

Three vertical green lines of varying lengths are located on the left side of the slide.

Instructional Videos With Purpose: Compensate, Support and Challenge Students' Learning

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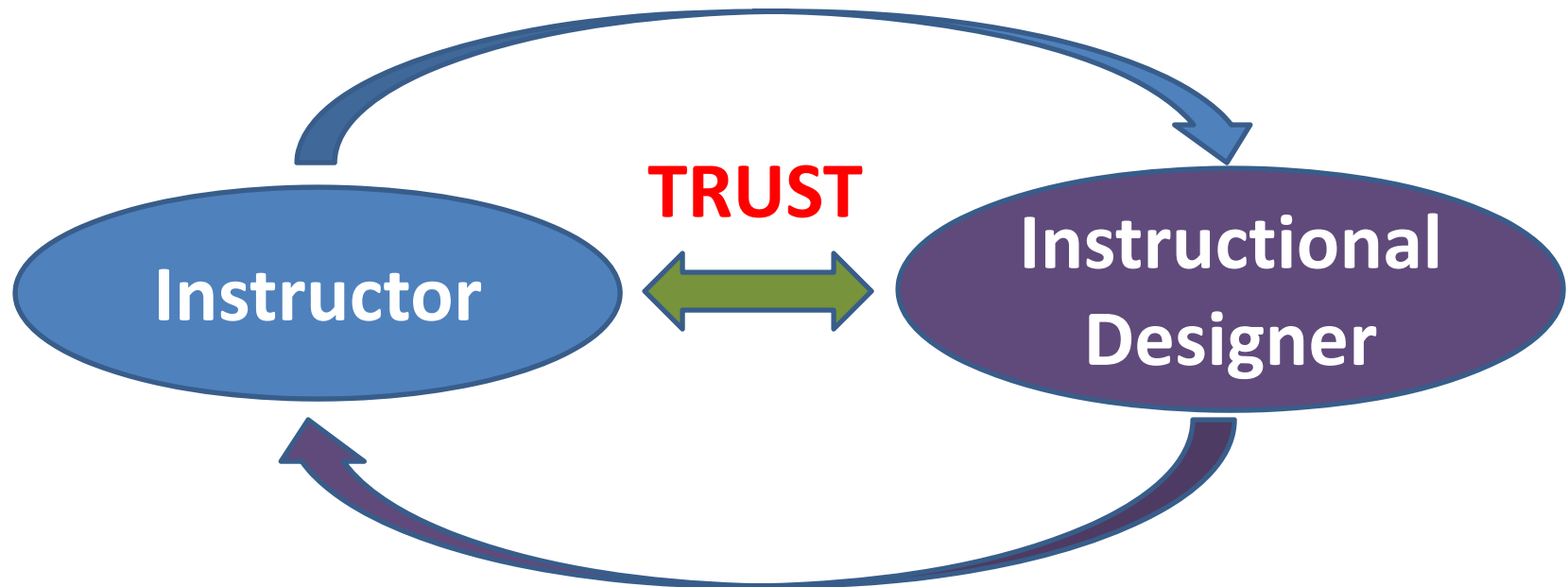
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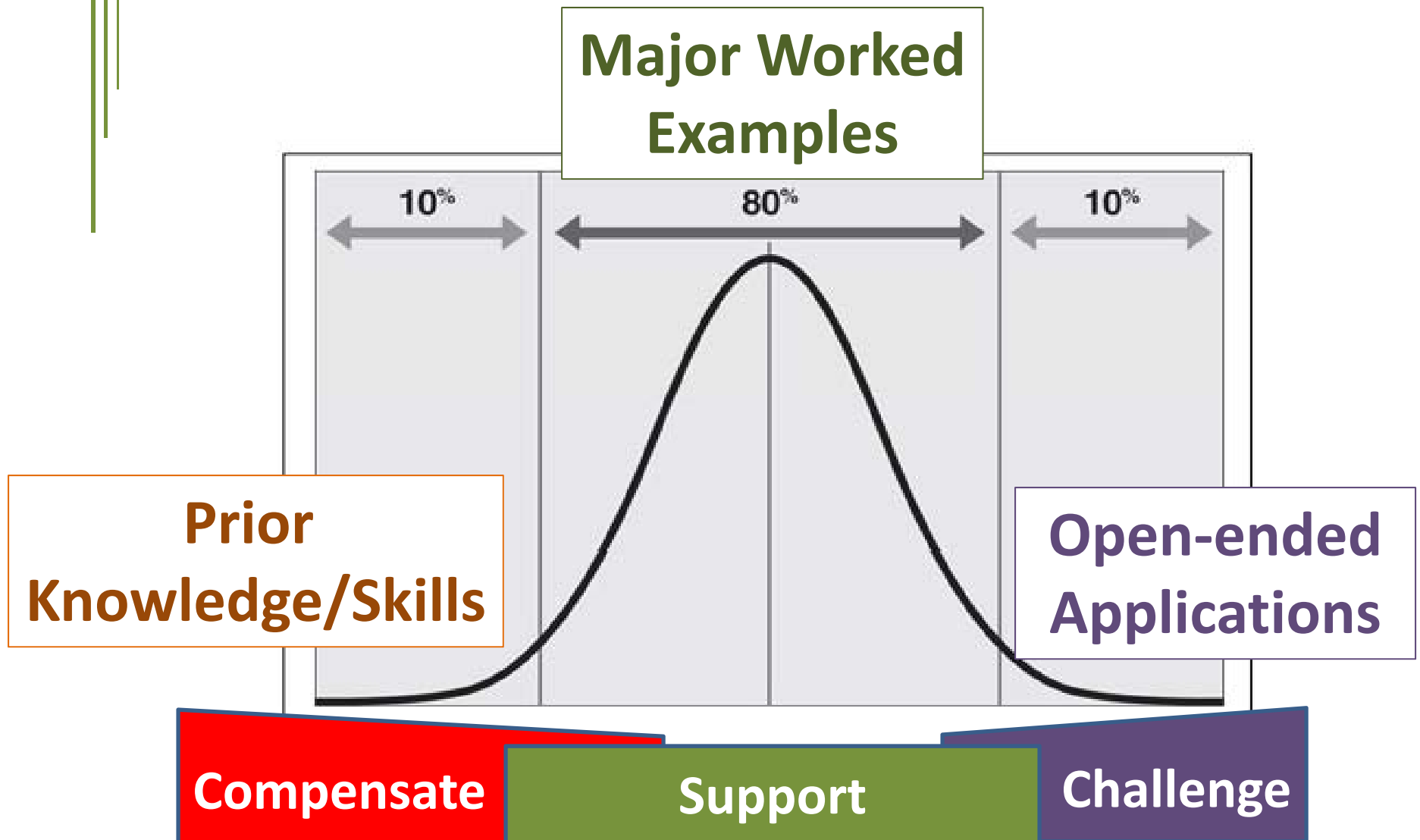
TLT Conference - Rolla, March 2010

It started with...

Instructor's desire to enhance students' academic experience & performance.



Identify Needs To Address



Why Instructional Videos?

**Multimodal instructional environment
(text/audio/video);**

**Able to convey instructor's perspectives
in a focused manner;**

User-friendly video software available;

Startup Production Strategy

How?

- decide on the focal topic;
- select the material to include;
- create a protocol to present the selected material;
- **record the audio associated with the selected material;**

Startup Production Strategy

How?

- convert the material in images;
- integrate images and audio
(Camtasia Studio 6);
- include animated pointers & highlights to guide the viewer;
- set the length of the video between 7 and 10 minutes;

Startup Production Strategy

Why image-based videos?

- gives the instructor the ownership of the material of the video;
- allows for split of responsibilities yet keeps a nice flow of the teamwork;
- gives flexibility on the recording of the audio ;
- decreases the size of the final output;

Startup Production Strategy

Why image-based videos?

- allows for a mix of various materials

Created by Camtasia Studio 6 - Mozilla Firefox


File Edit View History Bookmarks Yahoo! Tools Help

http://web.mst.edu/~dcwt2/Calculus/Calc_ForcinitiFS09.html

Most Visited Getting Started Latest Headlines Traditional Korean Ki...

Blackboard Academic Suite Created by Camtasia Studio 6

4. Meaning of partial derivatives.



A fisherman will change baits while keeping constants depth, location, time of the day etc.

He will ask: "what is the effect of type of bait on number of fish captured?"

Symbolically Shift+F9

Floating Point...

Complex

Go

nts n Mapple). For example, with respect to x

bar and choose d^2/dx^2 . Fill leaving the space (you must time expression) choose evaluate> symbolic

Calculus

$\frac{d^2}{dx^2} \ln(x)$

09:43 / 10:13

13:34 / 14:02

00:22 / 10:12

Startup Production Strategy

Why image-based videos?

- allows instructor to maintain focus on those parts of the image that are important;
- allows for animation to become effective guide of students' attention

Announcements

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Control Panel

Refresh

Mathcad - [start]

File Edit View Insert Format Symbolics Window Help

Normal Arial

5) You can use Mathcad to solve e
suppose you want to calculate the

$\frac{d^2}{dx^2} \ln(x)$

$-\frac{1}{x^2}$

Symbolics > Evaluate > Symbolically Shift+F9

Symbolically Shift+F9
Floating Point...
Complex

Go

For example, with respect to x

bar and choose d^n/dx^n . Fill leaving the space (you must be at the end of the expression) choose

Symbolics > evaluate > symbolic

Calculus

$\frac{d}{dx}$ $\frac{d^2}{dx^2}$ ∞

\int_a^b $\sum_{n=1}^N$ $\prod_{n=1}^N$

$\lim_{x \rightarrow a}$ $\lim_{x \rightarrow a^+}$ $\lim_{x \rightarrow a^-}$

09:43 / 10:13

Video is Done...Now What?

You can easily make it available in
Blackboard;

The screenshot displays a Blackboard LMS interface. At the top, a green navigation bar contains links for Home, Help, and Logout. Below this, a horizontal menu shows tabs for Home, Courses, Community, Missouri S&T Library, and VCC. On the left side, a vertical sidebar lists various course tools: Announcements, Course Information, Staff Information, Course Documents, Assignments, Communication, Discussion Board, External Links, and Tools. At the bottom of the sidebar are buttons for Control Panel and Refresh. The main content area is titled 'CHEM ENG 141: CHEM ENGR THERMO I (LEC 1A) FS2009 (MST-CHEM ENG-141-1A-72150-FS2009) > EXTERNAL LINKS'. It features a section titled 'External Links' with a globe icon. Below this, there is a link for 'Multivariable Calculus for Thermo 1' with two associated PDF files: 'CalculusThermo1_p1.pdf (624.7 Kb)' and 'CalculusThermo1_p2.pdf (903.693 Kb)'. A text block explains that the video will open in a new window/tab and that the PDFs are provided for easier viewing. Below this, there are two more links, 'Mathcad - Video 1' and 'Mathcad - Video 2', each with a globe icon. Finally, there is a link for 'Example 2: Open System Video' with a globe icon, accompanied by a text block stating it is a small movie for Exercise 2 - Open Systems.

Home Help Logout

Home Courses Community Missouri S&T Library VCC

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CHEM ENG 141: CHEM ENGR THERMO I (LEC 1A) FS2009 (MST-CHEM ENG-141-1A-72150-FS2009) > EXTERNAL LINKS

External Links

Multivariable Calculus for Thermo 1
[CalculusThermo1_p1.pdf](#) (624.7 Kb)
[CalculusThermo1_p2.pdf](#) (903.693 Kb)

This video will open in a new window/tab so that you can view both the video and blackboard space (if/when needed).

You can also find below the link to the movie two pdf files with the content of this small movie (there are two of them to make the size smaller download time if you want to save them for future reference).

Mathcad - Video 1

Mathcad - Video 2

Example 2: Open System Video
 Above is the link to a small movie for Exercise 2 - Open Systems discussed in the class.

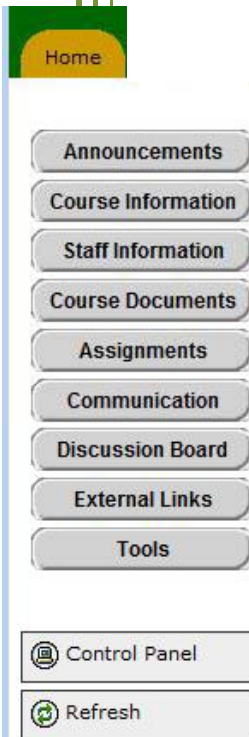
Video is Done...Now What?

...but it will be more effective if:

- you create a task that requires students to use the video;
- when appropriate provide a text/slides version of the content;
- get students' perceptions on these videos at midterm and end of the semester ;



The end of the video can include a transfer task...



Homework

- Rework part one of this problem assuming that the steam at 15 bar is wet ($x=0.992$). Write your own MathCad Program.
- Rework part one of this problem but use steam at 18 bar to fill the tank. Write your own MathCad Program.
- Convince yourself that the potential and kinetic energy of the streams are small compared to either their internal energy or enthalpy.

09:48 / 10:12

What we have so far?

Three short compensatory videos

- one related to calculus;
 - created from scratch, outside the classroom, mostly with handwritten materials
- two related to Mathcad;
 - audio for the first one recorded in the course combined with screenshots;
 - audio for the second one recorded mostly outside the class;

What we have so far?

One supporting video

- a major worked example introduced in the classroom;
- audio recorded in classroom for reference;
- final audio recorded outside the classroom;
- slides converted to images and overlapped on the audio;

Here they are!

...at least at the time of this presentation

[Calculus Video](#)

[Mathcad Video](#)

[Worked Example](#)

Why it worked out?

- The instructional designer added value in selecting the topic and in using of the videos but...
- The instructor had full ownership of the content and focus of these videos;
- Significant time was saved by using an effective and productive division of labor;

Contact Information

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