



# enGauge

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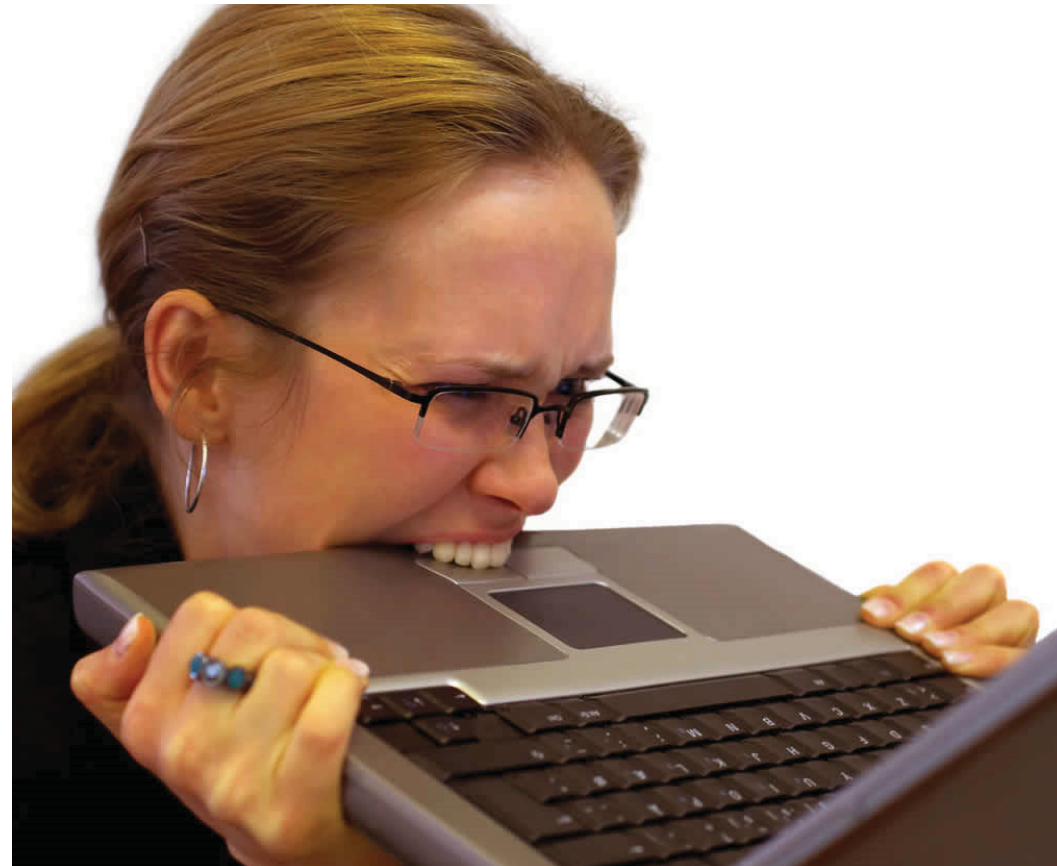
Art 484  
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Today's average  
job seeker will  
change careers  
10-14 times in their life.

U.S. Department of Labor

Unlike previous generations, we will continue to change occupations and change careers throughout our life.

For this reason, continued professional education is becoming vital for our continued growth.



# What makes training so difficult?

Job training often comes in short sprints, leaving little or no time for students to develop a rapport with the instructor.

Students can be long removed from the classroom, and are switching from a work mind set.

There may also be pressure from management to do well.

We talked to a rock climbing instructor, cooking class teacher, and conference speaker about what they think makes a good class.

Things they said were

- smaller groups that they could see body language
- interested and interactive students

# What makes a good classroom experience?



We categorized training into two categories: skills and knowledge.

Skills training: hands on skills training to physically learn how to do something.  
Examples - CPR class, SCUBA, Cooking

Knowledge training: lecture based class where students learn concepts.  
Examples - patent law, usability trends, programming architectures

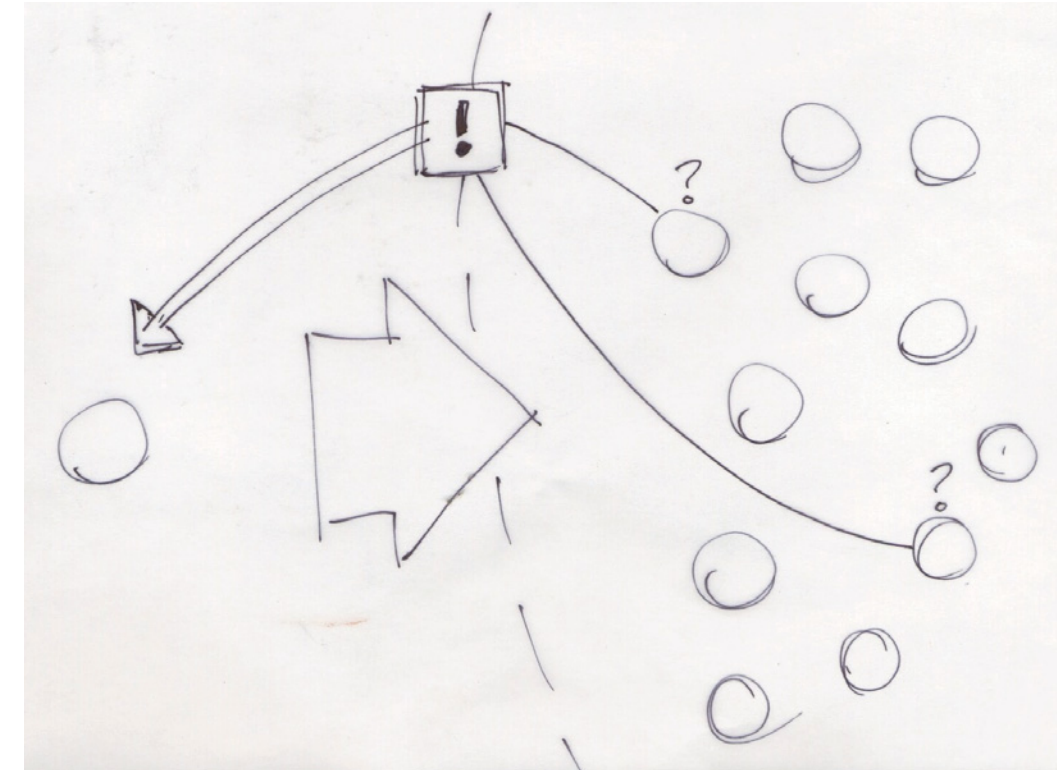
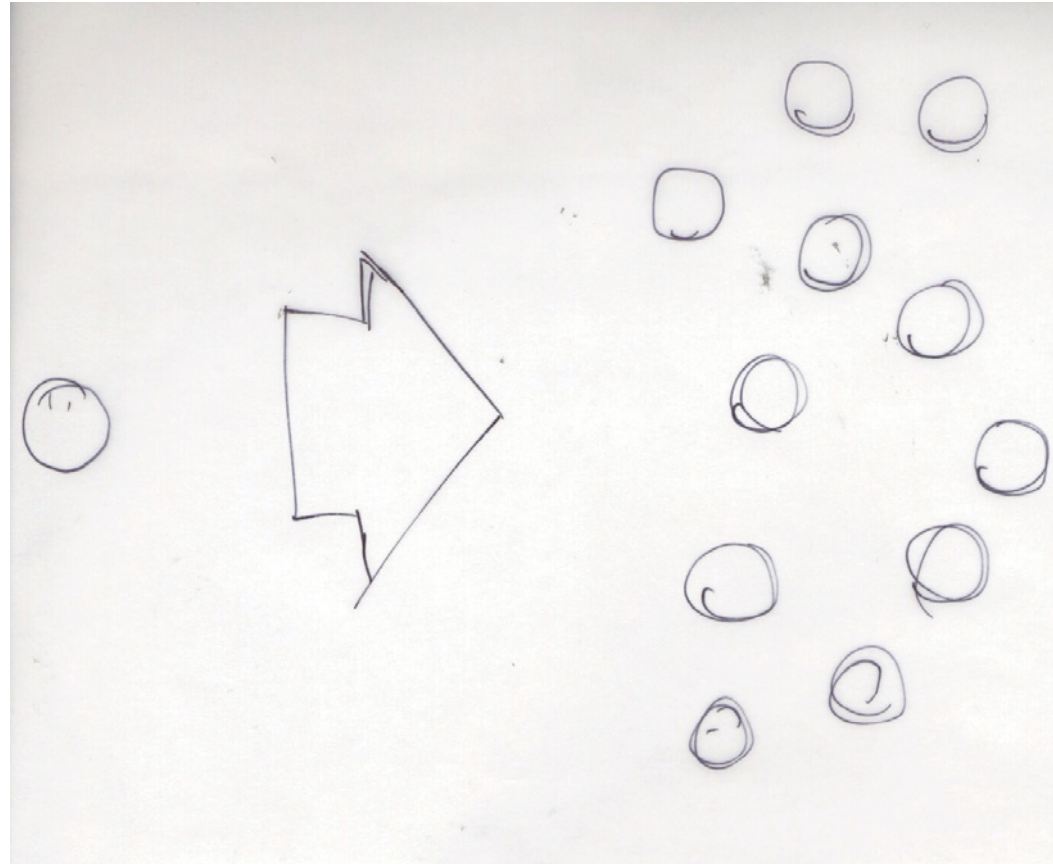
We decided to focus on knowledge training.

Whether intentional or not, a classroom is set up with certain psychological barriers.

An instructor is at the front flowing lots on information to a number of participants.

Participants have to fight for the instructor's attention in order to ask a question or make a comment.

Participants must also overcome their own anxieties of standing out in a crowd. Often participants will remain quiet even when they have real concerns.



We looked at this as an opportunity space.

We can provide an intermediary for both parties to communicate through.

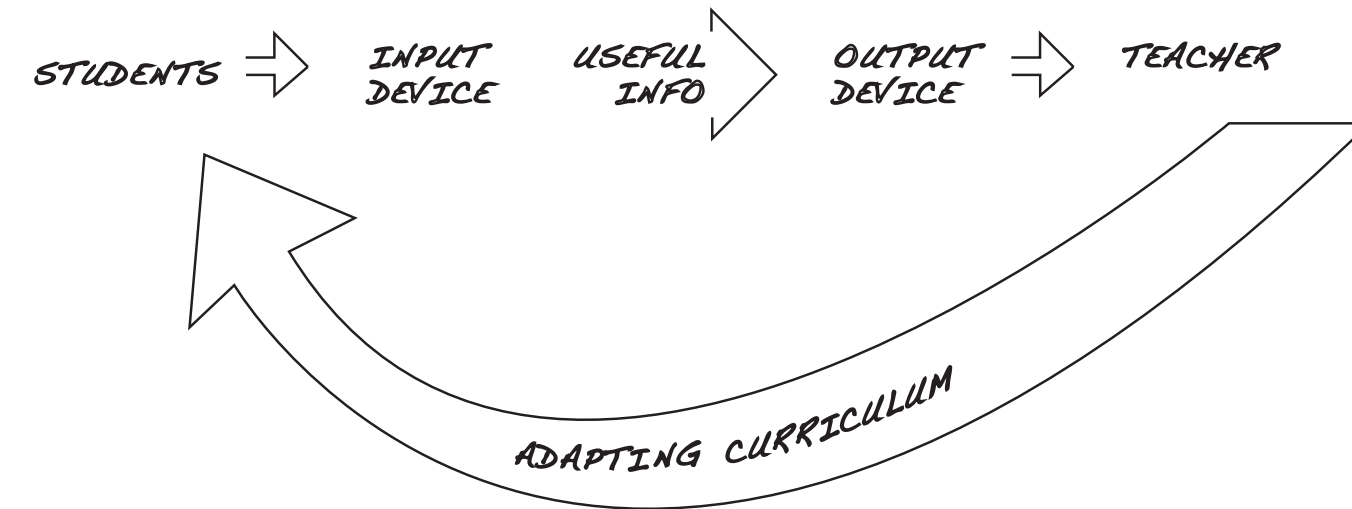
How can we overcome first day anxieties to **create the rhythm and productivity** of an experienced class?

Through our interviews we found students wanted to convey when they were feeling

- overwhelmed
- lost
- disinterested
- bored
- confused
- irritated

Teachers seemed to take this information and respond by either speeding up or slowing down.

From this we found finding the correct pace is critical to the understanding of the students.



First we gave the students a simple device from which they could anonymously report if the lecture was too fast or too slow.

We also used the device as a display to show the students how the rest of the class was also feeling.

Pluralistic ignorance provides one explanation. Students may feel reluctant to ask questions because they are embarrassed to admit they are perplexed, so they wait to see whether anyone else asks a question. However, other students are doing the same thing, so everyone concludes that he or she is the only one confused

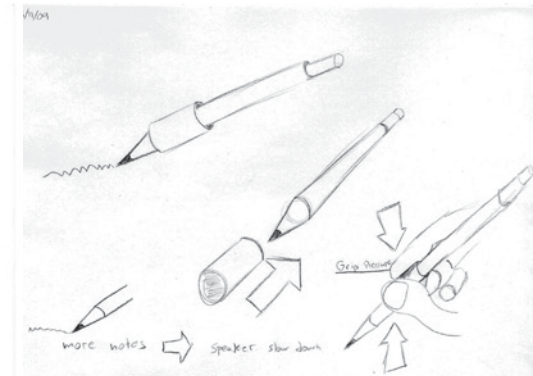
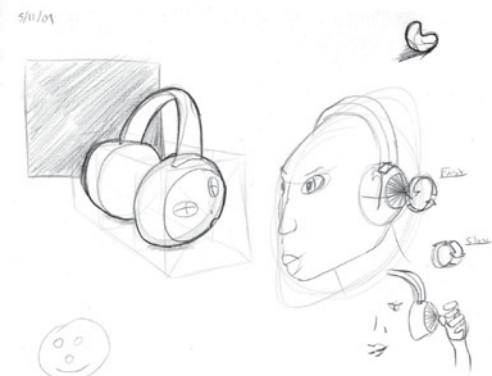
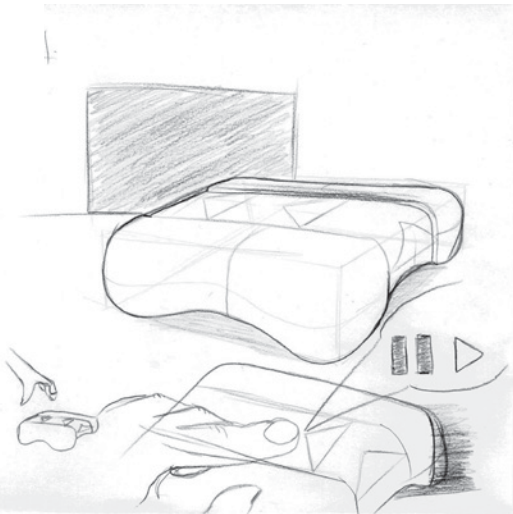


We started in with a few different concepts.

Eventually narrowing on a device that the student had control over (wasn't ambient).

We also wanted something small enough for the teacher to bring along with them, but big enough that the students wouldn't forget to give it back after the class.

It also needed to be exceptionally simple to understand and engaging to work with.



The audience is represented as an animated character on the speaker's desktop.

Facial expressions and body language let the speaker know the mood, comfort, and understanding of the audience.

Take it one step further: perhaps the speaker interacts with this virtual character as a visual aid, or instant volunteer



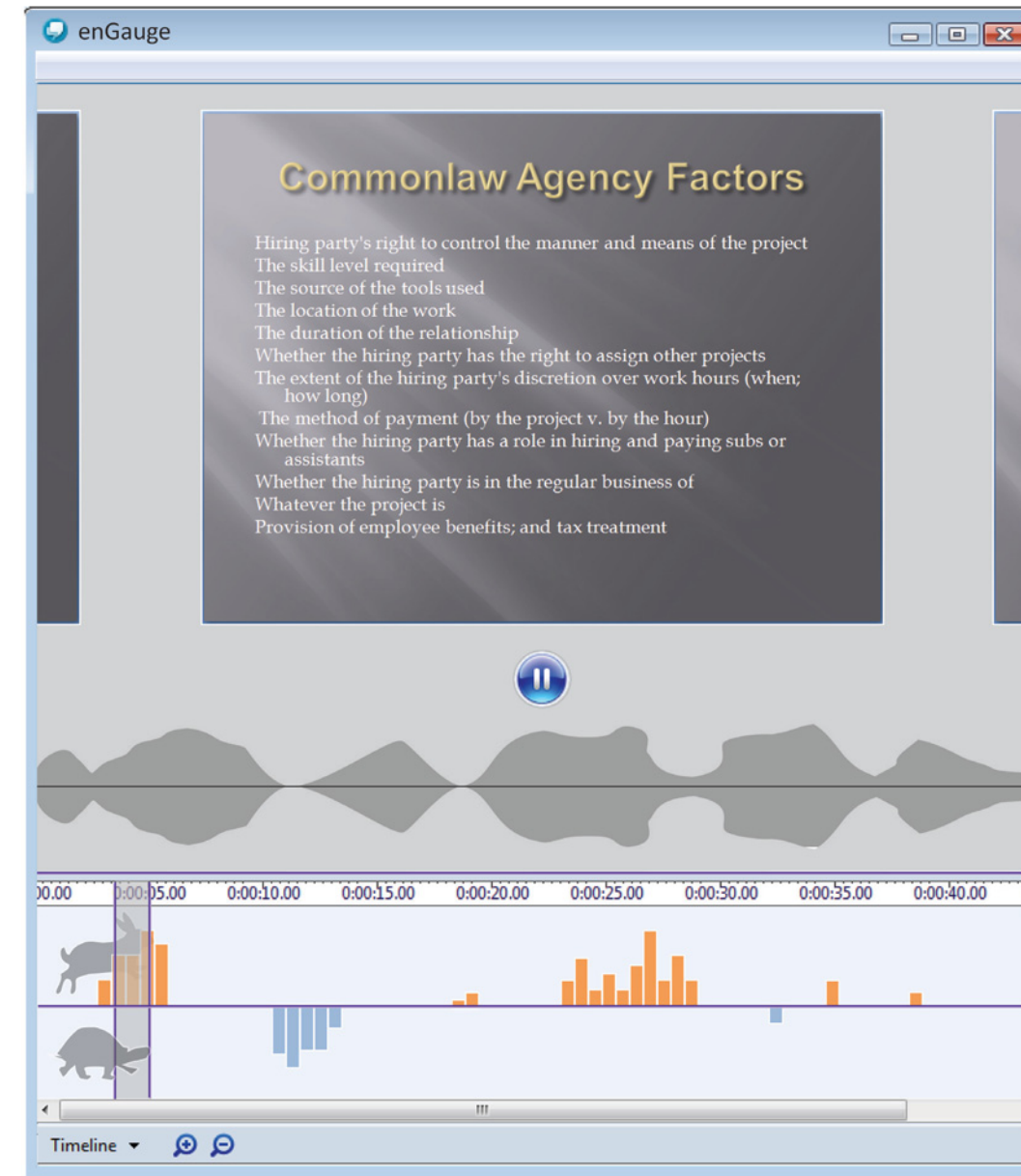
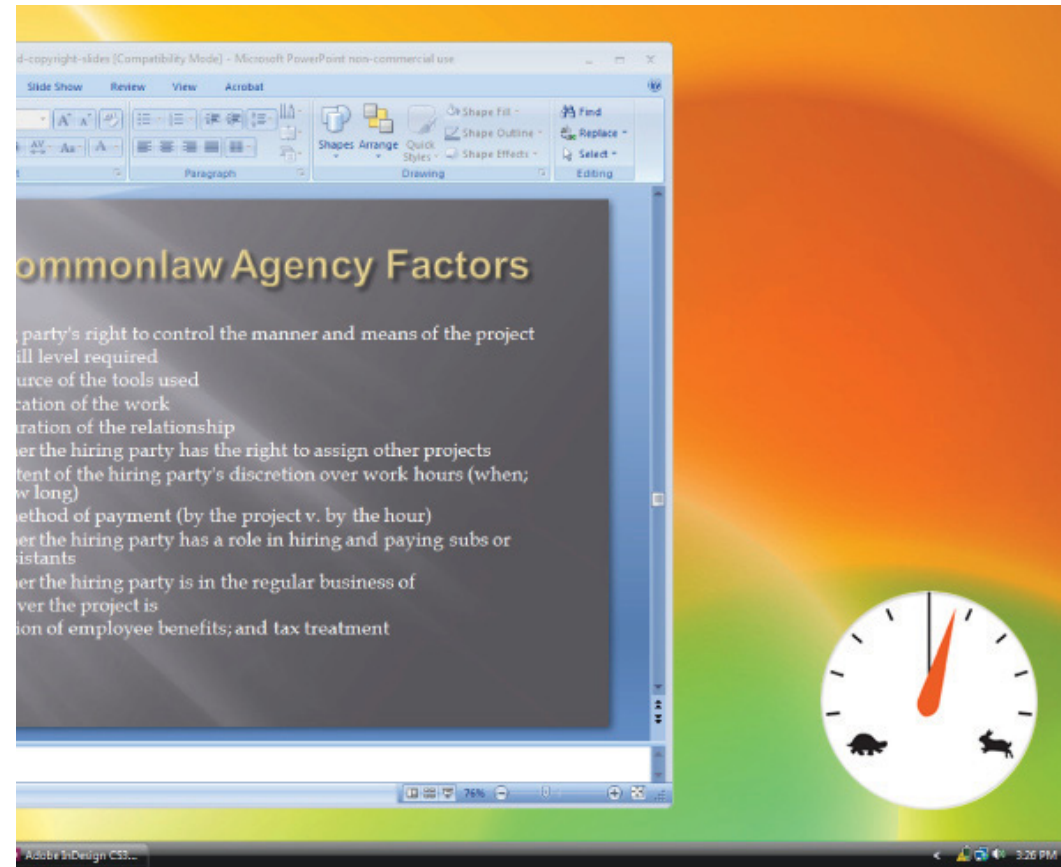
Once we had the input device we wanted a corresponding output visualization that wouldn't be too distracting to the teacher.

We went through a series of displaying a balance of the emotion of the class and settled on a speedometer style gauge.

The teacher has two displays.

The first is a constant reading of the requested pace of the class.

The instructor can glance at their screen at any time to get a quick feel for how the flow is working.



The second display is a recording application intended for review breaks.

While the instructor is teaching the enGauge system is taking screen shots and audio of the lecture.

A time line display along the bottom shows tallies of the class's feedback as time goes on. The instructor can drag the time line bar to the desired interval and refresh themselves on what they were talking about by seeing the slide and playing the audio.

This system makes review periods exceptionally more valuable.

Pausing during lecture for 2 minutes every 15-20 minutes to allow students to assimilate and discuss information significantly improves student learning and retention.

However it can be very hard to make breaks productive and keep the momentum of the lecture.

We expect the time line interface to provide a mechanism to make frequent consistent review breaks valuable. By changing the flow of the class we think students will remain engaged longer and feel more in control of the flow.

# Adult students have an attention span of about **15 minutes.**

Bonwell and Eison, Active Learning, 1991



enGauge provides an active realtime feedback loop between an instructor and their class.

It makes the classroom experience more valuable and effective.



enGauge makes costly professional development more effective, to the benefit of the employee as well as the organization.