Goal-Based Scenarios

General

Goal-based scenarios, introduced by Roger Schank, are a model of constructivist learning that **combines case-based learning** with **learning by doing**. Goal-based scenarios teach a set so steps need to take in order to accomplish desired goal. According to Schank,

- "*The intent of a goal based scenario is to provide motivation, a sense of accomplishment, a support system, and a focus on skills rather than facts.*"[1)]

What are goal-based scenarios?

Schank starts from the assumption that

- "*every aspect of human behavior involves the pursuit of goals.*" and "*If goals are at the base of the human thought process, then it follows that learning must be a goal-dominated arena as well.*"[2)]

Learning in school is unsuccessful for children since it replaces natural learning goals which were fostered by curiosity and desire to learn the world by artificial goals assigned to them by someone else. Instead of learning to be able to do something, children at that time start to learn in order to please the teacher, get good grades, or in order get into a good college. Goal-based scenarios serve here as a mean of achieving educational purposes by attempting to achieve set of scenario goals which are more meaningful and motivating for the learners.

Essential elements of a goal-based scenario are[3)]:

- Learning goals - target skills that students should learn. They can refer to procedural or declarative knowledge.
- Mission - motivational and realistic objective students will pursue.
- Cover story - a motivating story that will create and explain the need for the mission.
- Role - the character a student will play. It has to require target skills.
- Scenario operations - all activities students will perform in order to fulfill the mission.
- Resources - well organized and accessible information sources students will need to acquire target skills.
- Feedback - must be provided just in time by and expert in form of coaching, consequence of actions or stories about similar experiences.

When designing a goal-based scenario, following steps should be followed:

- **Identify target skills** independent of context which should be learned (practical or intellectual). For example cost accounting, or teaching Newton's second law.
- **Developing tasks** or activities that will require those skills in a domain selected by the students. Tasks can be real or play-acting, yet students must want to achieve to solve them. For example cost accounting with respect to various government regulations.
- Choose a **focus**.

- **Create a story** surrounding tasks or activities.
- **Build learning environment** to support target skills.
- Assign roles to the learners in a single or group situation that develops **towards accomplishing the task**.
- Explain the task to the students and encourage them to pursue its goals.
- **Help students** as soon as they encounter a problem.

What is the practical meaning of goal-based scenarios?

A goal-based scenario described by Schank[4]:

"*Develop a mutant bacterial strain capable of producing human insulin in sufficient quantity to meet the needs of a diabetic patient.*"

"*This GBS would be presented in the following terms. The human body contains a gland called the pancreas. Certain cells in the pancreas produce and secrete a hormone called insulin. Johnny's pancreas does not produce enough insulin, so Johnny has a dangerous condition called diabetes. To avoid the symptoms of diabetes, Johnny must take insulin every day. How can he get enough insulin? YOUR ASSIGNMENT is to develop a way to make bacteria produce insulin that you can give to Johnny. In the course of working through this GBS, students could learn the following skills:*"

- "*Distinguish proteins from other macromolecules, use a centrifuge (in theory), apply operon model to inducible and repressible systems, interpret replica plates, map genes on chromosomes, construct plasmids, distinguish among organelles, regulate carbohydrate metabolism, culture bacteria, operate a chemostat, interpret chemical equations, make restriction maps, analyze enzyme kinetics, sequence proteins, sequence nucleic acids, crack the genetic code, create a "designer gene", interpret base composition data, apply diffusion equations, evaluate membrane transport data, do pH calculations and prepare nutrient media for bacterial growth.*"

In 1991 Roger Schank created a goal-based scenario named **"Broadcast News"**. This multimedia environment including facilities for editing text and video, old newspapers articles and newscasts, reference works, a teleprompter, video camera, and a computer-controlled VCR enables students to work on a virtual newscast, develop story lines using information from a database (usually from a day before), and compare them with a real newscast for the same event. As the result, students have eventually developed adequate skills to deliver the news as professionals.

Criticisms

Keywords and most important names

- **Goal-based scenarios**
- Roger Schank

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Read more

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[1)] , [2)] , [4)]
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[3)]
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