# INNOVATIVE TEACHING METHODS FOR
# THE 21ST CENTURY STUDENTS

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*Futurum in Sweden is a school that does not have any classrooms, there is nothing like a timetable, no school bells can be heard, the students do not have any school bags, and teachers are without desks. Futurum is a radically new school that merges creative architecture with modern learning and teaching methods.*

## INTRODUCTION

Pedagogy is a deliberate attempt of improving learning processes of children by considering their nature, contents, methods, media, and other aspects of the environment. Pedagogical issues could be related to the gender, special needs, literacy level and role of teacher among other factors. Thousands of years back, before the printed book came into existence, it was the teacher who was the only source of knowledge. After textbooks came, it was felt by some, that they lowered the standing of teachers as their monopoly was threatened. However in time to come, textbooks got the due importance and the skills of reading and writing received added attention. Later the invention of the pen too created problems and much later the advent of computers also raised some concerns. Information and communication technology, or ICT, is defined as the combination of informatics technology with other, related technologies, specifically communication technology. Today Information and communication technology (ICT) is recognised as, one of the basic building blocks of modern society. A number of countries now regard understanding ICT and mastering the basic skills and concepts of ICT as part of the core of education, apart from reading, writing and numeracy.

### Information and Communication Technologies (ICT)

Research shows that children retain 20% of what they hear; 40% of what they see and hear and 75% of what they see and do. Hence learning by "doing" is the key.



Computers enable learning by "doing" by combining the use of several media-- video, audio, graphics, animation, text and images, to offer the student a near-live experience of what he or she is learning. Therefore computers have started playing a significant role in teaching.

The potential of new information and communication technologies for teaching and learning was realised well in time. Programmed instructions as well as the programming language Logo (supposed to be a language for the teaching of mathematical ideas to children through computer programming) was developed three decades back, and the earliest applications of time-sharing operating systems included teaching. Today the use of computer networks and information technology are becoming an important part of the everyday work environment. Computer Aided Education (CAE) is used to develop the learning capacity

of students and increase the teaching productivity and effectiveness of instructors with the help of advanced computer-based technologies. CAE needs to become an integrated part of the education process in India. This technology can also be used effectively to develop attractive courses for distance learning programs. CAE methods enable teachers to state and explain the basic concepts in the subject easily and participate in discussions of advanced concepts related to the subject content. Using CAE each student can receive individual and private instruction and can proceed at their own suitable speed, and time. While teachers could get hassled answering the same question repeatedly, the computer is relatively extremely patient. Also the students do not tend to get disturbed by problems related to human interaction in the classroom like favouritism, indiscipline etc

## Cooperative learning

Cooperative learning is a established teaching strategy in which small teams comprising of students of different levels of ability, use different learning activities to develop their understanding of a subject.

Each member of a team is responsible not only for learning what is taught but also for helping team-mates learn, thus creating an atmosphere of achieve-ment. Students work through the assignment until all group members successfully understand and complete it. Cooperative efforts result in participants striving for mutual benefit so that all group members gain from each other's efforts i.e. a win-win combination. It is important that the students recognize that all group members share a common fate and perform together as a well-knit team. The cooperative learners need to take pride and celebrate together when a group member is

acknowledged for achievement. Research shows that cooperative learning methods promote student learning and academic achievement, raise student retention and boost student satisfaction with their learning experience. This learning method helps students in developing social and oral communication skills and promotes student self-esteem.

### Some Class Activities Involving Cooperative Learning

1. **Think-Pair-Share -** This basically involves 3 steps. In the 1st step the students are made to think silently about a question put forward by the teacher. The students then form pairs during the 2nd step and trade ideas. In the last step, the pairs share their responses with other pairs, other teams, or the whole group.

2. **Three-Step Interview -** Each member of a team selects another member to be a partner. During the first stage individuals interview their partners by asking various questions with the objective of clarifying their thoughts. During the second stage partners reverse the roles. Finally the students share their partner's response with the team.

3. **Circle the Sage -** First the teacher questions the class to see which students have some special information to share. For example the teacher could ask who in the class was able to answer a complex physics numerical, which student has ever visited Turkey, who knows how plants make food etc. The students with special information to share (known as sages in this method) disperse themselves across the room. The rest of the students are divided into teams. The teacher then gets this rest of the classmates to encircle each sage ensuring that no two members of the same team go to the same sage. The sage explains what they know while the classmates listen, ask questions, and write notes. All students then come return to their teams. Each in turn, explains what they learned. Because each one has gone to a different sage, they compare notes. If there is conflict, they stand up as a team. Finally, the disagreements are discussed and resolved.

## Digital Storytelling

Storytelling is a very old teaching tool. Long before there was formal schooling, knowledge was imparted mainly via stories.



These stories provided children in the community with the information base they needed to survive as an adult. With the introduction of the printing press and the development of formal schools the role of storytelling in education went down. However it is a well-known fact that a powerful story can capture attention, fire imagination, and simplify a complex idea or concept.

Digital Storytelling is the linking of the age-old art of storytelling and powerful information technology (IT) that is easy to learn and use. With the coming of affordable digital video cameras, easy to use software, DVDs, and the Internet it is possible to tell, capture and disseminate educational stories in new ways and to a broader population of students. Educators have started to develop digital stories about educational content and practices and archive them on the Internet. To an audience a finished digital story looks somewhat like a short autobiographical, documentary film. Storytellers begin the process by writing and recording a personal narrative script, which becomes a spoken-text "voiceover" for the visual (and other auditory) elements of the piece. Thereafter storytellers use software to layer their voiceovers with any images that help tell the story:

still photos, video clips, artefacts, text and non-text animation, soundtrack, and video and audio effects.

To the storyteller, a digital story is a highly personal and heavily packed exploration of a topic through story. But the real power of digital storytelling is something that happens between audience and storyteller, in how the experience of digital story can bring people together for conversations about the subjects and topics a story explores and suggests. To bring the audience (students) and storyteller (teacher) together, a digital story can be stored and played on any computer application that supports the software to run it. Personal computers can be used for individual viewers, data projectors work for a room full of viewers, and for sharing across the globe, digital stories can be carried over the internet and played on media players like QuickTime and Real Player.

### Case Study: Digital Storytelling in the Scott County Schools

In the Scott County Schools located in Georgetown, Kentucky, writing has taken a totally different meaning. Teachers and students in grades one through twelve have taken their writing pieces to new heights by using them as scripts for digital storytelling. Short 3-minute videos that include photos, artwork, objects, music, and the student's own voice have become powerful pieces for communicating with a diverse audience. In November 2002, the Scott County Digital Storytelling Center became a reality with a collaborative venture between the Scott County Schools and the Scott County Public Library. Community members met on weekday afternoons and evenings at the Scott County Public Library to develop their stories. Students, teachers, and library support staff worked together with community members to assist them in telling their stories digitally. For example some of the digital stories presented by the teachers were:

- A middle school teacher questions the parallels between her life and her daughter's.

- Life has its ups and downs. - How does this high school teacher handle her situation?

And some of the digital stories presented by the students were:

- What is Art Education? -A fourth grader shares her opinion.

- A third grader shares his understanding of the phrase "Practice Makes Perfect"

- Do brothers or sisters make life fun? -This elementary student shares her thoughts through poetry.

## Future School

In the mid-1990s, a revolution began in the Swedish school system. This revolution was a result of realisation that large amounts of pedagogical knowledge had been developed during the last 25 years, however little had been used. The most revolutionary school that emerged was Futurum - located in the Habo district, about 50 kilometres from Stockholm. Futurum is far from a typical school. It has been made as a collection of detached wooden houses with high ceilings and abundant light, which make them look like greenhouse built for the evolution of a new human species. There are no long corridors with shouting children, no classrooms with lecterns and desks and yes no school bags. At Futurum one can see students walking around carrying books and equipment. They are sitting in the computer area studying web sites, reading books in the many open study rooms, or walking and talking about the next play in the school's theatre. There are some interesting rooms like one for woodwork, another for needlework etc. There is a fully equipped music studio, from which a student can enter a dressing room full of a number of different types of strange costumes. There is also an area called Africa with five-metre tall palm trees, where generally the younger students sit and read picture books.

Unlike traditional schools, it is not the teacher who talks and walks about posing the questions, but the students who are active. They look for the things they need to work with, help one another, go to the computer desk, visit the library and only if required ask the teachers for advice. It is rare to find a student wondering what he should do now. The teachers simply act like advisors and speak only when required to.

Every morning the students meet the team of teachers in their contact group and chalk out a schedule. Together the teachers and the student work out the amount of work to be done. Hence the students plan and execute their own work. Based on the needs of the student the working hours and subjects are planned as flexibly as possible. Each student has an annual logbook, which contains the learning objectives for each week. There are no working hours but only working weeks. The students are responsible for recording their work in the logbook. At the end of each week, the student, the parent and the concerned teacher sign this book in order to seal the week's work. Majority of the students feel that the logbook gives them a lot of freedom and independence. Generally about 16-18 hours a week are spent in some kind of class teaching. The rest of the time, the students decide themselves whether they want to say improve their English vocabulary, study French or help some of the younger students in their own unit. In addition to this, there is an emphasis on combined-age and cross-disciplinary projects.

At Futurum, the pedagogical principles have been greatly improved. Subjects are not taught as facts and there is no learning by route. The subjects are integrated into a context and students approach them from a problem-oriented perspective. This means that disciplines such as Physics,

Chemistry and Maths are very often interconnected using an overall theme. Generally when students begin to work on a project they have to run all over the place. For example a project related to the study of electricity does not involve standard textbooks that usually explain the different methods by which light bulbs and batteries can be arranged in an electrical circuit. On the contrary they are asked to answer questions based on a small figure of an electrical arrangement, and to read and present the biography of one of the many famous physicists like Simon Ohm and Michael Faraday that contributed to the field.

This approach reinforces the project-oriented working habits and also helps the students in framing their own queries and to use their own learning styles. The combination of project work, group work and self-tuition, supported by a well-equipped and caring environment, creates the ideal preconditions for the declared pedagogical objectives of Futurum: an atmosphere of security, prosperity, respect for the background, an interest in other people, the development of individual responsibility, and a strong focus on reflection and critical thinking.

## Endpoint

Recent advances in information technology (IT) provide educators with unique opportunities to fundamentally shape education of the future. If used intelligently, the new computer technology can bring in revolutionary changes in education i.e. the way we teach and learn right from playschool to high school. Computers cannot replace the inspiration given by a good teacher, some pupils may be repelled by computers and computer-assisted instruction may mostly mean a single point of view because the high costs of production favour the universal use of the 'one best' program. However one big positive aspect about computers is that they can present users with work that is of interest to them. Since the student is working on his own initiative he/she has an opportunity of being curious and explore all the different resources available. The pupil is thus in complete control of the job at hand and if by chance an error occurs, a recovery can be made without discomfiture. This can help boost confidence and minimise inhibitions. Hence while it is not possible to do away with school education totally, computers can be looked at as an aid to complement school education.

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