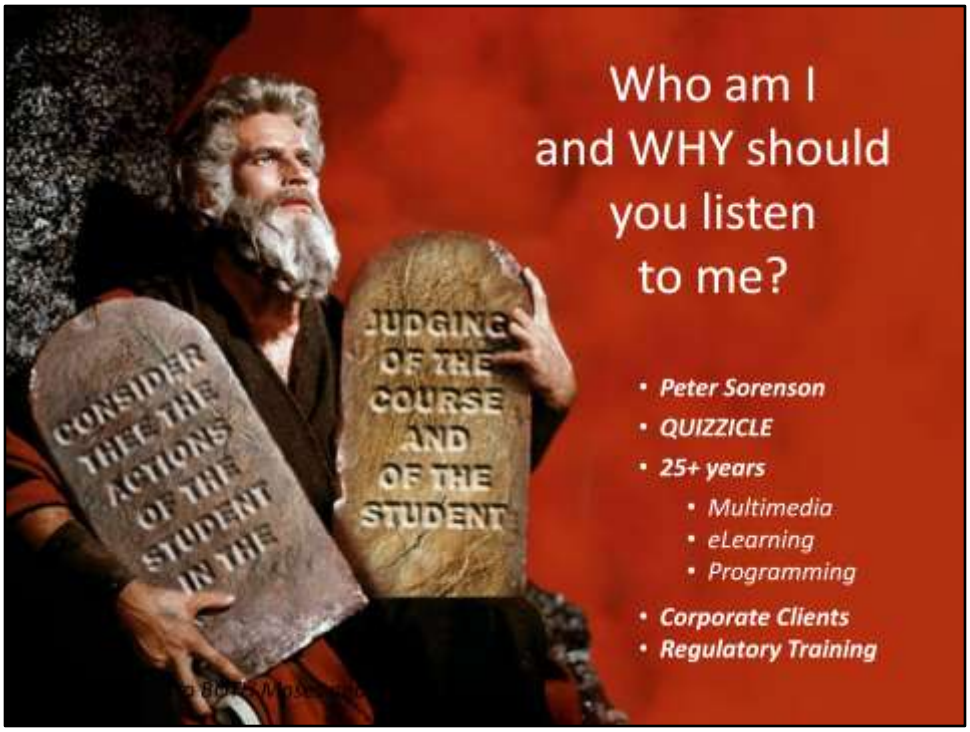


My name is Peter Sorenson, I own QUIZZICLE, a web-based training development company

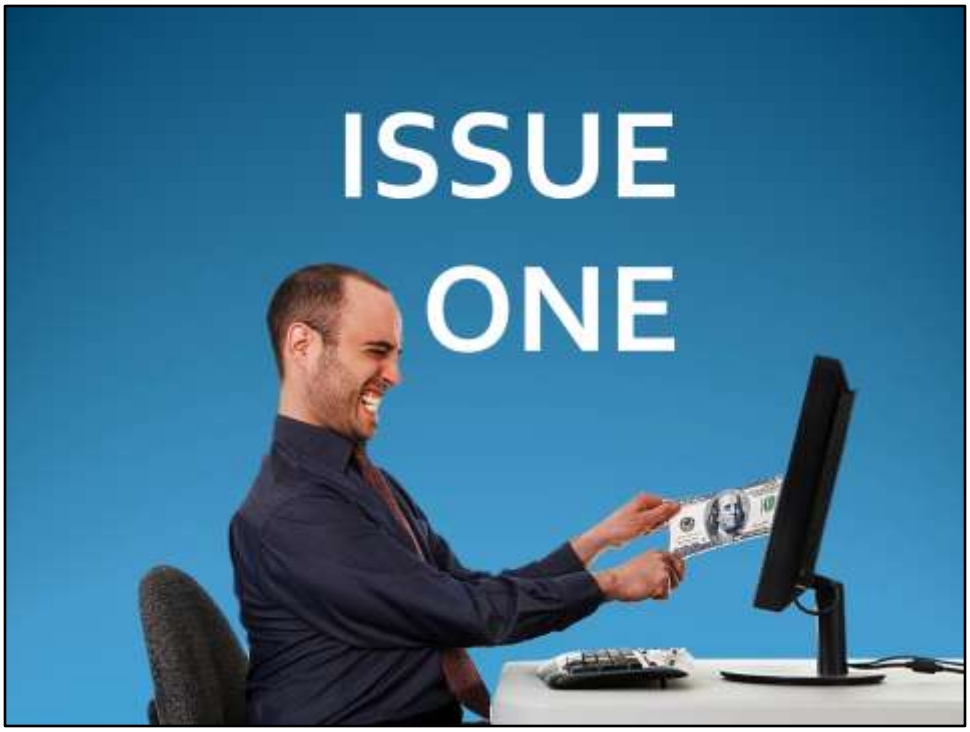
I have over 25 years experience in multimedia, elearning development and programming

Although it's not forever it's been long enough to help me identify, and attempt to solve, what I believe are the challenges of the elearning experience

Our clients are corporations – so I'm approaching today's presentation from a corporate elearning perspective

but the issues and benefits certainly migrate into elearning issues in schools and universities.

Let's start out with a little background information on some underlying issues in elearning



eLearning development costs money

For most companies, the product they sell is NOT web-based training.

The more Robust Training the larger the expense.

For schools and universities training IS their product – it's what they market.

Training produces income.

Robust training attracts more income.

Businesses are in business is to turn a profit.

Unless a business, like my own, develops web-based training courses…..

then web-based training courses COST a company money….

To develop and implement

When something costs money, what does a company do?

They look at what they get for their money - -

And then begin to look for low cost alternatives. Why?

Because on a corporate balance sheet, any solution that costs more than what it delivers is like pouring money into a big black hole.

In business a job applicant doesn't ask about the quality of a company's elearning as part of the interview process.

In academia students ARE attracted to a school based on the quality of their distance based learning infrastructure, capabilities and courseware.

To a business elearning is a COST.

To a University elearning is an ASSET.

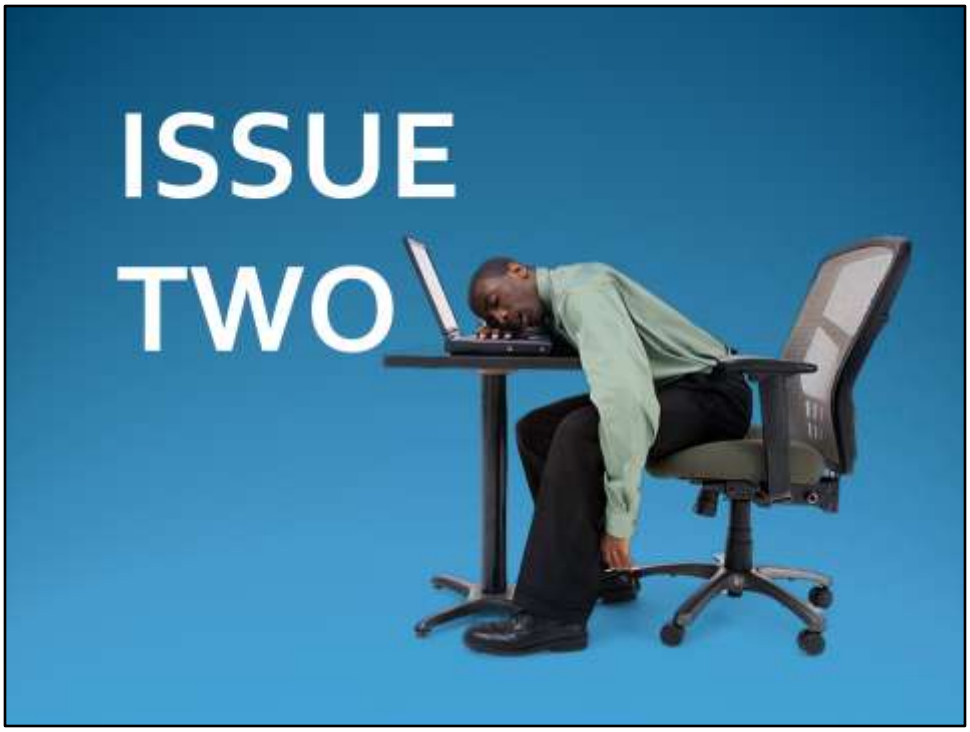
To add INSULT to INJURY for BUSINESSES, consider that 70% of all corporate elearning is compliance related.

More than half of the training required for employees is to simply meet the requirements of a government or industry mandate.

Not to increase employee performance or increase knowledge.

Not to make the company more profitable.

Just because someone said they have to – not the best motivation to spend money.



Training is self-directed.

When compared to the classroom distance based learning is an isolating experience.

In the classroom the teacher monitors, engages and supports group and individual efforts at learning

in real-time or on demand / as needed

In self-directed web-based training no one observes you as you take your training.

Your experience is evaluated after your efforts are recorded.

No one responds in real time to your request for assistance.

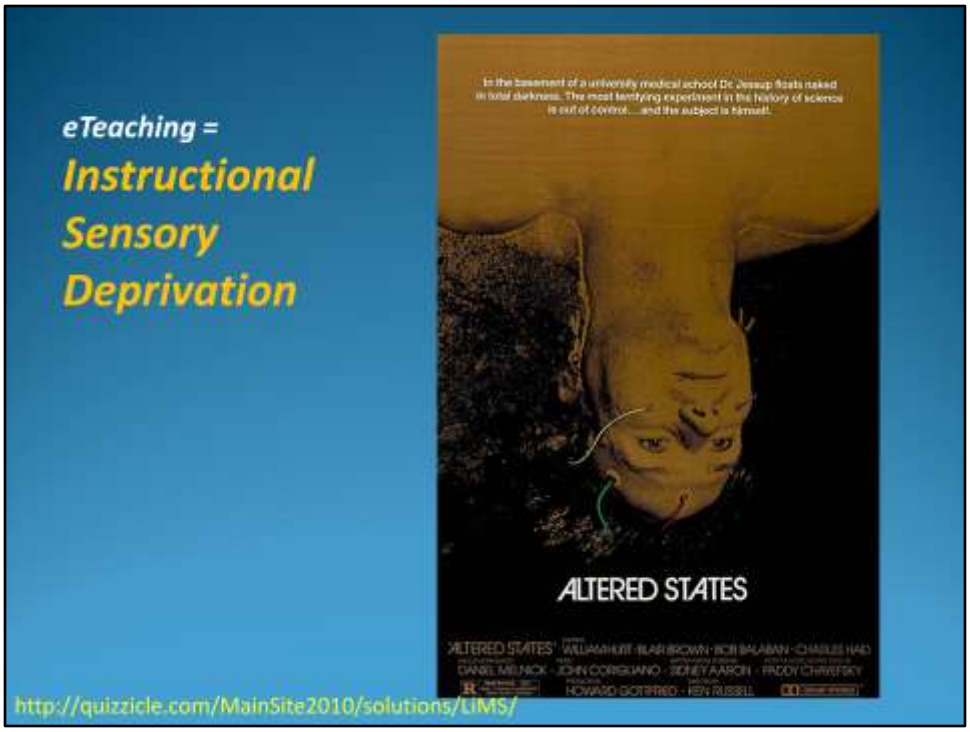
In the classroom, the instructor can rely on multiple “observed criteria” to evaluate how individuals or groups are responding.

The instructor acts as a constant monitor of individuals and the classroom as a whole to gauge the effectiveness
of the presentation and whether adjustments need to be made for clarification that will facilitate comprehension.

In self-directed training only minimal learner-course interactions are captured, useful in proving completion but not comprehension OR intent to comply.

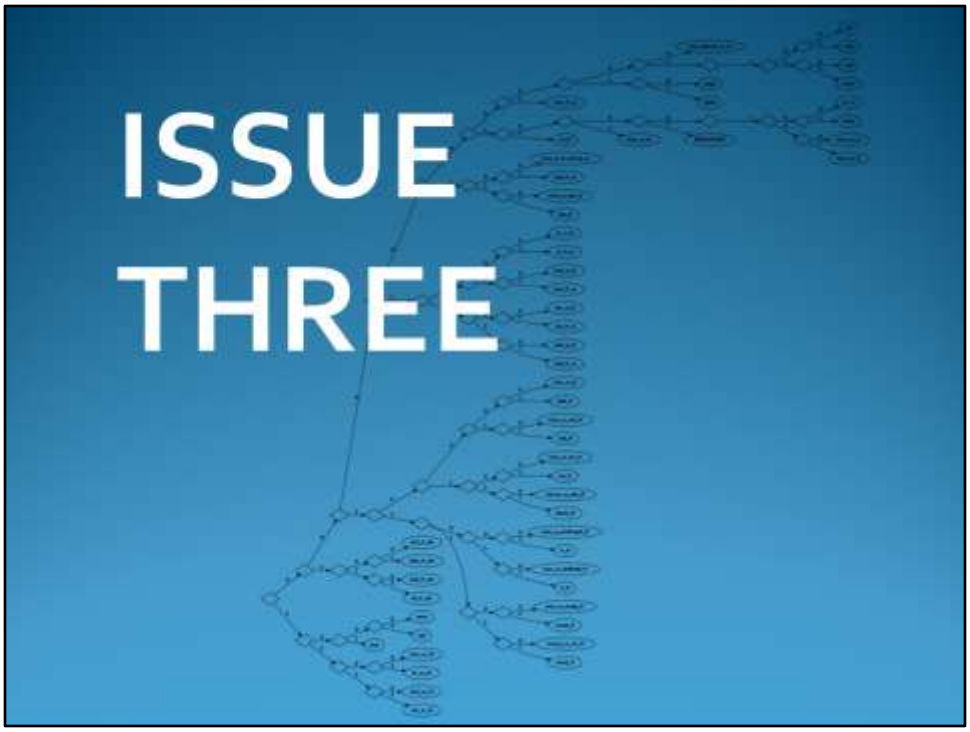
Without information provided from student's classroom actions and interactions, that are actually behavioral cues to a teacher, the effectiveness of instruction is severely compromised.

It would be as if the classroom teacher taught with ear plugs and a sleeping mask – cut off from the reactions of her target audience.



Stedman's Medical Dictionary defines **sensory deprivation** as the reduction or absence of usual external stimuli or perceptual opportunities, commonly resulting in psychological distress and unpleasant hallucinations.

As if your Online Instructors didn't face enough challenges . . . .



A decision tree graphically represents the possible routes in task completion.

Likewise the student's decision making process in completing a task is key in evaluating their grasp of concepts.

The LMS does not capture a student's sequential actions.

Consider the role of the Learning Management System in this scenario when recording completions as successes.

On April 21 1980, Rosie Ruiz, a 23-year-old New Yorker, was the first woman to cross the finish line in the Boston Massachusetts Marathon.

She recorded the third fastest time ever for a female runner (two hours, thirty-one minutes, and fifty-six seconds).

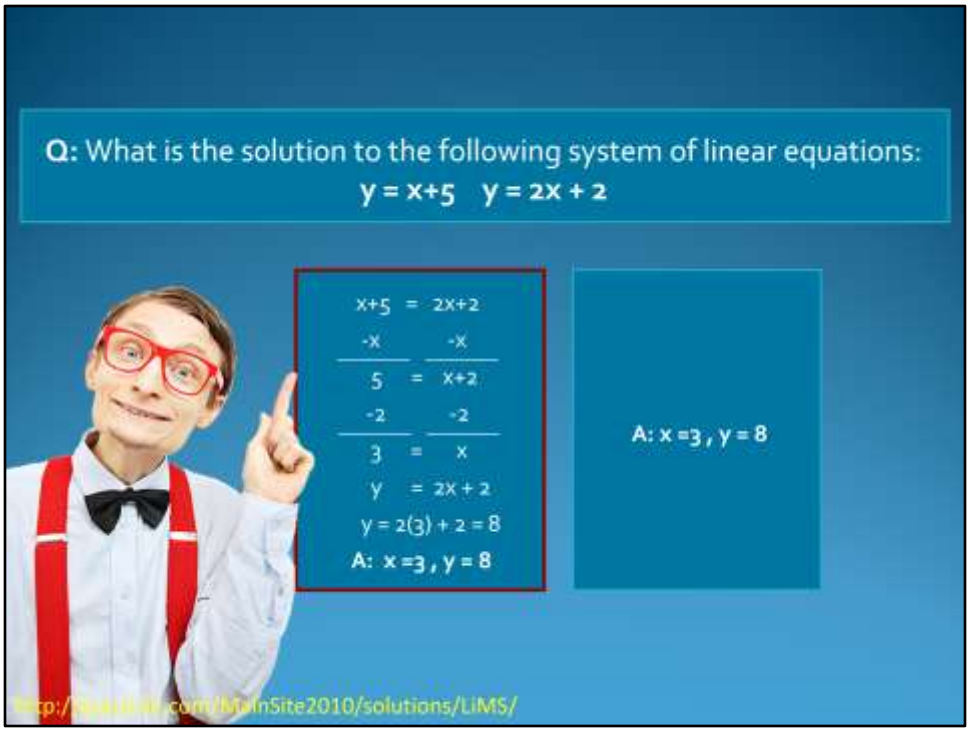
The problem was that no one could remember having seen her during the race.

Checkpoint monitors hadn't seen her, nor had any of the other runners.

After a while a few people in the crowd came forward to say that they had seen her jump into the race during its final half-mile.

Race officials discovered she had also cheated during the New York marathon by riding the subways.

If the Boston Marathon was judged by an LMS Rose Ruiz would still have her crown because a completion = success.



Let's drive the point home. The answer on the left is the only acceptable answer on a college math exam. Why?

The process by which the conclusion was reached provides proof of comprehension and an understanding of a concept.

The answer alone is inconsequential, in fact partial credit would be given if the process, as displayed, was correct and the answer incorrect.

The PROCESS has more value than the RESULT.

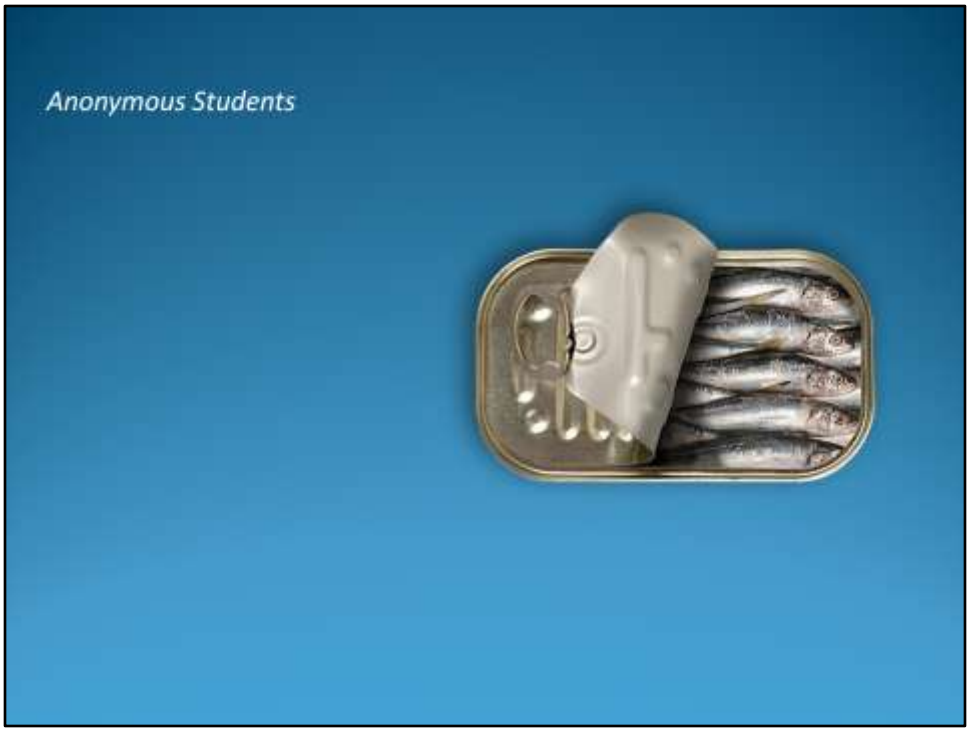
Consider this MORAL challenge. The LMS captures the student selection. That's it.

The recorded selection provides NO insight into the experience of the student. No data to help understand any challenges or dilemmas faced by the student.

In fact NO COURSE OR SURVEY TOOL captures the behaviors of the participant which might indicate the intricacies of their decision making process.

Or the possible challenges they might face when confronting actual situations outside of the virtual envirnoment.

eLearning is Global



As training become boundless, class sizes increase, learning becomes more asynchronous and self-directed, identifying individual needs becomes difficult.

The tools necessary to assess individual comprehension are either theoretical or non-existent.

How do we evaluate the experience of the student and the competency of the curriculum/course?

How do we identify the successful from the struggling learner? Personalize the experience?

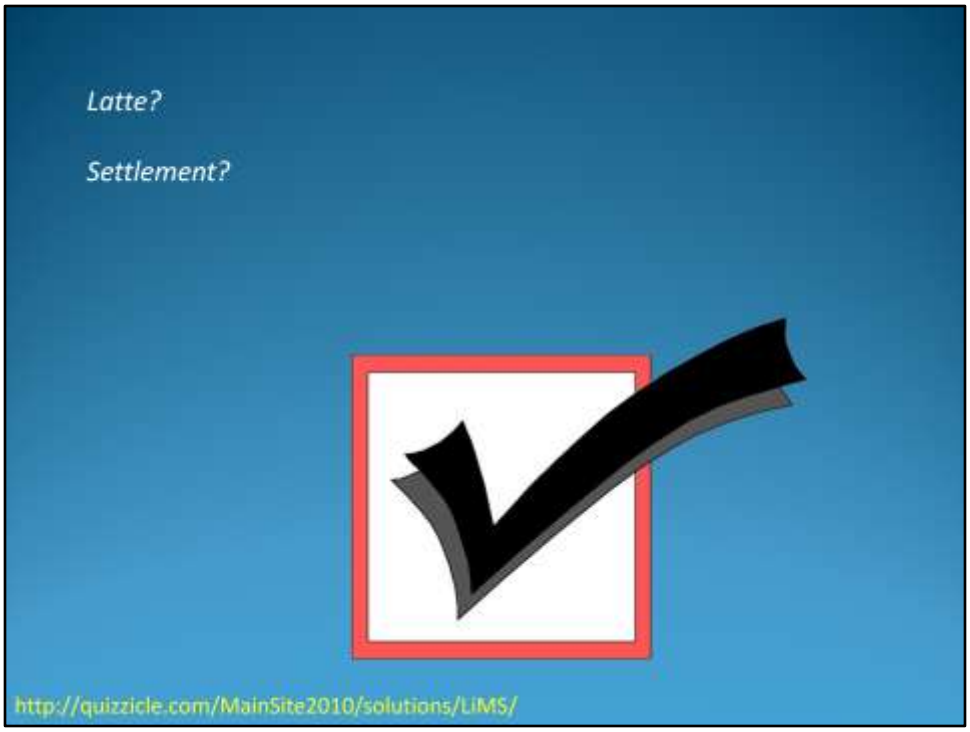
With a larger training audience it is essential to know who requires support or remediation so the trainers efforts are targeted.

When an academic student fails they risk their future.

When an employee learner fails, they expose themselves and the business to possible financial repercussions.

Such as when a settlement is reached due to misconduct.

Or when the organization is fined as a result of a failed compliance audit.



A completion checkmark in an LMS isn't enough information for an instructor OR corporate learning officer to identify the struggling student OR the disinterested employee.

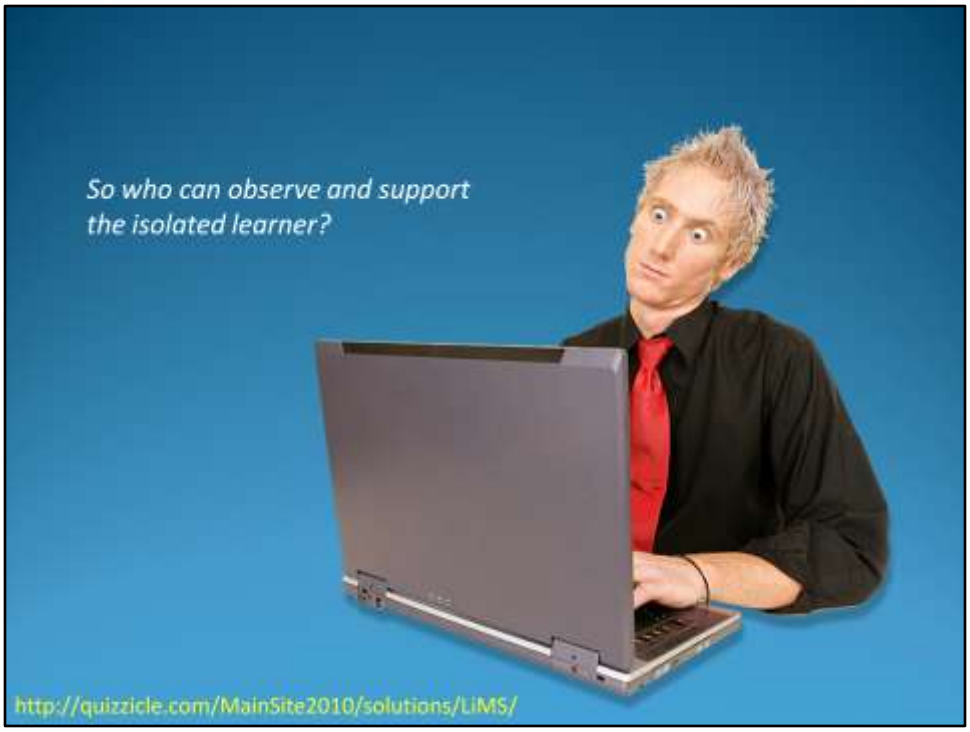
We have to change the way in which the value of elearning is perceived AND measured by directly addressing the issues just identified.

Business views training as an EXPENSE => demonstrate ROI as learner behavioral indicators

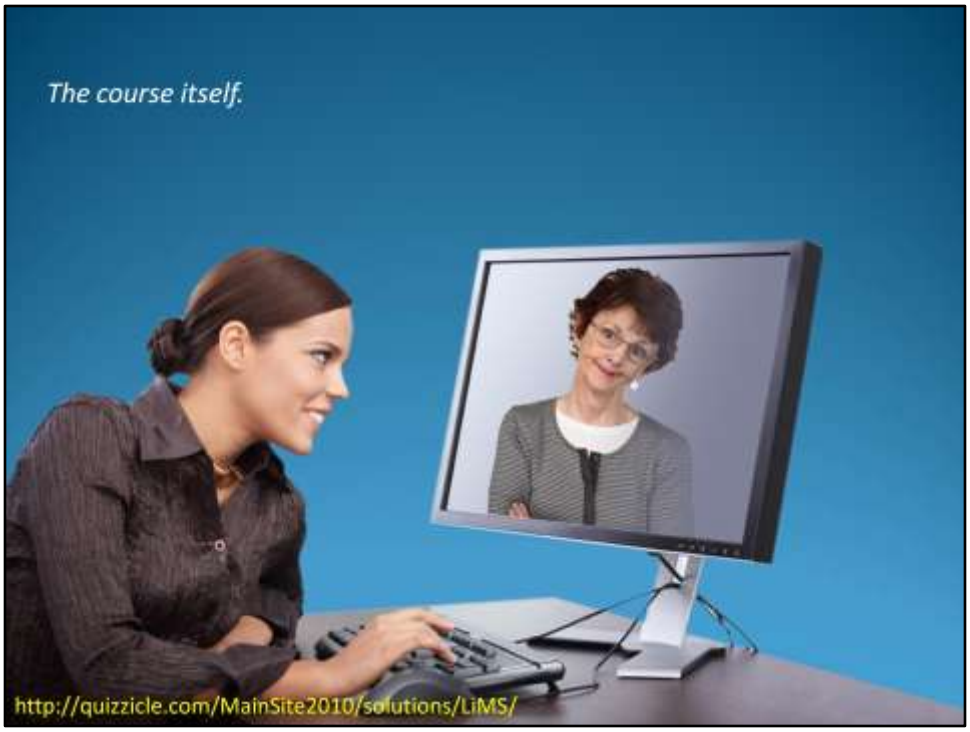
Learner actions are not observed => monitor and record the student > course interactions

LMS provides NO insight into the student experience => analyze captured learner patterns and behaviors

No support or remediation => provide a tool to identify and modify behaviors AND to provide support on demand



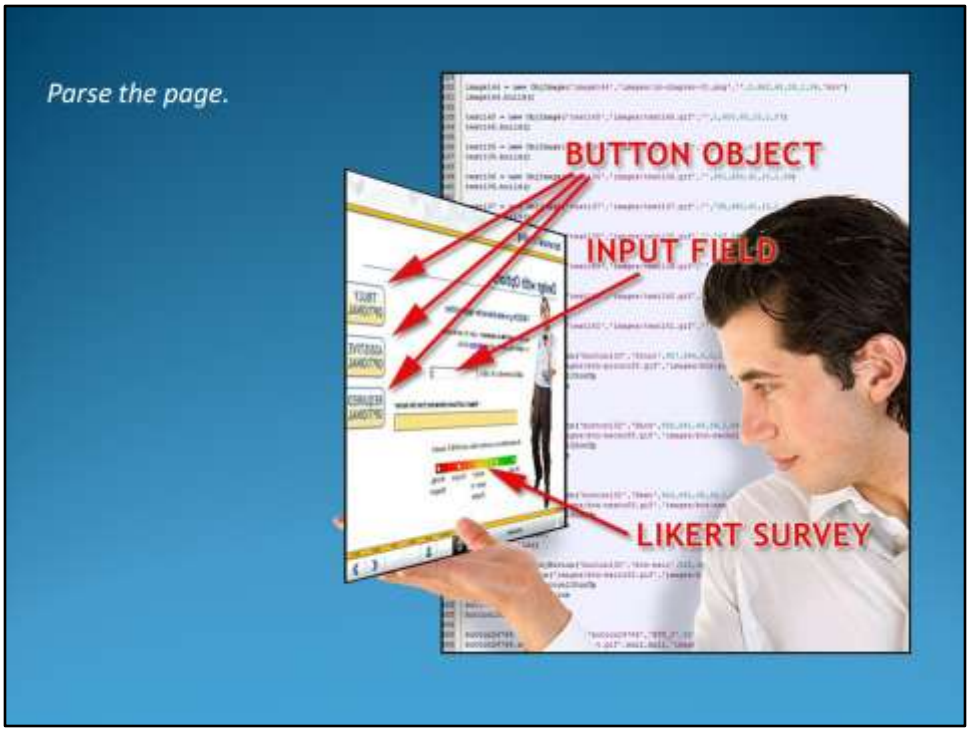
So the question is…. who can observe the actions of the student while they train in seclusion?



The only other ‘entity’ that is there with the learner while they engage the online course.

Web 2.0 technology provides us with the technology to convert the computer and the course into an active observer of the learner as they engage and interact with web-based training.

It is as if the classroom instructor was sitting behind the computer screen watching the learner as they take their training.



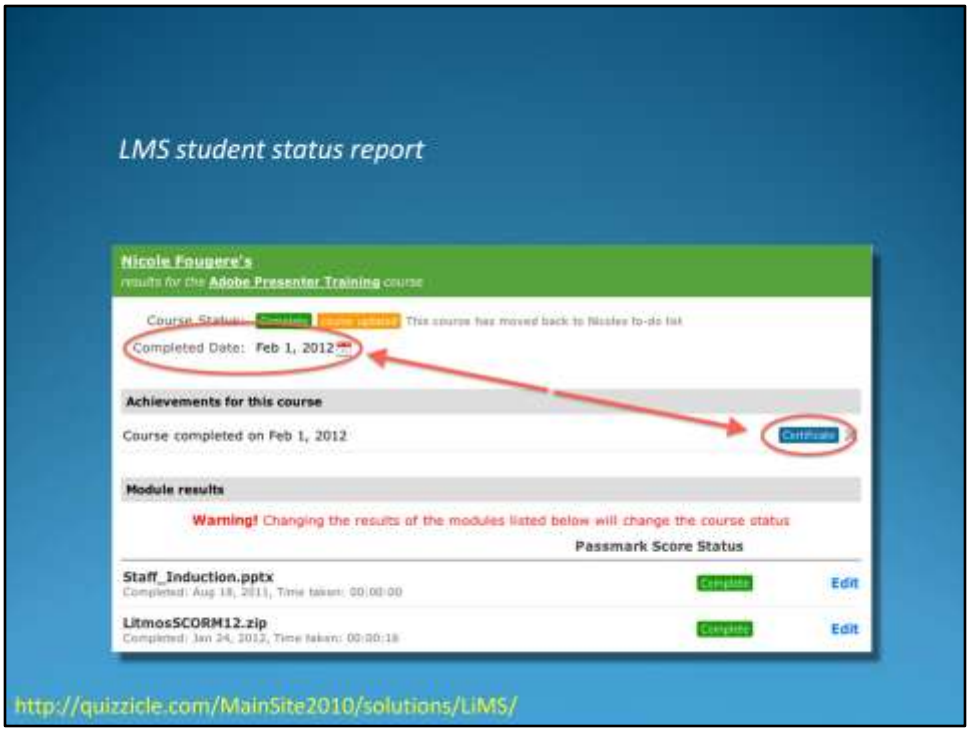
Web 2.0 technologies allow us to convert the online environment into an “event capture model”.

We can scrub the browser window to identify all available static and interactive objects and words.

We can capture the input devices to monitor – READ THE LIST

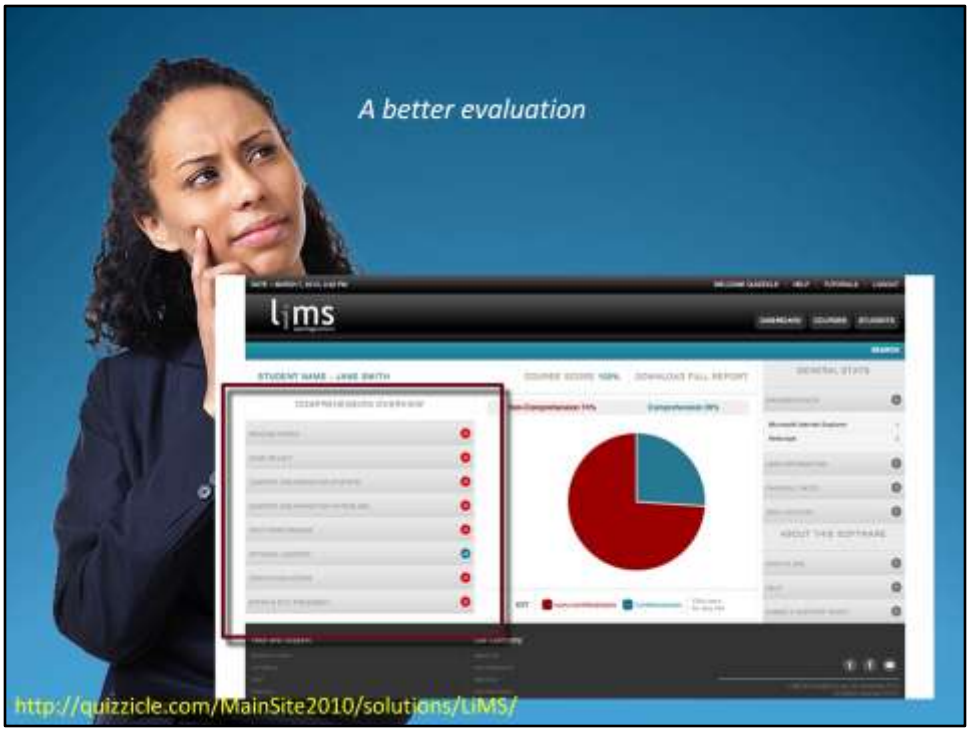
We can record the learner AS THEY INTERACT with each page/screen as well as the individual objects on each screen.

We can record these events to the database for post-analysis as well as retain it locally for use in real-time analysis.



A standard student LMS report provides basic completion statistics

It is of little value except to prove completion



A better way to evaluate the student experience is in terms of factors such as Reading Speed, Content Access, Test Performance, and Conviction of Actions

Identify whether these behaviors indicate Comprehension OR Completion / Interest OR Disinterest.

We should be able to review an entire course experience or individual page performances to identify learner challenges that might provide further insight.

We should be able to apply this evaluation to an individual, a group of individuals or to the course itself to identify trends, challenges or successes.

By scoring learner behaviors as indicating comprehension, we can see where further review or remediation would be beneficial to a learner.

The same evaluation can be applied to the competency of the course.

We should be able to review a test performance to identify challenging questions.

The entire student assessment experience should be able to be reviewed including question text, the correct answer, and each attempted answer as submitted by the student.

This type of review can help identify trends, challenges or successes of an individual, a group or the course itself

Sequential actions can be captured to reveal how a learner makes a decision, which is more valuable than just the result.

This screen grab presents the how a learner answered a particular question.

This highlighted data actually says: The learner skipped over a possible answer selection (twice) –a negative behavior as the selection was part of the correct solution.

The learner considered another answer selection – but did not select it – a neutral behavior.

The learner made a selection – a negative behavior as the selection was NOT part of the correct solution

The learner deselected a previous selection – a negative reconsideration as the previous selection WAS part of the correct solution

The learner submitted their answer. He was incorrect.

We are currently working with a Behavioral Psychologist to try to understand what the sequential actions of the learner, and the timing of those actions, may indicate that would be of use in supporting the successful learning experience of the student.

What about support in real time?

The same behavioral data that can be recorded to a database can be maintained as living behavioral reference data while the learner works in the browser environment.

Web 2.0 technologies allow the creation of an intelligent Pedagogical Agent who could interrupt the experience of the learner to suggest modifications in their approach such as " Your reading speed indicates that you are skimming page content. Comprehension requires you to modify your reading speed." OR "Selecting hyperlinks or optional content buttons may reveal content that can improve your understanding."

This agent could also be called upon to the screen to help with challenging issues. She could assist in identifying problem with content, concept or elements and could report issues if no solution available.

Web-based training is NOT ONLY a way to provide training, but a process to gain insight into the challenges faced by each learner with concepts or comprehension as well as report on the competency of the training.

Web 2.0 technologies have allowed our small group of developers to create a system which addresses each issue identified in this presentation:

- We demonstrate ROI as actionable indicators of learner comprehension and challenge, and course competency
- We record sequential learner actions to reveal engagement patterns with course material
- We analyze behaviors to uncover tendencies that indicate success or failure
- We identify activities that reflect difficulty and challenge while providing a tool to modify behaviors and support requests for assistance

And our technology is in its infancy.

Intelligent courseware can provide information to assist :

businesses in making decisions

instructors to support teaching effectiveness and in identifying challenged students

In creating richer more robust training environments

Instructional Designers with the flexibility to design courses to achieve measureable results NOT to meet constrictive budgets

Simply because web 2.0 technology allows us do something Teachers have done for years – WATCH THE STUDENT.

QUESTIONS?
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