



DESIGNING OF CONSTRUCTIVIST LEARNING ENVIRONMENTS (CLES)

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Abstract

Current recommendations from the education research community stress the importance of active engagement as a learning strategy, particularly at the introductory level. There are different types of learners having different level of interactivity, different learning styles, motivation, memory and retention. Teachers can design their content which will generally consider all above mentioned characteristics of the learner. So the question arises how to shift from traditional instruction? How to develop contributory, sharing, and cognitive approaches on groups for problem solving? Present paper explores a few approaches for effective learning in the present context.

Keywords: *Constructivist learning environments, Brain based learning, Co-operative learning.*



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The success of any educational process depends on the quality, commitment and expertise of the teacher. The shortcoming in teaching processes and the poor achievement levels of the students reflects the deficiencies in teachers' training and hence there is a severe need for substantial reforms in these processes. This of course, is a challenging task since it calls for a change of perspective amongst teachers, teacher educators and education administrators.

Current recommendations from the education research community stress the importance of active engagement as a learning strategy, particularly at the introductory level. Over the last decade or so, it has become clear that in most cases, relying exclusively upon the traditional strategies and assessments can result in very small gains in student understanding of fundamental concepts. Reasons for this failure usually include: lecture formats where students passively receive instruction, incomplete correlation with assessment items and the material being covered, and problem solving strategies that do not demonstrate subject mastery at the conceptual level.

Most of these problems can be overcome with active engagement learning strategies, and many of these strategies can be influenced effectively **with the shift to more powerful and more effective learning paradigm from:**

1. Individualism to professionalism.
2. Teacher centered to learner centered.

3. Instruction to positive learning environment i.e. construction and discovery.
4. Linear learning to hypermedia learning.
5. Passive recipients of information to active recipients to develop the ability of application of whatever they are learning.
6. Transmitter to facilitator, guide and coach.
7. Learning as agony to learning as elation.
8. Individual working to team working.

There are different types of learners having different level of interactivity, different learning styles, motivation, memory and retention. Teachers can design their content which will generally consider all above mentioned characteristics of the learner. So the question arises how to shift from traditional instruction? How to develop contributory, sharing, and cognitive approaches on groups for problem solving? Present paper is based on some of such approaches. .

Learning environments should emphasize the qualities illustrated. That is, technologies should be used to keep students active, constructive, collaborative, intentional, complex, contextual, conversational, and reflective

- **Active:** Learners are engaged by the learning process in mindful processing of information where they are responsible for the result.
- **Constructive:** Learners integrate new ideas with prior knowledge in order to make sense or make meaning or reconcile a discrepancy, curiosity, or puzzlement. They construct their own meaning for different phenomena.
- **Collaborative:** Learners naturally work in learning and knowledge building communities, exploiting each others skills while providing social support and modeling and observing the contributions of each member.
- **Intentional:** Human behavior is goal directed. That goal may be simple, or it may be more complex, like developing new career skills. Learning environments need to support learners in articulating what their goals are in any learning situation.
- **Complex:** Problems are multiple components and multiple perspectives and cannot be solved in predictable ways like the canned problems at the end of textbook chapters. The learners are required to engage in higher order thinking
- **Contextual:** A great deal of recent research has shown that learning tasks that are situated in some meaningful real world task or simulated in some case-based or problem based learning environment are not only better understood, but also are more consistently transferred to new situations.

- **Conversational:** Learning is inherently a social, dialogical process (Duffy & Cunningham, 1996). That is, given a problem or task, people naturally seek out opinions and ideas from others. Technologies can support this conversational process by connecting learners across town or across the world.
- **Reflective:** When they articulate what they have learned and reflect on the processes and decisions that were entailed by the process, they understand more and are better able to use the knowledge that they have constructed in new situations.

Some of the approaches are as follows:-

1. Cooperative Learning Approach

Cooperative learning is a highly structured classroom technique designed to promote peer learning. The key to success in cooperative learning, compared to other forms of discussion based learning, is its highly structured nature.

Cooperative Learning enhances student learning by:

- providing a shared cognitive set of information between students,
- motivating students to learn the material,
- ensuring that students construct their own knowledge,
- providing formative feedback,
- developing social and group skills necessary for success outside the classroom, and
- promoting positive interaction between members of different cultural and socio-economic groups.

2. Brain-based learning Approach

This learning theory is based on the structure and function of the brain. The core principles of brain-based learning state that:

1. The brain is a parallel processor, meaning it can perform several activities at once, like tasting and smelling.
2. Learning engages the whole physiology.
3. The search for meaning is innate.
4. The search for meaning comes through patterning.
5. Emotions are critical to patterning.
6. The brain processes wholes and parts simultaneously.
7. Learning involves both focused attention and peripheral perception.
8. Learning involves both conscious and unconscious processes.
9. We have two types of memory: spatial and rote.
10. We understand best when facts are embedded in natural, spatial memory.

11. Learning is enhanced by challenge and inhibited by threat.

12. Each brain is unique.

The three instructional techniques associated with brain-based learning are:

1. **Orchestrated immersion**--Creating learning environments that fully immerse students in an educational experience
2. **Relaxed alertness**--Trying to eliminate fear in learners, while maintaining a highly challenging environment
3. **Active processing**--Allowing the learner to consolidate and internalize information by actively processing it.

Teachers must engross learners in complex, interactive experiences that are both rich and real. Educators must take advantage of the brain's ability to parallel process.

Most individuals have a distinct preference for one of these styles of thinking. Some, however, are more whole-brained and equally adept at both modes. In general, schools tend to favor left-brain modes of thinking, while downplaying the right-brain ones. Left-brain scholastic subjects focus on logical thinking, analysis, and accuracy. Right-brained subjects, on the other hand, focus on aesthetics, feeling, and creativity.

How Right-Brain vs. Left-Brain Thinking Impacts Learning Curriculum--In order to be more "whole-brained" in their orientation, schools need to give equal weight to the arts, creativity, and the skills of imagination and synthesis.

Instruction--Teachers can increase their classroom's right-brain learning activities by incorporating more patterning, metaphors, analogies, role playing, visuals, and movement into their reading, calculation, and analytical activities.

3. Multiple Intelligences

How Multiple Intelligences Impact Learning Curriculum--Traditional schooling heavily favors the verbal-linguistic and logical-mathematical intelligences. Gardner suggests a more balanced curriculum that incorporates the arts, self-awareness, communication, and physical education.

Instruction--Gardner advocates instructional methods that appeal to all the intelligences, including role playing, musical performance, cooperative learning, reflection, visualization, story telling, and so on.

4. Control Theory Approach

The control theory states that behavior is inspired by what a person **wants** most at any given time: survival, love, power, freedom, or any other basic human need. Responding to complaints that today's students are "unmotivated," Glasser attests that all living creatures

"control" their behavior to maximize their need satisfaction. According to Glasser, if students are not motivated to do their schoolwork, it's because they view schoolwork as irrelevant to their basic human needs.

Instruction--Teachers rely on cooperative, active learning techniques that enhance the power of the learners. Lead teachers make sure that all assignments meet some degree of their students' need satisfaction. This secures student loyalty, which carries the class through whatever relatively meaningless tasks might be necessary to satisfy official requirements.

5. Observational Learning Approach

Observational learning, also called social learning theory, occurs when an observer's behavior changes after viewing the behavior of a model. An observer's behavior can be affected by the positive or negative consequences--called vicarious reinforcement or vicarious punishment--of a model's behavior.

Instruction-- Educators must encourage collaborative learning, since much of learning happens within important social and environmental contexts.

6. Social Cognition

child's learning development is affected by the culture--including the culture of family environment.

1. In short, according to the social cognition learning model, culture teaches children both what to think and how to think.
2. Cognitive development results from a dialectical process whereby a child learns through problem-solving experiences shared with someone else, usually a parent or teacher but sometimes a sibling or peer.
3. Language is a primary form of interaction through which adults transmit to the child the rich body of knowledge that exists in the culture.
4. Internalization refers to the process of learning--and thereby internalizing--a rich body of knowledge and tools of thought that first exist outside the child. This happens primarily through language.
5. A difference exists between what child can do on her own and what the child can do with help.
6. Interactions with surrounding culture and social agents, such as parents and more competent peers, contribute significantly to a child's intellectual development.

Instruction—

With appropriate adult help, children can often perform tasks that they are incapable of completing on their own. With this in mind, scaffolding--where the adult continually adjusts the level of his or her help in response to the child's level of performance--is an effective form of teaching. Scaffolding not only produces immediate results, but also instills the skills necessary for independent problem solving in the future.

7. Application of Piagetian Teaching Model in Group setting

Piaget outlined several principles for building cognitive structures. During all development stages, the child experiences his or her environment using whatever mental maps he or she has constructed so far. If the experience is a repeated one, it fits easily--or is assimilated--into the child's cognitive structure so that he or she maintains mental "equilibrium." If the experience is different or new, the child loses equilibrium, and alters his or her cognitive structure to accommodate the new conditions. This way, the child erects more and more adequate cognitive structures.

Instruction—

Teachers must emphasize the critical role that experiences--or interactions with the surrounding environment--play in student learning. For example, instructors have to take into account the role that fundamental concepts, such as the permanence of objects, play in establishing cognitive structures. (There was significant return in the form of cognitive growth of children in the desired areas. Passi, Goel and Vasthava, 1995).

8. Developing thinking styles:

By developing one's thinking skills one can make achievements; can become successful; by developing one's thinking abilities it is possible to transform one's aggressive tendencies, bad temper and other negative tendencies creatively and constructively. It has been found by **Dr.Edward de Bono** that when school students were taught to think effectively, their ill-temper and aggressive tendencies reduced significantly. Neurotics scored significantly lower scores in decision making, problem solving and creative thinking. Interestingly, when neurotics were taught to think effectively, they showed a remarkable reduction in their neurosis.

Thinking Formulae Dr. de Bono has devised some thinking formulae to help us practice thinking as a skills. Most important of them are: 1. AGO 2. CAF 3. PMI 4.OPV 5.APC

1. Aims Goals Objectives. (AGO)

Since deliberate thinking is actually the sign of purposeful use of Will Power, it is important that the thinker should be well aware of the aims, goals and objectives. In other words, a sense of direction is required if one is to use his thinking effectively.

2. Consider All Factors (CAF)

All parameters of a problem should be considered to analyze it. By doing so, one can avoid the error of partialism in thinking.

3. Plus Minus Interesting (PMI)

When making decisions, this technique is very useful.

4. Other People's Views (OPV)

The thinker thinks from the perspective of the different people involved in or affected by the decision or solution.

5. Alternatives Possibilities Choices (APC)

The thinker generates as much alternatives, possibilities and choices for the solution of the problem. The best suitable one can then be selected by applying PMI or OPV.

It is studied that thinking pattern can change through counseling in a relatively short period. Cognitive counseling is useful in the acquisition of desirable thinking. (Goel & Joseph, (1994).

9. Humor, Analogy and Metaphor (HAM) approach:

Humor, analogy and metaphor, if used skillfully in fitting contexts, can prove to be beneficial for the students by developing in them critical thinking skills, enhancing their concept learning and making them more attentive in the process. Research studies show that the use of these as a pedagogical tool helps in better information recall (Hill, 1991) in his book *Anatomy of an Illness* proffers that humor can reduce anxiety, help relieve stresses and increase mental sharpness; characteristics that can improve learning (Glenn, 2002) and are desirable in a pedagogical settings.

10. E- Learning Transition Model

It Builds consistency into the academic process, which would be appreciated by the learners facing the challenges of adjusting to varied approaches to teaching with technologies. There are following four components:

E-Needs Assessment: It's a fact finding process resulting in biographical account of learners. Their needs, expectations and with technology influences their learning style preferences. On-line surveying is an effective tool for reaching the masses and attaining data within a short time frame. It provides a forum for learners to declare their orientations and help educators close the gap between technology and delivery.

E-Curriculum Structuring: This is the phase of the model where educators invite learners in synthesizing learners profile data and dialoguing about how to tailor instructional design accordingly. The invitation to share insights capitalizes on learners experience with technology gained from personal experimentations with technology. Learners are accountable in shaping their curriculum and have a vested interest in reaching course objectives.

E-Facilitation: with learners galvanized to take a more active role in curriculum, opportunities present themselves for learners to showcase their expertise in a facilitative capacity. Learners are challenged as facilitators to exercise the full extent of their knowledge and expertise in order to create and deliver technologically sound and sophisticated presentations.

E-Feedback system: It is the final phase of this model to ascertain the effectiveness of eLearning. regular feedbacks minimizes the barriers and decreases the probability of problems occurring and eroding satisfaction.

11. Networked & Digital Teaching/Learning Experience

Perhaps one of the greatest impacts of the Faculty Development Institute is on the teaching and learning process of faculty and students. The empowerment of both faculty and students through interactive and computer-enhanced instruction has generated the most far-reaching results. The digital teaching and learning experience hinges on integrating technologies such as e-mail, the World Wide Web, presentation software and interactive courseware into the classroom environment. In turn, the educational process becomes a collaborative effort.

12. Mobile Message Services in Higher Education:

University students are equipped with mobile phones and software that allowed teachers to send text-based, audio-based and video-based messages to the students. Data was collected using questionnaire, focus groups and log files. The study concludes that students prefer to have information and learning content sent as text.

This way we switch into a new domain of teaching and learning that embraces the sharing of experiences and develops our personal repertoire of skills in order to better accommodate the evolving orientations of preferences of the new generation of learner. In doing so, we smooth our rough edge that demarcate most new initiatives and sustain the energy, passion, and commitment for teaching and learning in the emergent learning world.

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