy refers to the art of science of teaching and techno refers to the art skill in handicrafting. Pedagogy involves being able to convey knowledge and skills in ways that students can understand, remember and apply. Pedagogy is a system of theory, practice and training that supports the development of the whole child and is capable to enhance the life skills of them in an appreciative manner. Innovative techno-pedagogy as a science and practice has a responsibility to prepare citizens to the knowledge society who is able to be creative, face changes, manage and analyse information and work with knowledge. Techno-pedagogy refers to weaving the techniques of the craft of teaching into the learning environment itself.

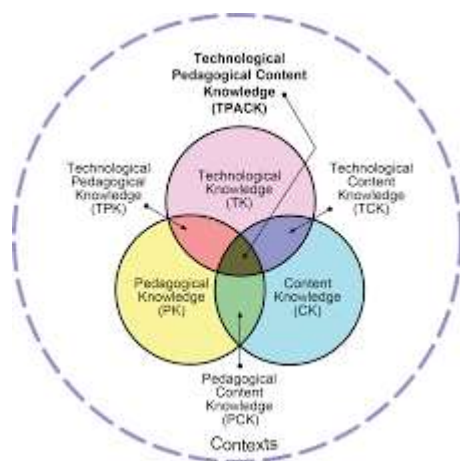
In techno-pedagogy, there are three areas of knowledge, namely: content, pedagogy, and technology. Content is the subject matter that is to be taught. practices, processes, strategies, procedures and methods of teaching and learning. It also include knowledge about the aims of instruction, assessment, and student learning. These three knowledge bases content, pedagogy and technology form the core of the TPACK (Technological Pedagogical And Content Knowledge)

### **The TPACK Framework**

The Framework to understand and describe the kinds of knowledge needed by a teacher for effective pedagogical practice in a technology enhanced learning environment. The idea of pedagogical content knowledge (PCK) was first described by Lee Shulman in 1986 and TPACK build on those core ideas through the inclusion of technology

The TPACK Framework argues that effective technology integration for teaching specific content or subject matter requires understanding and negotiating the relationships between these three

components: Technology, pedagogy and content. The TPACK Framework highlights complex relationships that exist between content, pedagogy and technology knowledge areas and may be a useful organizational structure for defining what it is that teachers need to know to integrate technology effectively. (Archambault & Crippen-2009)



### TPACK Knowledge Areas

TPACK consists of seven different areas (1) Content Knowledge (CK) (ii) Pedagogical Knowledge (PK) (iii) Technology Knowledge (TK) (iv) Pedagogical Content Knowledge (PCK) (v) Technological Content Knowledge (TCK) (vi) Technological Pedagogical Knowledge (TPK) (vii) Technological Pedagogical Content Knowledge (TPCK). All of these knowledge areas are considered within a particular contextual frame work

#### **Content Knowledge (CK)**

Content Knowledge is teacher's knowledge about the subject matter to be learned or taught. Content knowledge may be defined as "a thorough grounding in college-level subject matter" or "command of the subject" (American Council on Education, 1999)

As Shullman (1986), noted this knowledge would include knowledge of theories, conceptual framework as well as knowledge about accepted ways of developing knowledge

**Pedagogical Knowledge (PK)** Pedagogical Knowledge (PK) is teacher's deep knowledge about the processes and practices or methods of teaching and learning. They encompass among other things, overall educational purposes, values and aims. This generic form of knowledge applies to understanding how students learn, general classroom management skills, lesson planning, and student assessment. It includes knowledge about techniques or methods used in the classroom;

#### **Technology Knowledge (TK)**

Technology Knowledge refers to an understanding of the way that technologies are used in a specific content domain. Technology knowledge demands a deeper understanding and mastery of information technology for information processing, communication and problem solving that go beyond the traditional computer literacy. Within the context of technology integration in schools, it appears to most often refer to technologies such as laptops, the Internet, and Software applications

### **Pedagogical Content Knowledge(PCK)**

Pedagogical content knowledge is knowledge about how to combine pedagogy and content effectively (Shullman 1986) This is how to make a subject understandable to learners. According to Shullman, PCK includes "analogies, illustrations, examples, explanations and demonstration-in a word the way of representing and formulating the subject that make it comprehensible to others---

### **Technological Content Knowledge(TCK)**

Technological Content Knowledge refers to knowledge about how technology may be used to provide new ways of teaching content. (Niess, 2005) For example, digital animation makes it possible for students to conceptualize how electrons are shared between atoms when chemical compounds are formed. Teachers need to understand which specific technologies are best suited for addressing the subject matter

### **Technological Pedagogical Knowledge(TPK)**

Technological Pedagogical Knowledge refers to the understanding of teaching and learning can change when particular technologies are used in particular ways. It indicates how a particular technology for example, LCD projector helps in retention, sustaining interest and understanding. It is the understanding of how a particular technology is helpful in transacting content. Also it is identifying the limitations of the technology in a particular context. In short, it is the effective utilization of technology in a given context.

### **Technological Pedagogical Content Knowledge(TPCK)**

Technological Pedagogical Content Knowledge refers to the knowledge and understanding of the interplay between Content Knowledge, Pedagogical Knowledge and Technological knowledge when using technology for teaching and learning (Schmidt, Thomson, Koehler, Shin & Mishra, 2009) It includes an understanding of the complexity of relationships between students, teachers, content, practices and technologies (Archambault & Crippen 2009) Technological Pedagogical Content Knowledge (TPACK) attempts to identify the nature of knowledge required by teachers for technology integration in their teaching, while addressing the complex, multifaceted and situated nature of teacher knowledge

## Modalities

**Multimedia Learning:** Multimedia is the combination of various digital media types such as text, images, audio and video, into an integrated multi-sensory interactive application or presentation to convey information to an audience. It will help the teacher to represent in a more meaningful way, using different media elements. These media elements can be converted into digital form, modified and customised for presentation.

**Smart Phones:** A smart phone is a mobile phone with an advanced mobile operating system which combines features of a personal computer operating system with other features useful for mobile or handheld use. They typically combine the features of a cell phone with those of other popular mobile devices, such as personal digital assistant (PDA), media player and GPS navigation unit. Most smart phones can access the Internet and a touch screen user interface run different apps, music players and cameras.

**PDA (Personal Digital Assistant):** is a combination of hardware, operating system and application programs. Students use their PDA very differently from how they use their PCs. Desktop systems require a long boot-up time and applications in desktop are typically used for long periods and again, users accept waiting for an application to start up. The device must respond quickly.

**Google Docs:** Google has managed to replicate Excel, Word, and PowerPoint with Google spreadsheets, Docs and Presentations, respectively. One can upload, create and store all these files online, and then download them on your hard drive or share your work with others online. Google surrounds these tools with their famous search application, access online books, and a scholar search for online documents. These tools for teaching are virtually endless.

**LiveText:** Live Text is a Web delivered subscription service for teachers, featuring, collaborative lesson building activities. Simple and easy to use. Live Text uses lesson planning as a focus for engaging the educational community.

**Edmodo** Edmodo is: extremely similar to Twitter, except specifically designed for educators. Edmodo facilitates collaboration and content sharing among students, teachers, and school districts.

**Grammarly:** Grammarly is a tool used as a grammar checker used in several universities. Students can use this as a method to improve the process of peer editing because it checks for more than 250 points of grammar.

**Mindomo:** Mindmapping is a highly productive method of visual brainstorming that you can use to plan projects or to map out a knowledge base. Mindmapping applications such as Freemind, maps are shareable but require you to register and login to save them.

**Sloodle:** Sloodle is an open source project that aims to develop and share useful, usable, desirable tools for supporting education in virtual worlds, making teaching easier. If one has enough technical support, and own server, one can download the Sloodle source code and install it on Moodle environment.

**Lams ;** Learning Activity Management System provides teachers with a highly intuitive visual authoring environment for creating sequences of learning activities. These activities can include a range of individual tasks, small group work, and whole class activities based on both content and collaboration.

**Pinterest:** Teachers can organise and share anything from lesson plans, ideas and crafts using a virtual bulletin board. Teachers can also use this tool to network with other educators.

**Skype** Teachers can collaborate on classroom projects while having their students visit a classroom in another part of the world.

**Online collaboration tools :** Google Apps, allow students and instructors to share documents online, edit them in real time and project them on a screen. This gives students a collaborative platform in which to brainstorm ideas and document their work using text and images

**Presentation Software:** Powerpoint enable instructors to enable high-resolution photographs, diagrams, videos and sound files to augment text and verbal lecture content.

**Tablets:** Teaching with tablet computers can be linked to computers, projectors and the students can communicate through text drawing and diagrams

**Clickers and smart phones:** Classroom response systems are a quick and easy way to survey students during class. This is great use for instant polling, which can quickly assess student's understanding and help instructors adjust pace and content. It can encourage student engagement by using electronic devices that allow to record their answers to multiple choice questions and allow to instantly display the results.

**Lecture Capture tools: Panopto** allow instructors to record lectures directly from their computer, without elaborate or additional classroom equipment.

**Podcasts:** Podcasting and website allow students to learn and participate in discussion even when they miss classes due to sickness. Podcast enable students to access the information any time they want.

**Flipping the classroom:** The flipped classroom is a pedagogical model in which the typical lecture and homework elements of courses are reversed. Flipping have to use tools such as short video lectures, podcasts, online quizzes and the like can help in and out of class activity work

together. These resources explain the theory underlying this teaching method and provide practical suggestions for making it work

### Conclusion

Techno-pedagogy occupies a very significant position in higher education in a technologically developed era. The technology in the classroom is becoming more and more predominant, students prefer techno-pedagogy because they believe that learning becomes more interesting and can develop creative thinking and problem-solving abilities. Teachers being in the forefront of the society have special duties and responsibilities. They being the creative heads of the society need to learn and imbibe newer technology and pedagogical modalities and integrate them in classroom teaching. The new trends in education require well-equipped technologically trained teachers and learners to meet the challenges of the future educational world.

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