

Information Communication and Technology Tools Integration in Higher Education

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Abstract - Now a day's Information and Communication Technology (ICT) has become a vast subject and ICT is learned and teach at mostly in all areas. ICT tools for learning are very effectively in educational institutions. ICT tools reduce manual work of teacher, consume less time and less effort. This paper represents tools of ICT used in education and getting information by using their tools. Define a process by using simple ICT tools on daily basis no any extra charge and effort utilized. Everyone has a internet facility to used and take help of ICT tools to use them. Administrators and other faculty members have been well appreciated and accepted.

Keywords - *Information and communication Technology (ICT), Teaching learning Tool (TLT), administration, Faculty members.*

I. INTRODUCTION

Information communication is a way to convey proper information by using different application on daily basis, today's communities mostly rely on digital reliance. Mostly digital reliance used in educational institutes. Teachers prepare lecture on PowerPoint, make notes on Ms Office. ICT tools present all kind of attributes to use and less consume of time. Some Challenges are faced by in educational institutes just like knowledge base of students, teachers and administration. Teaching and learning tools are available less number of ratio. Now ICT tools improve the functional result according to educational system[1].

Feature of classrooms, i.e., teaching, learning, assessment, student data management, library services, multimedia, student online attendance and Board etc. these features are integrated in Information communication technology. The major of education is ICT and ICT is

widely used in every department to teach and learn easily through ICT application and also work on it. Currently, ICT plays an important role in education for teaching and learning of different kinds of applications, those applications provide information in easy way without time consuming and effort[1]. Administrators install the software on systems, configure and support the institutions on (LAN) Local area Network, Wide area Network, and Internet. Maintain the hardware and software networks. Examine the network availability to user systems and performed task or not. Find out problems in systems used by faculty and students, Maintain backup of data and recovery operations, Recover the error from administrator system and application software, protect data from unauthorized access, Design, configure and test computer hardware, networking software and operating system software, Find out issues from hardware and software related changes. To convey information between by using different sources [1].

Figure 1 shows the role of ICT application in various aspects of educational fields for learning, teaching, management, administration and major components of ICT which are: Processing, Collaborating, Creating, Storing, Transmitting, Retrieving and Displaying etc., those components are divided into sub components.

Pedagogical contents is depends upon the four sub contents which are pedagogical knowledge, subject area knowledge, knowledge of environmental context and knowledge of students as shown in figure 2. From the above pedagogical contents analysed that teacher should follow and modify their experience.

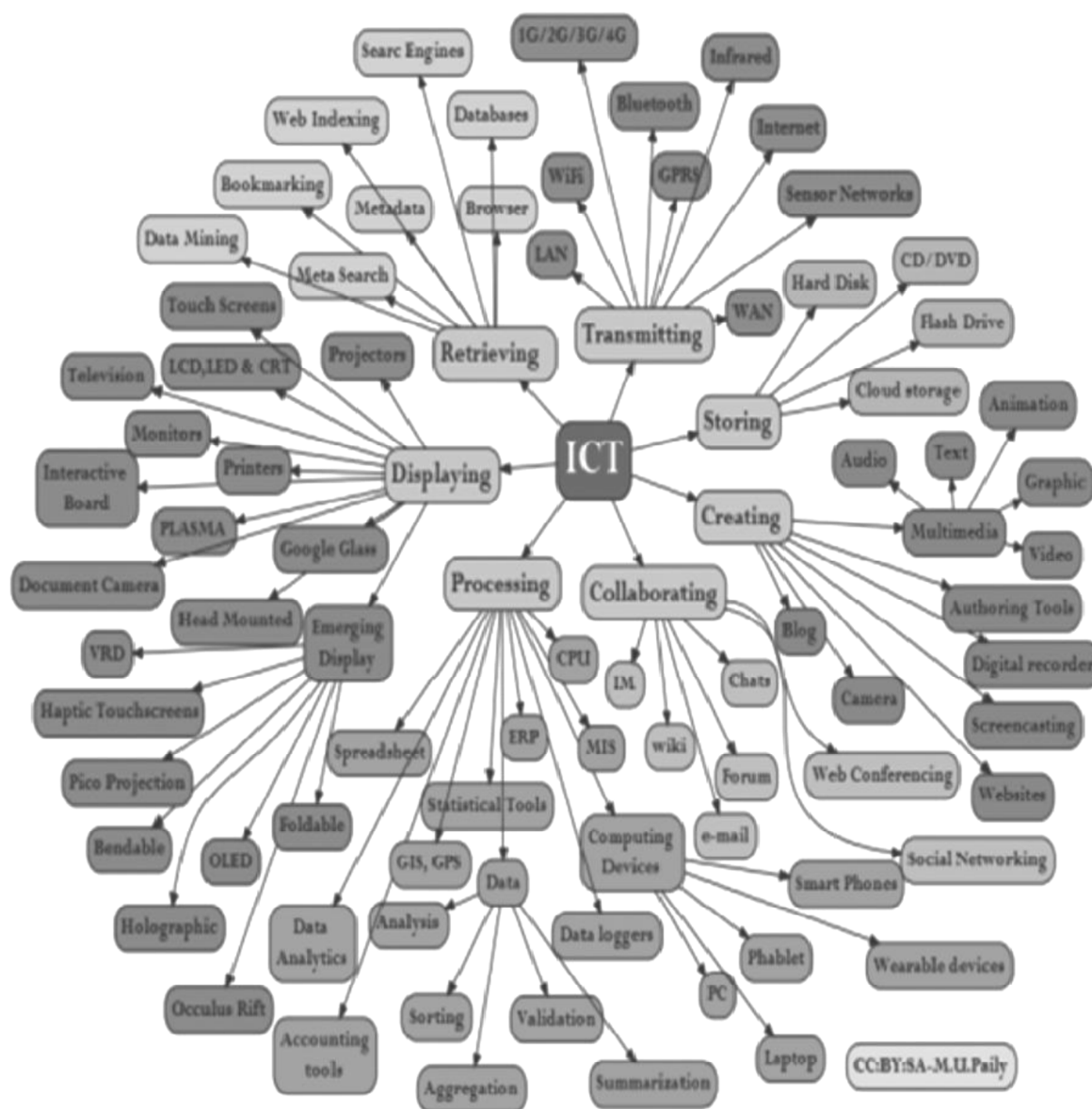


Figure 1: Graphical representation of ICT [1]

Figure 2 shows TPCK as a theoretically pedagogical content knowledge describe as five components namely: Pedagogical content knowing, Pedagogical knowledge, Subject Area knowledge, Knowledge of Environmental

context and Knowledge of Students[5]. Basically, a teacher must be able to know:

1. Should know about topics of ICT and tools. These topics may include overall concept of topic and where it is used and how it works. Define whole body of topic.
2. Topic should represent interactive in the form of presentation (must include figures, graphs, textual form and so on)
3. Exploring and representing the idea from virtual world means testing hypotheses, simulation complex decision making modelling, long distance communication with teachers, students and experts. Communicating and getting feedback with each other.
4. To select appropriate tools to support above points.
5. In computer activity with learners in classroom and lab by using different approaches to take interest learner and easily learn with concentration and also give positive feedback.

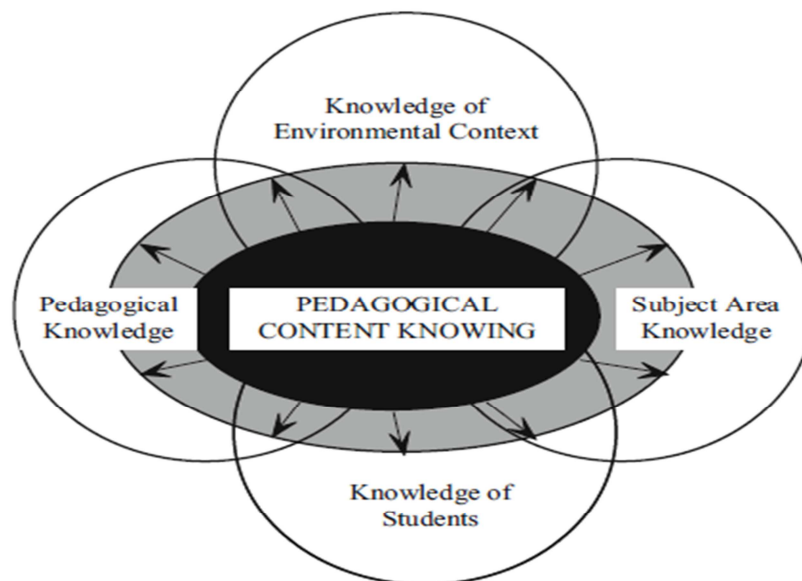


Figure 2: Conceptual of education field [5]

II. THEORETICAL MODEL OF TEACHERS IN ICT

The model shown in figure 3 has five stage models which are: Technical affordance existence, Technical Affordance perception, Pedagogical Affordances perception, Pedagogical affordance Actualization and Pedagogical Affordance Effect/ Effect on learning. First two stages for teachers to become familiar with technical features and

technical affordances of tools. Third stage shows how to use technical affordance tools, this stage is very challenging because it needs a lot of effort. Fourth and Fifth stages also used in teachers training (Pre training and professional training). The model can be implemented in both pre-service teacher education and in service education teacher professional development program [5].

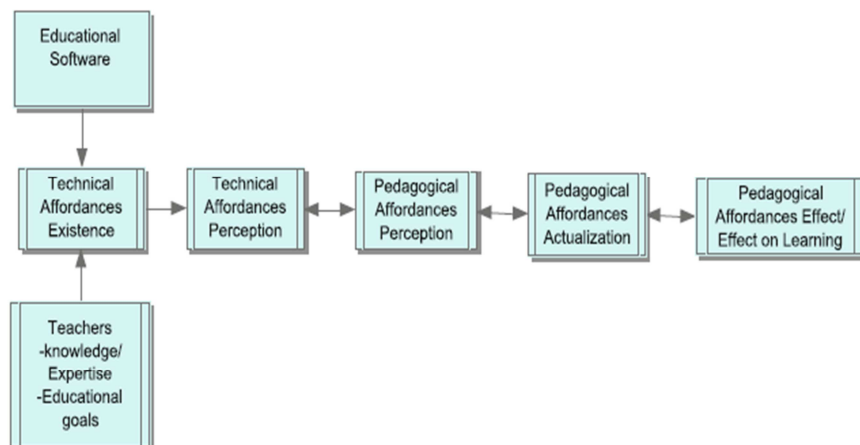


Figure 3: A Theoretical Model of Teachers' ICT [5]

Part A figure shows five major components which are: ICT, Pedagogy, Contents, Context, Learners. ICT involves information and communication technology it is a most important components in education to enhance the knowledge of teachers and students to deliver the information with each other now ICT lead in worldwide to improved students learning and provide better teaching methods. Learning components depends on pedagogy it means pedagogy provides different approaches for teachers to use in class room. Contents word refers to the information. Context components refer to the educational

platform may include physical objects just like class room, buildings, boards and stationeries all these things affect on education. Part B figure shows six components which are: Technological pedagogical content knowledge (TPACK), Technological pedagogical knowledge (TPK), Technological Content Knowledge (TCK), Technological Knowledge(TK), Pedagogical Knowledge(PK), Content Knowledge (CK). Both Part A and Part B model work on Theoretical Framework[5].

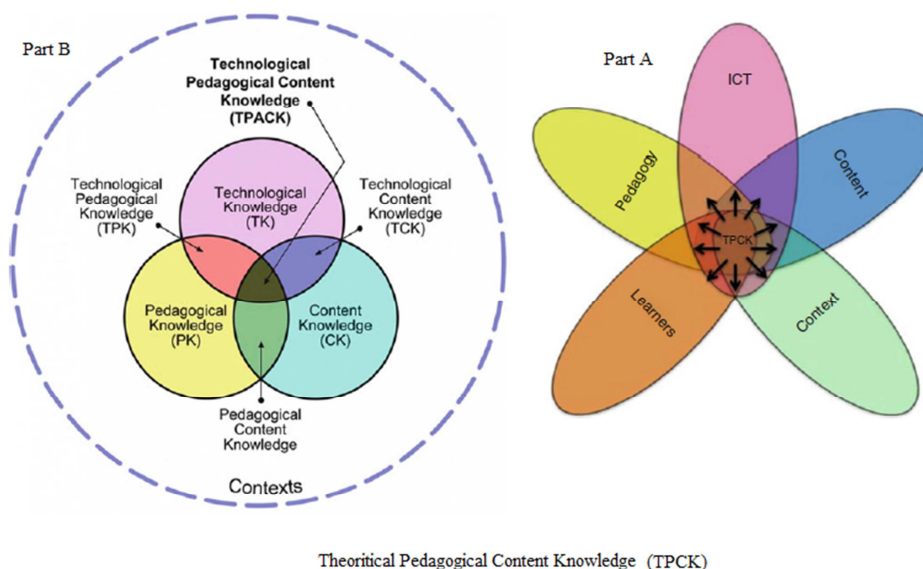


Figure 4: TPCK framework [5]

III. ICT TOOLS USES IN EDUCATION

A) WhatsApp

WhatsApp has been an important source of medium for communication since last few years. In this context it has greater part of the communication in regular life. WhatsApp became just as gathering point where group of peoples can share and exchange information without having delay. It is important to know that WhatsApp became one of the most popular app for the communication due its ease of usage and very simple and reliable Graphical user interface. WhatsApp has number of features and ease of usage given below[1].

- **Ease of usage:**

WhatsApp provide ease of usage for user due to simple GUI. The common user who is not well aware of the computing and technology usage WhatsApp provide easy access of the communication. In this regard due to android application familiarity and easy usage made remarkable communication platform for the user of every community[2].

- **Dark Mode:**

WhatsApp Dark Mode is new feature which introduced in 2019 for the WhatsApp users. It became easier look over eyes and the GUI is also attractive for the common user. The battery usage is also saves using different attractive look having OLED (organic light emitting diode) display[2].

- **3D Touch:**

WhatsApp has also feature of 3D touch with just perform different operations without having any difficulty.

- **WhatsApp finger print authentication:**

The authentication is very crucial part of the android mobile in these days due unethical and uncontrolled activation of the application. WhatsApp has very effective authentication process with just follows finger prints which very secure and reliable security[1].

- **Consecutive voice messages:**

The audio and video call messages are also important part of the WhatsApp. This provides very soft and clear audio clips recording for the understanding of the voice context. This also led to the educational institutes to perform different[1].

B) Email

Email (electronic mail service) used to interchange information without any barriers, email also give platform to exchange document and non textual message with each other. Send letter group of users at a time[1][2].

C) Free Online Forms:

The easiest way to take information from students, staff, parents and any kind of users. A huge number of forms are available for jobs, admission forms, tenders and so on. Lot of information available for online forms. Users are share to URLS with each other and used for different purposes[1].

D) Academic Calender

Online academic calender is place of information and provide table of text for students, Faculty and staff. Available information about whole year , events , Holidays Term start date, end date, Sessional test, assignment, presentation, Examination date, and departmental activities[1][5].

E) Multimedia

Multimedia is the use of text, audio, graphics, video, animation and interactivity in a coherent manner. This has become integrated in all aspects of one's life and has been widely used in the education sector. The different ways one can use it are -individualized instruction, collaborative learning, computerized assessments and presentations. There are several "simple to use" tools to create powerful presentations to be used in classrooms. Students can also be given assignment to create such presentation which improves their creativity and skills to use tools[5].

F) Online Courses

Online courses is the way to continue your study without any barriers this study is also called distance education or online learning. Students can take class easily without consuming time and energy at any place. Online courses are convey through internet. Usual the formal classroom pedagogy and techniques (including discussions, group work, lab task) are maintain by online components those components uses in contents during deliver the lecture. All activities are done online such as; assignment, learning activities, practical work on tools how to use and get output[5].

G) Social Media

Social media give students, teachers, staff and any kind of user used official pages on social media and gets information time to time, also provide opportunities for

users to get information about job. For programming courses, students can be asked to post the screen shot of their program output in WhatsApp group, which can easily get by teacher or class group or any announcement and give response within time[5].

H) Application software

Those tools are utilize in ICT on daily basis to complete the lecture notes, assignment, presentation and searching for different purpose[2].



Figure 5: Application Software [11]

IV. CONCLUSION & FUTURE WORK

The uses of ICT tools are an higher institute at the present stage attractive and necessary for those tools to achievement of an education institute. The understanding and knowledge of a variety of ICT tools and their uses are discussed. This offer as much as necessary information for any learner individual to compose a start to utilize them in management and coursework. The only one of its kind to effortlessness and convenience with which all tools presented in the paper can easily be accepted in need of attention without consuming any extra cost. The utilization of these tools have outcomes in significant and lot of improvements in education, Teaching process and administration side. Information Communication Technology tools are used in higher institute such as; laptops, desktops computer, projector, Applications programs etc. These tools are more useful in present and future for teaching, learning and practical work[1].

ABBREVIATION

ICT	=	Introduction Communication and Technology
OLED	=	Organic Light Emitting Diode
TPACK	=	Technological pedagogical knowledge

TPK	=	Technological	Content
Knowledge			
TK	=	Technological Knowledge	
PK	=	Pedagogical Knowledge	
CK	=	Content Knowledge	

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