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|  | Role of Technology | Role of Teacher/Student | Theory |
| Anchored Instruction & Jasper Series | * The Jasper Series is a video-based instructional model set to deliver problem-solving content where students would be engaged, build collective understanding, and learn how to use various strategies and concepts (Cognition and Technology Group at Vanderbilt, 1992). * It was designed to create realistic content for students and teachers to take their knowledge from a variety of areas to help pose problems, solve problems, and to reason. Over all, its goal was to enhance the quality of learning (CTGV, 1992). | Student:   * To develop meaningful skills, become independent thinkers and learners. * Understand the when, how, and why we use these skills or concepts.   Teacher:   * Act as facilitator of learning. Provide scaffolding when needed * Decide how this teaching method would best fit into their classroom for the most effective learning to occur. | * Constructivism * TPACK   Anchored instruction: The Jasper Series creates a learning environment that allows students to develop problem-solving skills using real world situations. |
| SKI & WISE | * Interactive, accessible, allowed for reflection by answering questions, provided many graphics and videos, and allowed students to relate the events to their own personal lives. * Integrate science content with scientific inquiry. | Teacher:   * Can customize WISE projects for their own classroom to meet the needs of their own students. * “Transform the teacher from a director of inquiry to a facilitator of inquiry” (Linn, Clark, & Slotta, 2003)   Student:   * Interact with technology and peers. * Ask questions to further understanding. * Learn from eachother | * Constructivism * TPACK   The SKI framework follows four tenets. These include “(1) making thinking visible, (2) making science accessible, (3) helping students learn from each other, and (4) promoting lifelong learning “ (Linn, Clark, & Slotta, 2003) |
| LFU & MyWorld | * Offers students dynamic and interactive formats * Merge content and the process of teaching in the area of science. | Teacher:   * Create activities that fill in students’ gaps of knowledge, give experiences so students to create their own knowledge, and refine their own knowledge.   Student:   * Be observers throughout the activities. * Communicate with others to demonstrate their learning. | * Constructivism * TPACK   The Learning for Use (LfU) framework underlies the theory behind MyWorld. This framework has four principles:  1. learning occurs through constructing and modifying existing knowledge (Constructivism),  2. learning must be initiated by the learner,  3. the circumstances surrounding knowledge construction determine its accessibility for the future, and  4. learner must have procedural knowledge to apply declarative knowledge.  (Edelson, 2001). |
| TGEM & ChemLab | * Enhance science exploration * Enhance the scientific learning experience. | Teacher:   * guide students toward examining relationships “using computer simulations until students grasp the complexity of the science” (Kahn, 2010).   Student:   * Draw conclusions * Make hypothesis * Work with software * Work collaboratively | * Constructivism * TPACK   Three step process:  1 – Generate  2 – Evaluate  3 - Modify |

References:

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