Unit-II
Learning Theories and Educational Software / ICT tools

Learning theories and use of ICT

Learning theories are conceptual guidelines developed by the theorists for learning knowledge. There are many such theories but three are common and useful for ICT education: **Behaviourism, Cognitivism (Mentalism)** and **Constructivism**. These theories are also called behaviourist, cognitivist (mentalist) and constructivist respectively.

Behaviorism

Behaviourism and cognitivism

Cognitivism is the a school of thought developved fron the concept that 'Knowledge is a storehouse of representations', It is the knowledge which can be called upon for use in reasoning and it can be translated into language. Thinking is a process of manipulating representations . The mind was perceived as an information processor with short- term and long-term memories, including a working memory.

- Behaviourism is one of the learning theories. The term "behaviorism" was coined by John Watson (1878–1959). Watson believed the behaviorist view is a purely **objective experimental** branch of natural science (It is purely scientific). Other principal behavioursists are Pavlov, Skinner and Throndike among them Skinner's learning theory is influencial. Skinner's behaviourist model is derived from the stimulus and response . According to this theory, the learner is conditioned to respond based on a stimulus.
- Skinner argued that since it is not possible to prove the inner processes (mental processes) with any available scientific procedures, so, researchers should concentrate on 'cause-and-effect relationships' that could be established by observation.
- The behaviourists focus on the drill and practice activities for skill learning. **Imitation**, **repetition**, **memorization**, **practice**, **more practice**, **habit formation**, **making habit automatic** (automaticity) are key process of learning.
- Behaviorists look at learning as an aspect of conditioning and will advocate a system of rewards and targets in education.
- There are also types of conditioning (such as classical conditioning by Pavlov, Trial and error learning by Thorndike and Operant Conditioning by B.F. Skinner, etc.)
- According to behaviourists, learning is the **acquisition of a new behavior through conditioning**.
- The behaviorist school sees the **mind as a "black box**," (Tabula-rasa- by John Locke) (a blank sheet of paper where nothing is written) in the sense that a response to a stimulus can be observed quantitatively, totally ignoring the effect of thought processes **occurring in the mind**.

Early computer learning systems were designed based on a behaviorist approach to learning. Behaviorists claim that it is the observable behavior that indicates whether or not the learner has learned something. But it is not the matter of study what is going on in the learner's head/mind. The most applicable principle is Skinner's operant conditioning which states three stage procedures for learning**.- Stimulus-Response – Reinforcement (S-R-R).**

An example of the use of behaviourist theory in the development of the ict tool is the use t**he use of drill and practice tutorials with individual instructions and feedback**. In this type of learning a **"student is rewarded through an encouraging comment before moving on to the next learning objective**" . It is especially clear in the use of "the computer games that are so highly addictive to teenagers,". In it, their "learning behavior is progressively rewarded as each level of the game is mastered". The student's mastering of basic technological terms, descriptions of components, and understanding of theory behind technical processes can be achieved through structured programs delivered through CD-ROMs.

Cognitivism

Cognitive theories grew out of **Gestalt psychology**. Gestalt psychology was developed in Germany in the early 1900s by Wolfgang Kohler . The German word *Gestalt* is roughly equivalent to the English *configuration* or *organization* and emphasizes the **whole** of human experience.

Educators who embrace cognitive theory **prefer to study the learner rather than their environment and in particular the complexities of human memory**.

Gestalt psychologists criticize behaviorists for being **too dependent on overt behavior** (observable behavious) to explain learning. They propose looking at the patterns rather than isolated events.

Two key assumptions behind this cognitive approach: that the **memory system is an active organized processor of information** and that **prior knowledge plays an important role in learning**. Gestalt theorists believe that in order for learning to occur prior knowledge must exist on the topic. When the learner applies their prior knowledge to the advanced topic, the learner can understand the meaning, and learning can occur. Cognitive theories look beyond behavior to consider how human memory works to promote learning, and an understanding of short term memory and long term memory is important to educators influenced by cognitive theory. They view learning as an internal mental process (including insight, information processing, memory and perception) where the educator focuses on building intelligence and cognitive development. The individual learner is more important than the environment.

Cognitivism is the a school of thought developved fron the concept that 'Knowledge is a storehouse of representations', .The mind was perceived as an information processor with short- term and long-term memories, including a working memory.

Constructivism and social constructivism

The dominant educational schools of thought focusing on processes and interactions, whether individually or socially, are the constructivist and social constructivist paradigms of learning respectively. The constructive paradigm, as advocated by Piaget (1960) and Bruner (1990), stress the notion that whatever gets into the mind has to be constructed by the individual through knowledge discovery with a focus on the process of assimilation and accommodation of knowledge. In other words, meanings are perceived as inseparable from one's own interpretation. Its emphasis is not in the interactions of the individual with the environment (including other social beings) but more on how the mind constructs knowledge. Although there may be many different versions of what constructivism entails, the general view held is that **learning is an active process of constructing rather than acquiring knowledge**. **Knowledge is not just a mental state**; rather, '**it is an experienced relation of things, and it has no meaning outside of such relations'**.

More recently, the social orientations of constructivism commonly linked to Vygotsky and neo-marxist theories of practice have gained wide currency. Vygotsky emphasized the cultural and social context inuencing learning. Vygotsky's brand of constructivism is called social constructivism because he emphasized the critical importance of interaction with people – other children, parents and teachers – in cognitive development.

In summary, social constructivism focuses on relations in actions and situations through meaning negotiation, where participants make efforts in reaching shared meanings. Individul constructivism emphasizes cognition as an individual activity and 'in the head', social constructivism focuses mostly on knowledge socially constructed 'in the world'. Hence, the individual aspects are neglected. In summary, the general view of social constructivism is that human knowledge is socially constructed, and the interpretation of knowledge must be dependent on the cultural and social context through which the knowledge was constructed. Balancing the two predominant schools of thought – constructivism and social constructivism – is an emphasis on both the social and individual dimensions of cognition. Adopting the general premises of both schools of thought, we have:

(1) Learning is an active process of constructing rather than acquiring knowledge;

(2) Knowledge can be socially constructed where the social interactant may include just oneself;

(3) The interpretation of knowledge is dependent on (a) the prior knowledge and beliefs held in one's own mind

and (b) the cultural and social context through which the knowledge was constructed.

Table 1 summarizes the major learning theories and their general orientations with an example on learning the concept of multiplication. The main concepts of the learning theories are summarized in table :

. Table-1 : **Summary of Three Learning Theories**

Behavourism	**Stimulus and response** – Students remember and respond (change in overt behaviour due to conditioning) – Teachers present and provide for practice and feedback
Cognitivism	**Information transmission and processing** – Students remember strategies, rules and patterns – Teachers plan for cognitive learning strategies
Constructivism	**Personal discovery of knowledge** – Discover relationships between concepts, e.g. addition and subtraction – Teachers provide instructional context for active and self-regulated students
Social constructivism	**Learning is a social construction, mediated by different perspectives** – Through authentic projects, students discuss and discover meanings, e.g. concept of multiplication – Teachers provide for facilitation and scaffolds among the students

Learning Theories and ICT Software

Behaviorism emphasizes memorization and repetition in teacher-centered environments. The curriculum is structured hierarchically to allow students to gain prerequisite skills and advance to intermediate and advanced levels of knowledge. Technology is used to remedy identified weaknesses, promote fluency, and support practice through tutorials, drill and practice software, online worksheets, and other forms of computer-based learning.

Constructivism allows students to build rather than receive knowledge. Based on collaboration and cooperation, Constructivist Learning focuses on real problems, creative solutions, transfer, and problem solving. Teachers function as guides or facilitators that assist students as they generate solutions and explore in complex and rich environments. The curriculum focuses on higher-and-lower level skills; performance measures include checklists, rubrics, and portfolios. Technology (simulations, applications software, and multimedia, constructive and informative software tools) is used to facilitate meta-cognitive skills, emphasize transfer, create group projects and presentations, highlight the contributions and talents of diverse learners, and explore the relationships between data.

Cognitive, Social, and Radical Constructivism, Multiple Intelligences, and Situated Cognition rely on individual and group thoughts, perceptions, and actions. Problems are solved through individual and shared meaning. Learners use technology (*hypertext and hypermedia, bulletin boards, chats, computer-supported intentional learning environments, and computer mediated environments) to gather information, conduct research, communicate, decompose problems, share documents, and participate in open-ended learning*

Behaviorist Perspective and ICT Software

Use of technology from the behaviorist perspective mirrors traditional classroom practice: **users are relatively passive, the content and interaction between the user and the software are predetermined, and there is a limited repertoire of acceptable responses**. The acquisition of facts through **repeated practice and rote memory, or learning from the technology**, is the goal of instruction.

Computer assisted instruction (CAI), integrated learning systems, **drill practice** programs, **computer-based tutoring systems**, and **assessment software are some of the technologies designed based on the behaviorist learning theory**. CAI and integrated learning systems have been readily adopted in many schools in the USA as they closely match the traditional routine of classroom life. It is argued that argues that CAI can increase achievement because it leads to **automaticity of lower-level skills through extended practice**. A computer that is endlessly patient with the learner monitors this practice. In the tutorial form of computer-assisted instruction, the computer provides additional information to the learner if an incorrect answer is supplied. This continues until the learner is successful. Skinner's views of immediate positive reinforcement following a correct answer are directly applicable to drill-and-practice and tutorial forms of CAI

Constructivism and Use of ICT Tools

Constructivism is an educational philosophy which holds that learners ultimately construct their own knowledge that then resides within them, so that each person's knowledge is as unique as they are. Among its key precepts are:

- Most learning is context-dependent, so that cognitive experiences are situated in authentic activities such as project-based learning;
- Case-based learning environments result in richer and more meaningful learning experiences;
- Social negotiation of knowledge, a process by which learners form and test their constructs in a dialogue with other individuals and with the larger society.
- Collaboration as a principal focus of learning activities so that negotiation and testing of knowledge can occur.
- Those who advocate constructivism believe that a learner's ability to learn relies to a large extent on what he already knows and understands, and the acquisition of knowledge should be an individually tailored process of construction.

Constructivism has profound implications for how current `traditional' instruction is structured, since it fits with several highly developed educational trends:

- the transition of the teacher's role from "**sage on the stage**" (fount/transmitter of knowledge) to "**guide on the side**" (facilitator, coach);
- teaching "higher order" skills such as problem-solving, reasoning, and reflection (for example, see also generative learning);
- enabling learners to learn how to learn;
- more open-ended evaluation of learning outcomes;
- and, of course, cooperative and collaborative learning skills.

Founded by Jean Piaget, constructivism emphasizes the importance of the active involvement of learners in constructing knowledge for themselves. Students are thought to use background knowledge and concepts to assist them in their acquisition of novel information. When such new information is approached, the learner faces a loss of equilibrium with their previous understanding which demands a change in cognitive structure.

Constructivism has many varieties such as active learning, discovery learning, and knowledge building, but all versions promote a student's free exploration within a given framework or structure. The teacher acts as a facilitator who encourages students to discover principles for themselves and to construct knowledge by working answering open-ended questions and solving real-world problems. To do this, a teacher should encourage curiosity and discussion among his/her students as well as promoting their autonomy. In scientific areas in the classroom, constructivist teachers provide raw data and physical materials for the students to work with and analyze.

The In the past many computer-based applications were individualized tutorial, drill and practice, and simulation software. They were based on the behaviourist principles. Whereas in recent times, they are interactive to communicate with one another. Tutorial and drill and practice software are usually **closed-ended**, restricted by the content and context defined by the software. On the contrary, simulations, collaborative environments and tools (e.g. Microsoft Word and Excel) are open-ended environments.

From the above discussion, technologies can range from tutorial-type direct instruction applications (for example, CBLs) to social constructivistic environments fostering knowledge construction. These kinds of instructional environments can be classified into:

i. Individual instructive tools;
ii. Informative tools;
iii. Individual constructive tools;
iv. Social communicative tools;
v. Social constructive tools

Examples of individual instructive tools include traditional tutorial and drill and practice types of programmes. They are typically designed to be used by individuals and are good tools for supporting basic information and knowledge such as the multiplication table. Informative tools provide necessary materials and resources for students to construct their knowledge. Examples of such technologies include encyclopaedias and Internet resources.These tools support the generation of ideas and can provide students with information based on different perspectives. Moreover, these tools also serve as good external sources where students can counter-check the validity of their knowledge negotiations. Individual constructive tools are multimedia authoring tools, spreadsheets, word processors, simulations, etc., which can support guided inquiry and can be used constructively.

Social communicative tools include **video conferencing**, **lab management systems**, **multimedia e-mailing** and similar systems, which **enable communicative processes between users**. These tools, however, do not provide the means to organize knowledge and discussions. Social constructive tools, for example, document sharing, computer-supported intentional learning environments (CSILE), MUDs (Multi-User Domain) and MOOs (MUD Object-Oriented) are computer-mediated environments that support the social constructivistic process. Although these environments may differ to some extent, they generically **allow users to negotiate knowledge**. Students would generate knowledge and organize their ideas with the support of systems such as CSILE and MindBridges, which thread student discussions along thematic spaces. In addition, environments that support document sharing allow users to co-edit documents relevant to their work.

Table- 2 : Summary of Learning Theories and ICT Tools

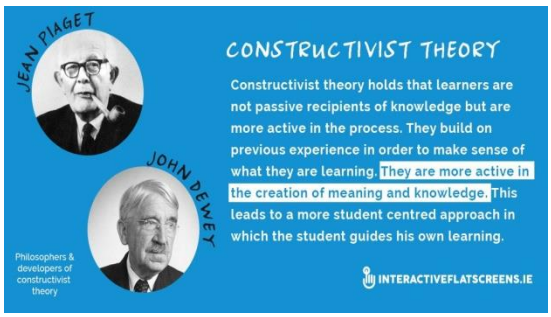
Behaviourism	Variety of drill and practice computer-based learning software	For example, CBLs that drill students on multiplication and addition (individual instructive tools)
Cognitivism	Tutorials and information databases	For example, encyclopaedia and Internet resources (informative tools)
Constructivism	Individual generic purpose tools	For example, Excel, Word and PowerPoint, simulations, hypertext and hypermedia, organizational tools (individual constructive tools)
Social constructivism	Collaborative generic environments	For example, e-mails, bulletin boards, knowledge co-construction/exchange forums, computer-mediated collaborative problem solving environments (social communicative/constructive tools)

Addditional Ideas on Constructivism and Use of ICT Tools

Many schools and educators are adopting a 'constructivist' approach to teaching. Constructivist teaching methods are based on constructivist learning theory which was developed by major thinkers: Jean Piaget, John Dewey and Lev Vigotsky. These philosophers were very influential in the development of progressive education. **Constructivist theory holds that learners are not passive recipients of knowledge but are more active in the process.** They build on previous experience in order to make sense of what they are learning. They are more active in the creation of meaning and knowledge. This leads to a more student centred approach in which the student guides his own learning. The following ICT tools are developed and they are in use based on the principles of constructivism:

IPads, Tablets & Autonomy

The introduction of iPads and tablets into the classroom gives pupils greater power and autonomy over what they are learning. These devices give immediate access to knowledge so the pupil becomes his own teacher, to a certain extent.



ICT Allows For Greater Engagement

Learning through play is also part of the progressive, constructivist approach. Picture a child playing with building blocks, absorbed in the activity and on his own. This is the best possible visualisation of constructivist learning theory. ICT, in the form of iPads, tablets, mobile devices and interactive flat screens, allow for greater engagement and interaction by the learner which means more fun and play. The approach also helps with class discipline because it allows for a more interesting learner experience. Less boredom means less discipline problems. It also helps with self-esteem and

the learner's faith in the education system.

Learning About & Through Computers

'Taking up ICT, schools are better preparing their pupils for further education, higher education and on to the workplace. Learning about computers e.g. computer coding, as well as learning through computers should begin at primary level and continue into the junior and senior cycles.

An Optimistic Enlightened Approach

Constructivist learning theory is an optimistic, enlightened approach to education in which the child is seen as capable of learning on his own. Empowering pupils with tablets, and teachers with interactive touch screen monitors allows for a blended approach to teaching which is now becoming the norm. The old method of teaching is being replaced by something more fun and effective. The revolution is well and truly under way and it is being driven by ICT.

ICT use for actionable, engaged and interactive learning

ICT creates interactive learning

In interactive learning students are involved actively in their learning process by the way of student-teacher and student – student interaction. Teacher gives problem to the student. They discuss and interactive each other by using ICT tools like social meadia, internet, bloges etc. ICT tools help support more interaction betwee students. They can learn in enjoyable environment. This type of learning is more stable and learner never forget **Interactive** learning is a hands-on **approach** to help students become more engaged and retain more material. With or without a form of technology, **interactive** learning helps students strengthen problem solving and critical thinking skills.

Whereas students often lose interest during lecture-style teaching, interactive teaching styles promote an environment of attention and participation. Make it interesting. Make it exciting. Make it fun. As you well know, telling is not teaching and listening is not learning. In interactive learning mean how to best engage their students and get them excited about learning.

Here are some of the most effective ways to engage students.

1. Brainstorming — various techniques

2. Think, pair, and share

3. Buzz session

4. Incident process

5. Q&A sessions

ICT in Education means "Teaching and Learning with Interactive communication Technologies. ICT is not limited to the computers or the internet only. It ranges from the use of FM radio to the use of satellite for communication. A large amount of data, visuals available on any topic can be brought to the classroom from all over the world. That is why ICT has been considered as an emerging area with huge potential for making educational process more interactive and meaningful.

The principles of interactive teaching include:

- recognising children as individuals *actively* engaged in interacting with the world, rather than passive recipients of knowledge,
- assessing learning needs and tailoring teaching to the child's current level of knowledge and understanding ("scaffolding" or "child-centred" approach,
- "multimodal" interaction and expression – using different modes of presenting material and expressing ideas (drawing, video, audio as well as conventional texts) to engage learners,
- higher-order thinking – encouraging skills like analysis, synthesis, evaluation, sorting and categorising,
- improvable ideas – providing an environment where ideas can be **reviewed** and refined,
- diversity of ideas – exploring ideas and related/contrasting ideas, encouraging different ideas,
- building directly on others' ideas to create joint knowledge products,
- democracy in knowledge building – everybody participates and is a legitimate contributor to knowledge, and
- learner agency and peer support – encouraging students to take responsibility for their own and one another's learning.

ICT can create actionable learning and teaching situation

Stanford doctoral candidate Molly B. Zielezinski and her colleagues provide five Actionable Tips for improving the quality and effectiveness of technology implementation in low-income schools. In the space below, you will find their ideas of technologies that can be used to match these applications for each tip suggested by Zielezinski.

Stop using technology for remediation

Students enrolled in low-income rural and urban areas are more likely to use technology for **remedial (corrective)** purposes rather than using technology for skill and drill activities. Teachers and students use Web 2.0 technologies for authentic tasks. Listed below are resources to help accomplish this in the classroom.

Twitter: Twitter is a free social media micro blog website that allows users to broadcast posts. These post are called tweets. Students could use this tool to communicate and collaborate via sharing links, giving feedback, and advice. The use of hash tags can also be beneficial to organize discussion. Students can form discussion groups using hash tags or conduct research following different twitter handles. They may also seek help from other experts online as twitter users from different professional accounts often tweet back to help.

Wordpress: Wordpress is a platform where students can design and publish their own multimedia content. Wordpress is useful because designing and creating original web content gives students the opportunity to be content-creators rather than content-consumers.In a classroom, Wordpress can be used to create a portable, digital portfolio. Students are able to collaborate and communicate by commenting on articles written by other students and bloggers. Wordpress also allows you to add various forms of media such as images, video, widgets, and linking to various social media.

Creately: It is an Online flowchart maker. This website allows users to create flowcharts from various templates and manipulate the chart. There are also examples of flowcharts to search. It is free for up to 5 diagrams/flowcharts. Students could use a flowchart to show the sequence of steps in an experiment, visually represent a food chain, or organize their thoughts for a written essay.

Padlet: Padlet is an app that allows students to post onto a digital "corkboard."This can be a useful discussion tool that allows students to quickly view and share thoughts and ideas with other students. Often, students in remediation rooms, sitting at a computer, watching the screen as it feeds them ideas and expecting them to later regurgitate these same ideas on a quiz or test. With Padlet, students are communicating with one another, sharing knowledge, or comparing and contrasting their ideas about a particular topic. Padlet is great for idea sharing in the classroom. It can be useful for brainstorming activities, activating and accessing students' prior knowledge, or to compare and contrast different ideas. Here is a video tutorial of how to use Padlet to encourage students to describe their mathematical thinking.

MakeBeliefsComix: MakeBeliefsComix is a basic comic book style platform that can be used for digital storytelling. Rather than having students complete a traditional retelling of a story, allow them to create their story using a digital storyboard. Digital Story telling apps can be useful for storyboarding historical events, mapping procedural or "how-to" writing, or planning out personal narratives.

Let students create original digital content.

By providing opportunities for students to create products (rather than continuously consuming pre-generated material), they gain a sense of ownership. Creative thinking spans disciplines and can involve real world learning. It allows the creator to take intellectual risks and try new things. Listed below are resources to help to do this in the classroom.

Educreations: Educreations is an iPad app that functions like a recordable whiteboard. Because it captures voice and handwriting and also allows the user to upload pictures to create interactive lessons and stories, Educreations is a powerful presentation tool. Students can write or dictate and then illustrate their own stories or create an animated re-telling of an existing story. It can also be used to comment on presentations.

Scratch: Scratch is a program that introduces visual, block-style computer coding. This free website allows students to create games and stories through the use of visual block style coding. Utilizing problem-solving skills, and a design-thinking approach, students animate their avatars (sprites) to act in certain ways. This is a

great collaborative, creative tool that helps develop important Digital Literacy Skills. Students can use Scratch to animate stories and create games.

Piktochart : Piktochart is a free easy to use website that allows users to create info-graphs. Students will be able to visually display there their thoughts through info-graphs. Piktochart can be used in any learning activity that requires students to respond to a question or topic. For example, students are given the topic of Water Cycle. This must teach about the Water Cycle using Piktochart.

SketchUp: SketchUp is a 3-D modeling platform. This website allows students to create manipulable 3-D models. As they create their models, students will also learn the mechanics of using an online drawing program. Students could use SketchUp to design a building for an architecture class, to model a physical or mathematical concept, or to recreate scenes from a literary text.

Book Creator (app for iPad and other devices): Book Creator is an app that students can use to create digital books with photos, videos, sound, and narration. Another way book creator could be used is to create informational reports in a science class. Students could research different animals and then put together a book about their animal and share it with their classmates. Through both of these examples students are creating original, digital content.

Digital tools that promote interactivity and discovery.

Students develop problem-solving skills and increased levels of confidence through play. By providing interactive, open-ended tools, students can explore and tinker to develop their own understanding of how things work. This exploration provides a feeling of accomplishment that will often times lead to sharing and collaboration with classmates. Listed below are resources to help accomplish this in the classroom.

Minecraft : is a game where you dig and build different kinds of blocks and use permutations of them to craft different items. There are also enemies to kill, animals to tame and towns to build! students learn collaboration techniques, discover concepts using observation, trial-and-error and games-based activities. The openness of the game encourages exploration, letting students experiment to meet different goals. Teachers can make in-game student activities adapted to specific objectives and standards. Students can use the in-game blocks to build one-, two-, and three-dimensional objects to discover the conversions, differences and similarities between length, area, and volume.

Desmos: Desmos is an online graphing calculator that can graph a host of functions in a quick, easy way. It is easy to learn. There is also a free app for students to download that can give students with a smart phone access to a high-powered graphing calculator. The website also offers many ready-made activities for educators to use, or the tools to make their own. Students are presented with a container that is being filled with water. They must estimate how the level of the water changes over time, and show their findings in the form of a graph. They would do this again several times using increasingly complex containers.

Geogebra : Geogebra is a dynamic mathematics software that is designed to help students discover and learn mathematical principles through live manipulation. Geogebra contains several interactive apps including

spreadsheets, a graphing calculator, a computer algebra system, geometry, 3D graphics, and probability. Students can create their own materials, use materials created by the teacher, or use other people's previously created material to explore and manipulate mathematical concepts to find patterns and draw conclusions.

Energy Skate Park : Energy Skate Park is an interactive javascript where students learn about conservation of energy with a skater dude. Students build tracks, ramps and jumps for the skater and view the kinetic energy, potential energy and friction as he moves. Students can also take the skater to different planets or even space. There is also a list of teacher submitted activities available on the website. On this same website, there are interactives ranging in various topics from electricity to light to power. You can even search by grade level. This can be used to explore the law of conservation of energy as well as what factors impact more/less potential or kinetic energy.

DragonBox: DragonBox is a series of games that supplement the teaching of the basics of algebra to kids in a natural, fun, and effective way. DragonBox is useful because it gives students an introduction to algebra in a game like format and allows teachers to see an overview of the progress and knowledge each of their students are making. DragonBox lets the students learn algebra by using colorful and fun objects that are gradually replaced by numbers and mathematical expressions similar to equations on paper. It builds the conceptual knowledge in the early stages and leads students to the more abstract concepts as they achieve each level. DragonBox allows them to discover the idea of isolating the variable and solving for that variable. This iPad app could be used with students to introduce the skill of isolating the variable or it could be used to reinforce these algebra concepts after being taught.

Atmosphere Design Lab This website is an interactive way for students to learn about the different types of gases that make up the atmosphere. This website is useful because it allows students to learn more about the gas and it's importance in the atmosphere. You can read about what would happen if the percentage each gas was increased or decreased. You could have students go through and explore this tool after learning about the different gases to understand more about how the levels affect our environment as well as why we need the composition we need to survive. The visual images also help to solidify some understanding of what the alternate worlds would look.

Duolingo :Duolingo is a free language-learning platform that includes a language-learning website and app, as well as a digital language proficiency assessment exam. Duolingo is ad-free and offers all its language courses free of charge. As of April 2016, the language-learning website and app offer 59 different language courses across 23 languages; with 23 additional courses in development. Students can definitely discover other cultures through languages. Duolingo allows them to speak, practice, and explore using different languages. This is an extremely interactive website/app for students to use in whatever way you see fit.

VoiceThread: VoiceThread can be used to create multimedia slideshows with video, images, documents and voiceovers. VoiceThread is useful because it is multimodal and shareable between teachers and students, and students with their classmate. Students and teachers can create a presentations to share, interact with one

another's presentations, and give feedback. When working in a group, each contributor can leave comments via text, voice, audio file or video.

Kidblog: Kidblog is a safe, simple, authentic, and transformative way for students to publish their work on a blog . Kidblog is useful because it provides the tools to help students publish writing safely online and teachers can monitor all activity within their blogging community. Publishing is made very kid-friendly and the teacher can monitor all comments. It increases students' motivation to write because they have a meaningful purpose and it allows for engagement in the entire writing process.

Youtube: Youtube is a video hosting website where users can enjoy the videos and music, upload original content, and share it all with friends, family, and the world. Users can create their own channels to house their videos and create playlists. However, be careful on the age restrictions--users should be 13 years old. Youtube gives the students the possibility of anyone in the world viewing it, therefore there is the authentic audience. Viewers have the option to leave feedback, rate the videos and even share the videos allowing for feedback for the student. The playlist and channel features allow for students to be "experts" and have their own channels.

2.3 Learning through networking - alternative view of learning

There are several problems with the traditional system of education. First of all, you need to pay thousands of dollars per term to attend a prestigious school. With all those budget cuts, busy classrooms, and course shortages, you won't always get the chance to study exactly what you want.

Traditional classes are more suitable for young children, teenagers, and young adolescents who are yet to join the workforce. Regular attendance in classes helps them interact with other individuals of their own age, be better disciplined, follow a regular schedule, and improve their physical fitness and mental alertness.

Classroom learning helps students and teachers know each other in a better manner. This allows teachers to know the students and evaluate their strengths and weaknesses better, act as mentors, and guide students in their career possibilities.

In a traditional classroom, students can directly share their views and clarify their own queries with the teacher, thus getting their questions answered right away.

Most of the time books and classroom notes are very useful for studying and passing exams. Understanding the Question & Answer pattern, and with suggestions provided by experienced teachers, students can find it more helpful to learn than when using generalized online notes and suggestions available on the internet.

Also, classroom learning is more helpful due to a continuous interaction between students and teachers, as it helps students to get rid of their fears regarding exams, which can rarely happen with online guidance.

Lastly, interactions with good teachers help motivate students to achieve higher marks.

Allow us to explain why online learning is more awesome than you think. We have 5 advantages of online learning that will make you reconsider your attitude towards this type of education.

1. You can learn whatever you want!
2. Comfort.
3. Online courses look great on a resume
4. . Self-paced learning.
5. Lower costs.

Networked learning is a process of developing and maintaining connections with people and information, and communicating in such a way so as to support one another's learning. The central term in this definition is connections. It takes a relational stance in which learning takes place both in relation to others and in relation to learning resources.

Social networking sites (SNSs) have the potential to facilitate interaction, communication, and collaboration. Social networking sites are educational tools because students can use them for communication and social support as well as for discovering and sharing knowledge. However, because of their advantages in communication, these social networking sites have a huge potential for education. This subject is under debate and under study in different countries and cultures, and input is needed from various perspectives.

In general, the social networks sites provide users with a private virtual space where each one could build his own public profile and manage a list of links to other users' profile.

Facebook (facebook.com)

Founded in 2004 by Mark Zuckerberg, this social network site was formerly namedthefacebook.com and was designed as a closed online social network, available only for Harvard University staff and students. Subsequently, network access has been extended to other universities and companies like Apple or Microsoft. Since 2006, Facebook provides free access regardless the membership in a university or company.
The network is based on Web 2.0 technology and is available from any computer with Internet access, providing support for other several device types, including mobile devices, benefiting from optimized software interfaces, especially designed.

Users can look up for their friends from around the world and can build their own profile that can be public or private. The profile could be changed at user will or, public profiles could be blocked by the administrators if other users are reclaiming the content. Each user is allowed to post messages or photos which, also, could be public or could be addressed to a specific group or users. More recently, Facebook also provide different types of games for the users' entertainment.

The main controversy which Facebook has been facing since the beginning concerns the respect for private life, given that information about user's privacy can be gathered for advertising purposes, by placing

ads on the each user's page and several analyses are made by Facebook for his commercial partners in order to study the social behavior of each user.

There are two approaches:

(a) Learning for using Facebook

(b) Using Facebook for learning

Possible uses of facebook in education

There are many possible uses of Facebook in education, some authors (Onlinecollege.org, 2009) stating about 100 ways to use Facebook in the classroom, in order to provide value to the educational process. The main features which recommend Facebook as a valuable tool which could be used in education are:

♣Teachers can create custom list of students and manage groups of students on custom topics related to courses;

♣Exchanging information through links, photos or multimedia content related to specific subjects;

♣Creating surveys and quantifying the feedback

♣Using the on line chat for direct communication between students and teachers.

♣Publishing news on tests, exams or face to face meetings.

♣Integrating Facebook with other collaborative services provided by other application (like Google docs).

♣Using Facebook as a complement for an eLearning platform

Twitter (twitter.com)

Twitter is a micro blogging service based on WEB 2.0 technology. The main characteristic of Twitter is the feature of transmitting short messages like SMS, up to140 characters. Formerly, many users considered Twitter an alternative SMS service in the Internet. Being two years younger than Facebook, Twitter is online since 2006 at **www.twitter.com** In the online community, the short messages transmitted through twitter are known as "tweets" and the users of Twitter "tweeters". In order to transmita message, a user could directly access the twitter web site or could use a dedicated interface such: Twitpic, Digsby, Tweetdeck, etc. Several mobile phone operators from different countries allow the transmission of messages on Twitter network through SMS, using your mobile phone.

The base concept for Twitter is to allow the users to publish their own note
s on a personal Twitter account and, in the same time, to let them read messages posted by other users on their accounts. Each person could define a custom list of Twitter users and is allowed to follow notes posted by these people.The virtual space provided by twitter for micro blogging
is used nowadays in many activities:

- Publishing news: by newspapers or media agencies. There are several TV stations (like CNN or PROTV) which publish the latest news on Twitter, allowing users to be informed in the shortest time via mobile phone notifications.

- Promoting blogs: Many Twitter users have personal blogs and are using Twitter in order to promote their activity on a personal blog and to attract new visitors. Meanwhile on blog pages could be inserted Twitter widgets which foster the micro blogging.
- Promoting political activities: In recent years Twitter started being used extensively for political action: elections, protests, etc. There are countries where large protests were coordinated on Twitter, when local authorities tried to censor the calls to protests in local media

A standard is a structure for identifying the elements of a competency by establishing the guidelines for assessment. A competency is therefore evaluated through each of the relevant standards involved. In other words, if a competency has four criteria then there are four standards (and the assessment of those standards is tantamount to assessment of the competency).