Instructional Models

**Direct Instruction:**

With emphasis on active teaching and high levels of student involvement, the direction instruction model focuses on both concepts and skills. In this model, the teacher structures the topic, teaches it to students, provides students with opportunities to practice, and gives feedback. Control of learning gradually shifts from teacher to learners.

**Cooperative and Collaborative Learning:**

This model is grounded in the belief thät students who learn together in group settings (small and large) and who cooperate with each other in order to reach their learning goals are more likely to be successful than students who work independently and/or who work in a competitive environment. The basic principles of both cooperative and collaborative models are: (a) students need to learn how to work together and support each other; (b) face to face interactions increase and enhance critical thinking; (c) students benefit from interdependence and ultimately become stronger when faced with independent challenges; (d) a sense of responsibility on the individual is essential; and (e) reflection on the effectiveness is essential.

**Problem-based Learning and Simulation:**

PBL engages the learner in a problem-solving activity. In this process, instruction begins with a problem to be solved rather than content to be mastered (Hsiao, 1996). Students are introduced to a real-world problem and are encouraged to dive into it, construct their own understanding of the situation, and eventually find a solution (Grabowski, Koszalka, & Mccarth, 1998). Major goals of PBL are to help students develop collaborative learning skills, reasoning skills, and self-directed learning strategies (Hsiao, 1996).

**Concept Development and Attainment:**

The concept development model builds on students' prior knowledge and refines and extends concept information so that students can understand increasingly complex and abstract ideas. Students list, group, and regroup items related to a subject, identifying common attributes and revealing thought patterns. Students label the groups, draw inferences, and generalize from the specific data available to them. In the concept attainment model, students follow a similar process but the goal is for them to reach understandings that are already generally understood and known.

**Inquiry:**

Inquiry-based learning is an approach to instruction that engages students in investigations to satisfy curiosities and questions. The inquiry is satisfied when students construct mental frameworks that adequately explain the questions at hand or experiences (Haury, 1993). The learner's involvement in the learning content fosters skills and attitudes that permit the learner to seek resolutions to questions and issues while constructing new and meaningful knowledge (Inquiry-based Learning: Explanation, 2001 , April).

**Socratic Method:**

The Socratic method involves a conversation in which a student is asked to question their assumptions. It is a forum for open-ended inquiry, one in which both student and teacher can use probing questions to develop a deeper understanding of the topic.

**Blended Learning:**

This model combines face to face (traditional) learning with an online, independent instructional component. Students and teachers work together to engage in some of the learning, and then students work independently using a learning management system as the platform for understanding and engaging in learning goals, assignments, and interactions. Students have some control over time, place, path, and/or pace of the learning.

**Inductive Reasoning:**

Inductive reasoning helps students deepen their understanding of content and develop their inference and evidence-gathering skills. In an Inductive Learning lesson, students examine, group, and label specific "bits" of information to find patterns. Inductive Learning does not stop at categorization, however; it also asks students to use their labeled groups to develop a set of working hypotheses about the content to come. Then, during the learning, students collect evidence to verify or refine each of their hypotheses.

**Mastery Learning:**

In mastery learning, students continue to engage in content until they reach a predetermined (mastery) level of performance. During the learning phase, teachers consistently review student work and provide feedback. Students return to the learning repeatedly until they are able to show evidence of understanding.

**Computer Assisted Instruction:**

Computer assisted instruction refers to content and learning activities presented on the computer. Unlike blended learning which is a series of experiences found in a learning platform, CA.I is a software program designed to deliver instruction and provide computer-generated feedback to let students know if their answers are correct. CAI relies on game-like designs and competitiveness; the students typically move at a self-selected pace and do not move forma.rd in the software until they master the current level or task.