

# **The use of ICT in Education:** *a comparison of traditional pedagogy and emerging pedagogy enabled by ICT's*

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## **Abstract**

*Improving excellence in education is a critical issue; mainly at this time of everything is becoming globalized. The traditional pedagogy approach to teaching and learning, as ancient as formal teaching itself, involves the directed flow of information from teacher as sage to student as container. This method is characteristically based on pre-packaged learning materials, fixed deadlines, assessment tasks and criteria are defined by teachers. But research has shown that the appropriate use of ICTs can catalyze the paradigmatic shift in both content and pedagogy that is the heart of education reform in the 21<sup>st</sup> century and promote problem based learning. This paper gives an overview of the traditional ways of teaching and some of its limitations; also discussed the emerging ways of teaching enabled by the use of Information Communication Technology (ICTs), furthermore organizes a variety of approaches found in ICTs uses in Education.*

**Keywords:** ICT's, traditional pedagogy, pedagogy enabled by ICT's, learned-centered

## **1. Introduction**

Education is an engine for the development and improvement of any society. It does not just impart knowledge and skills, but it is also responsible for building human capital which breeds, drives and sets technological innovation and economic growth (*Innovative Methods of Teaching, Dr. Damodharan V. S. ACCA, AICWA and Mr. Rengarajan.V AICWA*). The strategy behind our teaching methodology and the focus of our teaching is called pedagogy. Pedagogy is also about learning; one cannot teach without being a learner. To be able to comprehend what is involved in the process of being a learner is part of pedagogy.

Today, in the 21<sup>st</sup> century understanding is more important than ever. That is why it is vital for educators to use methods or techniques in teaching that will enable learners to use their knowledge efficiently to solve problem in their daily lives. In this paper we compared two techniques that are used in education for teaching and learning; we discussed their effectiveness approach, innovation, we also identified the limitation and significance of each pedagogy for quality teaching and success in the process of teaching and learning in 21<sup>st</sup> century.

## **2. What is Traditional Pedagogy?**

Before starting to explain what traditional pedagogy is, it will be important to define the term pedagogy itself. Pedagogy is the technique we use to teach, the

approaches behind our teaching and the centre of our teaching. When we talk about teaching and learning outcomes, there are techniques that must be applied in order to reach those outcomes. The pedagogy used in teaching and learning will determine the type of students that will be produced in the institutions. Pedagogy is also about learning; which means one cannot teach without being a learner. To be able to understand what is involved in the process of being a learner is part of pedagogy.

When we talk about traditional pedagogy approach to teaching and learning, as ancient as formal, it involves the directed flow of information from teacher as sage to student as receiver. The traditional pedagogy can be also defined as a pre-technology education context in which the teacher is the sender or the source, the educational material is the information or message, and the student is the receiver of the information. Typically it is based on pre-packaged learning materials, fixed deadlines, assessment tasks and criteria determined by teachers. In terms of the delivery medium, the educator can deliver the message via the "chalk-and- talk, marker-and-white board" method and overhead projector (OHP) transparencies (*Innovative Methods of Teaching, Dr. Damodharan V. S. ACCA, AICWA and Mr. Rengarajan.V AICWA*). The method has its foundations embedded in the behavioral learning perspective (*Skinner, 1938*) and it is a fashionable practice, which has been used for decades as an educational approach in all institutions of teaching and learning. In this type of teaching methods the teacher as the monopoly of prescribing the activities, students are

there only to listen and follow what is asked for them to do in the classroom. The learners depend on the teacher who directs what, when, how a subject is learned and tests what has been learned. In this method the learner's skill, knowledge and practice is of little value. Therefore teaching methods are educational and people learn what society expects from them. So the curriculum is homogeneous. It has been found by many teachers and students in most institutions that the conventional lecture approach (traditional pedagogy) in classroom is of limited effectiveness in both teaching and learning.

### **3 Limitations of Traditional Pedagogy**

There are many limitations of using the traditional pedagogy in teaching and learning. This technique of teaching is a one way flow of information in which the teacher often continuously talk for an hour or more expecting that when he asks a question, the students will able to reproduce the same thing that he was talking about. Below are some of the limitations indentifying for traditional pedagogy:

- Teaching and learning are concentrated on theoretical method rather than practical aspects
- There is not enough interaction with students in classroom
- There is less activities in the classroom, teacher decide what to do, when and how
- No creativity, learners reproduced what the teacher told them over and over again
- Less integration for students, the teacher is the only individual who talks and gives command
- More emphasis has been given on theory without any practice and real life time situation

In 21<sup>st</sup> century, ICTs has offered different techniques that are available to everybody to use. Therefore traditional pedagogy has less impact in teaching and learning. In the following paragraph explained the implication of ICT in education and diverse approaches that ICTs uses to make the teaching and learning environment to be a learner centered environment and encourage problem based learning.

### **4 The Significance of ICTs in Education**

Many researchers argue that the use of new pedagogy enabled by ICTs in teaching and learning is indispensable for providing opportunities for students to learn; to operate in today's e-society. As Yelland (2001) argued, the traditional educational environments do not appear to be suitable for preparing learners to function or be productive in the workplaces of today's society. She also claimed that organizations that do not fit in the

use of new technologies provided by ICT's cannot significantly claim to prepare their students for life in the 21<sup>st</sup> century. This argument was supported by Grimus (2000), who pointed out that "by teaching ICT skills students are prepared to face future development based on proper understanding" (p.362).

Many researches and theorists emphasize that the use of computers can help students to become knowledgeable, decrease the amount of direct instruction given to them, and give teachers an opportunity to help those students with particular needs (*Iding, Crosby, & Speited, 2002; shamatha, Peressini, & Meymaris 2004; Romeo, 2006*). While new technologies can help teachers enhance their pedagogies practice, they can also assist students in their learning process. According to Grabe (2007), technologies can play a crucial role in student skills, motivation, and knowledge. In their argument, they also claim that ICTs can be used to present information to students and help them complete learning tasks. A very important aspect of learning enhanced by using ICTs will facilitate a more smoothed and compound view of abstract concepts. In this it is significant to understand different approaches that ICTs use in education to fulfill the teaching and learning outcomes.

### **5 Different Approaches of the use of ICTs in Education**

It is true that teaching 21<sup>st</sup> century learners requires strong pedagogy. Traditional Pedagogy approaches have resulted in a divergence between what is taught to the students and what the industry needs. As such, many institutions are moving towards problem based learning as a solution to producing graduates who are creative; think critically and analytically, to solve problems. The pedagogy enabled by ICT provides problem based learning and enable students to be independent, have a critical thinking. It is obvious that by the use of ICT's, instructors will develop strategies that will promote deep learning and change the learning environment into the learner-centered environment. The impact of ICTs on learning can be approached in various ways to meet the need of learners. Differently from traditional pedagogy, that has one particular way of teaching (direct flow of information from teacher to the students) ICT's offer diversities of models in teaching and learning.

Diverse types of ICTs uses can be visualized as: computer assisted learning, web-learning, computer-classes, online training, distance education, visualization software, eLearning, virtual learning, digital training, etc. All these techniques used by ICTs shift in the role of a teacher to that of a facilitator. The existence of ICTs can enable teachers to transform their teaching practices. Research has shown that the use of different approaches offered by ICTs will transform the learning environment into the one that is learner-

centered and promote deep learning. The following are example of some approaches enabled by the use of ICTs in teaching and learning process.

### 5.1 Active Teaching and Learning Approaches

The use of ICTs offers a platform for student to question, investigation and construction of new information in the process of teaching and learning. This is one aspect which is different from the traditional pedagogy in which learners learn as they practice and, whenever appropriate, work on real-life problem in depth. The teaching and learning process become less abstract but more relevant to the learner’s life.

### 5.2 Collaborative Teaching and Learning Approach

The use of ICTs creates collaboration, interaction among students and teachers regardless of where they are. This limitation of traditional pedagogy has been overcome by the use of ICTs. Beside from modeling real-world interactions, ICT-supported learning provides learners with the opportunity to work with people of different cultures, different background. This has helping by improving learner’s teaming and communicative skills as well as their global awareness.

### 5.3 Creative Teaching and Learning Approach

The use of ICTs promotes the manipulation of existing information and creation of real-world products rather than the regulation of received information, which is different from reproductive learning used in traditional pedagogy way of teaching.

### 5.4 Integrative Teaching and Learning Approach

ICTs improve learning by integrative approach to teaching / learning. This eliminates the artificial separation between the different disciplines and between theory and practice that characterizes the traditional pedagogy approach.

### 5.5 Evaluation Teaching and Learning Approach

Unlike traditional pedagogy, ICTs recognizes many different learning pathway and different articulations of knowledge as said above that ICT does not focus in only one type of teaching or learning approach like traditional pedagogy. The pedagogy enabled by ICTs allows learners to explore and discover rather purely pay attention and keep in mind.

## 6 Overview of Traditional and Emerging Pedagogy Enabled by ICTs

Table 1: Source ICT in Education by Victoria L.Tinio

Traditional pedagogy	Emerging pedagogy enabled by ICTs
<ul style="list-style-type: none"> <li>• Activities prescribed by teacher</li> <li>• Individual</li> <li>• Apply known solution to problems</li> <li>• No link between theory and practice</li> <li>• Teacher-directed</li> <li>• Summative</li> </ul>	<ul style="list-style-type: none"> <li>• Activities determined by learners</li> <li>• Working in teams</li> <li>• Find new solutions to problems</li> <li>• Integrating theory and practice</li> <li>• Student-directed</li> <li>• Diagnostic</li> </ul>

The above table gives an overview of traditional pedagogy and emerging pedagogy enabled by ICTs, it is obvious that their aspects differ from one another in term of promoting good teaching and learning environment. The table gives a summary of these two pedagogy in the classroom; this also defines the type of environment that each one of them can create in process of teaching and learning. Therefore it is essential for instructors in the 21<sup>st</sup> century to make use of pedagogy that will promote student autonomy and pay careful attention to the knowledge, skills, attitudes, and beliefs that learners bring with them to the classroom.

## 7 Conclusions

The researchers believe hat the core objective of teaching is passing on the information or knowledge to the brains of the students. To achieve this there are many strategies behind the teaching called pedagogy that can be use during this process. This paper gives a comparison of traditional pedagogy and the emerging pedagogy enabled by the use of ICTs in education. The paper also highlighted some limitations of the use of traditional pedagogy in teaching / learning and the significance of using emerging pedagogy enabled by ICT in education. As teaching and learning shifts from the teacher-centered model to a learner-centered

model, the teacher becomes less the one and only voice authority but more the facilitator, mentor and coach; from stage on stage to guide on the side. As such, many institutions in the 21<sup>st</sup> century are moving towards new techniques of teaching enhanced by ICTs to promote problem based learning as a solution to settings where the teacher is the only individual who talks and gives command and less integration for students.

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