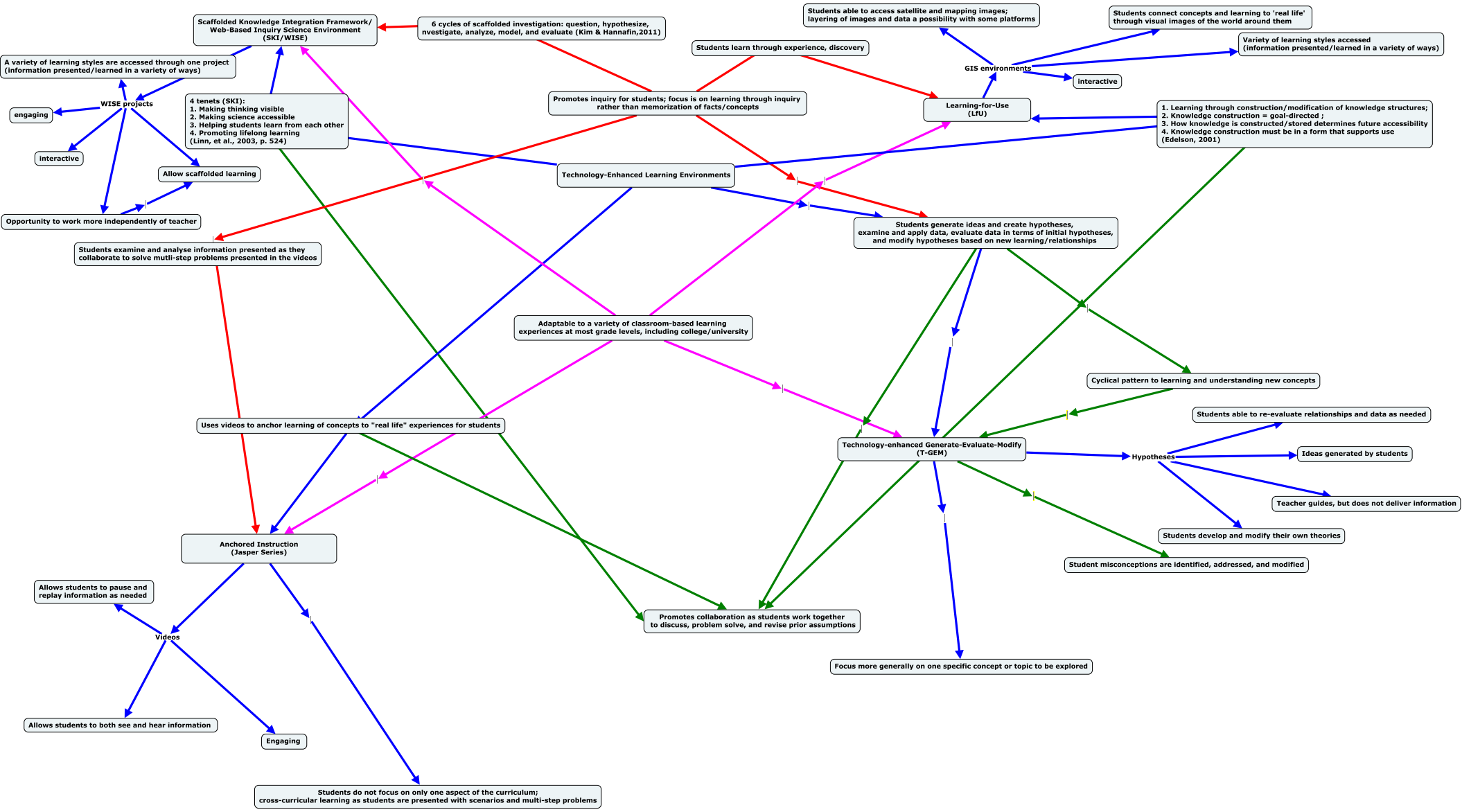
Scaffolded Knowledge Integration Framework/ Web-Based Inquiry Science Environment (SKI/WISE)
6 cycles of scaffolded investigation: question, hypothesize, nvestigate, analyze, model, and evaluate (Kim & Hannafin,2011)
Students able to access satellite and mapping images; layering of images and data a possibility with some platforms
Students connect concepts and learning to 'real life' through visual images of the world around them
Variety of learning styles accessed (information presented/learned in a variety of ways)
A variety of learning styles are accessed through one project (information presented/learned in a variety of ways)
Students learn through experience, discovery
GIS environments
interactive
WISE projects
engaging
4 tenets (SKI):
1. Making thinking visible
2. Making science accessible
3. Helping students learn from each other
4. Promoting lifelong learning
(Linn, et al., 2003, p. 524)
Promotes inquiry for students; focus is on learning through inquiry rather than memorization of facts/concepts
Learning-for-Use (LfU)
1. Learning through construction/modification of knowledge structures;
2. Knowledge construction = goal-directed ;
3. How knowledge is constructed/stored determines future accessibility
4. Knowledge construction must be in a form that supports use
(Edelson, 2001)
interactive
Allow scaffolded learning
Technology-Enhanced Learning Environments
Opportunity to work more independently of teacher
Students generate ideas and create hypotheses, examine and apply data, evaluate data in terms of initial hypotheses, and modify hypotheses based on new learning/relationships
Students examine and analyse information presented as they collaborate to solve mutli-step problems presented in the videos
Adaptable to a variety of classroom-based learning experiences at most grade levels, including college/university
Cyclical pattern to learning and understanding new concepts
Uses videos to anchor learning of concepts to "real life" experiences for students
Students able to re-evaluate relationships and data as needed
Technology-enhanced Generate-Evaluate-Modify (T-GEM)
Hypotheses
Ideas generated by students
Teacher guides, but does not deliver information
Students develop and modify their own theories
Student misconceptions are identified, addressed, and modified
Anchored Instruction (Jasper Series)
Allows students to pause and replay information as needed
Promotes collaboration as students work together to discuss, problem solve, and revise prior assumptions
Videos
Focus more generally on one specific concept or topic to be explored
Allows students to both see and hear information
Engaging
Students do not focus on only one aspect of the curriculum; cross-curricular learning as students are presented with scenarios and multi-step problems