iLearningi's Ecosystem Approach

As unlikely as it sounds, the ecosystem philosophy manifested itself as Skip was fly-fishing on the Jackson River in the Virginia Highlands. While wondering why he had become increasingly unsuccessful at catching trout (which he always releases) it suddenly occurred to him that maybe he wasn't just losing his magic touch catching the wiley fish, especially the brookies. Maybe, he thought, it had to do with the fact that in recent years, climate change and global warming had changed the river ecosystem, causing the river's flow to decrease and with it, the average water temperature to increase, thus harming the trout population.

Suddenly, standing in the middle of the Jackson, Skip wondered, was the decline in education in North Carolina like the decline in the quality of the Jackson as a trout habitat? If so, one could employ an ecosystem model to establish parameters and identify variables that could then be researched for their impact on the ecosystem's ability to educate students.

The education ecosystem includes direct and indirect interactions at multiple levels: involving students, teachers, school infrastructure/resources, school administration, school board, funding, geographic location (e.g., rural vs. urban), families, the larger community (business, churches), and local, state and federal governments. In a healthy ecosystem, all organisms interact at a multiplicity of levels in relation to their physical environs, giving rise to a prosperous whole and thus ensuring the system's integrity and evolution. However, if dimensions of the system are altered negatively, the system can fall into crisis. Conversely, positive alterations can enhance the system and positively impact its evolution.

Therefore, the creation, implementation and evolution of education initiatives that will achieve their set goals depend upon initially characterizing the ecosystem.

To illustrate how the system would work, let's look at the way iLearningi approaches secondary teacher professional development. Across the country, excellent biology curricular materials are being developed and teachers are being trained to deliver the curricula. However, adoption in the classroom by the secondary biology education ecosystem frequently does not occur. Often, the curriculum is developed without consideration of key ecosystem realities such as:

- Teachers can devote only two class periods to teaching a topic, but the module requires five
- Teachers do not have the time to prep labs and clean up afterward
- Schools lack equipment and supplies necessary to conduct a module's experiment
- Schools do not have the proper technological resources, with computers lacking DVD players or with only CD drives, thus precluding the use of DVD instructional materials
- Module content is not aligned with end-of-course testing and state/national standards
- Teachers do not have the time to prep labs and clean up afterward

By developing curricula that address the realities of secondary science education ecosystem, a far greater level of adoption will occur and students will benefit educationally…and, if climate change can be stopped and reversed, so will those wiley Jackson River trout.