

REFLECTIVE STATEMENT: SYNECTICS (V. 1) LESSON PLAN

SLO 1: *Demonstrate advanced understanding of the trends, issues, and research associated with education in general and with their respective specialization.*

Relevance

I designed this Synectics lesson plan as part of the coursework for EDU 542, and as I result I progressed in my understanding of how to introduce 21st century skills into the curriculum. Synectics is an approach to teaching and learning that allows students to develop their capacities for creative thinking and problem solving. It reduces the role of the teacher as transmitter and relegates them to the role of facilitator, thereby granting students more freedom to actively engage in the knowledge construction process. This approach is consistent with the findings of the learning sciences: that students learn more, both qualitatively and quantitatively, when they are permitted to participate in the construction of knowledge individually or collectively (Sawyer, 2006). The use of a synectics lesson reflects agreement with these findings, and demonstrates an openness to new and creative approaches to pedagogy.

This lesson enabled students to make a series of comparisons that made the struggles faced by the forty-niners of the California Gold Rush more relatable to their own lives. It emphasizes collaboration, reflection, and higher-order thinking. It also utilizes an advance organizer to link students' new learning to their existing knowledge about the forty-niners and the challenges of their daily lives. These all represent 21st century skills and draw from the findings of the New Learning Sciences.

Significance - Why is competence with this artifact significant for a professional educator?

Synectics is an appropriate lesson type for meeting the standards and objectives addressed by this lesson. If students are to deeply understand the challenges faced by the participants in the Gold Rush, a degree of empathy must be present. By creating analogies and comparing a familiar concept with a strange one, students can recognize new patterns and relationships in what they have already learned (Estes, Mintz, & Gunter, 2011). In order to empathize properly, one must be able to see a relationship between another's actual experience and their own potential experience. Likewise, synectics enables students to view a concept not only for what it is, but also for what it could be.

The test-taking skill that synectics supports best is "problem to solution thinking, which is the ability to see a problem in terms of its potential solution" (Estes, Mintz, & Gunter, 2011, p. 16). Through the creation of multiple analogies for a concept, students gain experience with identifying analogous relationships, which are often critical elements of multiple-choice test questions. When students can perceive how a test question might have been designed, they can better discern the best answer. Because synectics also requires students to look for meaning beyond the information they have been given, it supports another test-taking skill: "Inferential comprehension, which is the ability to reason beyond the information given in the item itself" (p. 16).

This particular version of a synectics lesson (making the familiar strange) seems most useful as a tool for extending students' understanding of a topic they have already studied. Other versions of synectics would be more useful for introducing a topic and framing the way students think about it; this version requires students to draw on their existing knowledge of a topic in order to deepen their conceptual understanding. One of the strengths offered by synectics is the ability to improve students' capacity for creative thinking while broadening their content knowledge as well. It is not merely creativity for creativity's sake; it allows them to use creativity

as a means to an end. However, students are not created equally creative, and while some students may thrive amid the ambiguity, other students may struggle to make adequate connections between the familiar and the strange.

Adaptations/Accommodations for Advanced, ELD and IEP learners:

- **Advanced:** Students will write a fictional journal entry, compose a poem, or create a work of art that illuminates the perspective of a foreign gold-seeker. They may choose the nationality, but their work should be historically accurate. (Depth & complexity: multiple perspectives)
- **ELD:** Students will be given a graphic organizer in which they can record the analogous relationships that are explored during the lesson. Because *analogy* is a concept that requires an in-depth explanation, English learners will benefit from the visual organization of the information, which will help make the meaning more clear.
- **IEP:** Scaffold students through the Synectics exercise by allowing them time to process the information and to think of analogies. Provide feedback by listening to their ideas and guiding them toward an effective thinking strategy, as opposed to a particular answer.

Link to Theory

How does this lesson support the Information Processing learning theory?

The Synectics lesson model is exemplary of the Information Processing model because of its emphasis on teaching learners strategies for thinking, encoding, and elaborating. The whole idea of Synectics is essentially a series of cognitive strategies for making new concepts relatable to known concepts. In this lesson, students consider the known information (thinking), connect it to prior knowledge they have retrieved from long-term memory (encoding), and make new comparisons and connections based on the knowledge they have assembled (elaborating). The lesson also provides practice with working memory and retrieval from long-term memory; the creation of analogies takes students so far away from the original topic that they must actively work to link the final analogy to the original concept. Engaging in this type of exercise allows students to practice their creative thinking skills, and to use a variety of cognitive strategies to achieve their learning goals.

To which Big Ideas can this lesson be linked?

Among Ormrod's Big Ideas, the two that align most closely with this lesson model are #6: *Hints about how to think or behave often facilitate performance*, and #7: *Learning and development are fostered when learners are challenged to perform increasingly more difficult tasks or to think in increasingly more sophisticated ways*. Throughout the lesson, the teacher guides the students toward the creation of analogies – not making the analogies for them, but showing them along which lines they should be thinking. Furthermore, Synectics represents a form of thinking to which most students are not accustomed, as creative thinking does not receive nearly as much attention in most classrooms as analytical thinking. As such, it is a sophisticated approach to learning that, with practice and repetition (there's that information processing again), will bring students to higher levels of development and to deeper levels of learning.

How does this lesson connect with the New Learning Sciences?

The ultimate goal of Synectics is improved creative thinking and problem solving skills, and it achieves this by drawing heavily from the knowledge stores students already possess (Estes, Mintz, & Gunter, 2011). The New Learning Sciences insist that connections must be made to students' prior knowledge in order for deeper understanding to commence (Sawyer, 2006). They also have concluded that students must be active participants in their own learning, and Synectics reserves the bulk of the cognitive work for students, while the

teacher facilitates and guides. Furthermore, Synectics' emphasis on interdisciplinary relationships and the connections between them resonates with the 21st Century Skills Framework, the standards of which state that students should "build understanding across and among core subjects" (P21 Framework, 2009). This particular Synectics lesson asks students to first link the struggles of the forty-niners to animals that face struggles in similar situations, and then to challenges encountered in their own lives.

What curricular or technological resources have been useful in designing this lesson?

I discovered several interactive websites involving the Gold Rush and the lives of the forty-niners. Because they did not fit within the frame of the lesson, they were included as additional options for improving student learning, and may be useful in a different lesson format. Each of them gives students a glimpse into daily life during the Gold Rush; while some ask them to complete tasks, others simply reveal fascinating accounts of the times. I found these sites by using a Google search.

Resources/Technology

- **Interactive web programs**
 - <http://www.kidport.com/reflib/usahistory/calgoldrush/CalGoldRush.htm#Events>
 - Text-based journey through the Gold Rush period
 - <http://www.pbs.org/wgbh/amex/goldrush/sfeature/game.html>
 - *Strike it Rich!* Interactive Gold Rush role-playing game (Flash required)
 - http://www.huntington.org/Education/goldrush/game/anna_1.htm
 - *Annabelle's Story 1850* – Interactive Gold Rush role-playing game
 - <http://www.rootsweb.ancestry.com/~momarion/goldrush.htm>
 - Gold Rush Letters from 1849-1850 (transcribed primary sources)
 - http://21cif.com/rkitp/challenge/goldrush/goldrush_index.swf
 - "Interactive tutorial games to strengthen scanning"

Professional Actions/Areas for Growth

Creating a Synectics lesson plan gave me an opportunity to explore a new type of lesson and to discover a new way to teach students how to improve their creativity. As a highly creative person in the field of education, I have been curious about how creativity is learned, sustained, and extinguished by teachers, particularly in educational systems that emphasize and reward narrow thinking. I intend to be a teacher who, within the parameters set by the standards, encourages creativity and helps students develop their capacity for it.

I believe Synectics is an approach worth keeping and will try to become more proficient at teaching with it. In order to do this, it would be worthwhile to read William J.J. Gordon's book, *Synectics: The Development of Creative Capacity*, and to design lessons for the other two versions of Synectics. I could then more effectively share strategies for improving students' creative thinking with my colleagues, and thereby help improve our collaborative skills in the process.