Creative, online learning tool helps students tackle real-world problems

April 11 2011

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Solving problems for clients in any field usually requires gathering information and creative thinking that leads to practical and inventive solutions.

A new computer interface developed at Iowa State University is helping students use what they've learned in the horticulture classroom and apply it to problems they'll face when they are on the job site.

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ThinkSpace has many different features that make it an effective way to teach using ill-structured problems. This type of problem allows students to choose from multiple paths to arrive at a solution.

By contrast, well-structured problems have a straight path to the one, clear solution.

In horticulture, the ThinkSpace platform is being used for upper-level classes and requires students to access what they've learned throughout their time studying horticulture and apply it to real-world problems.

In these classes, VanDerZanden gives students computer-delivered information about residential landscape.

That information includes illustrations of the work site, descriptions of the trees on the property, explanations of the problems the homeowner is experiencing, mock audio interview files with the property owner, and about anything else a horticulture professional would discover when approaching a homeowner with a landscape problem.

Also, just like in real life, some of the information is relevant to the problem, and some information is not.

"It forces students to take this piece of information, and that piece of information, and another piece of information, and then figure out what is wrong – in this case with a plant," said VanDerZanden.

When the students think they have determined the problem, they enter

their responses into the online program.

VanDerZanden can then check the responses.

For those students on the right track, she allows them to continue toward a solution.

For those who may have misdiagnosed the situation, VanDerZanden steers the students toward the right track before allowing them to move forward.

So far, the response from students has been very positive.

"The students like the variety," said VanDerZanden. "They like struggling with real-world problems, rather that something that is just made up. On the other hand, they can get frustrated because there is not a clear-cut answer."

The entire process leverages the classroom experience into something the students can use at work.

"I think this really enhances student learning," said VanDerZanden. "Students apply material from previous classes to a plausible, real-world situation. For instance students see what happens when a tree was pruned really hard to allow a piece of equipment to get into the customer's yard. As a result, the tree sends out a lot of new succulent shoots, and then there is an aphid infestation in the tree. It helps students start making all of those connections."

Provided by Iowa State University