

# ICT for blended learning

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## Blended learning...blends of:

- (a) different types of learning resources
- (b) different types of learning activities
- (c) different places and times where learning activities take place
- (d) different ways that people interact with each other
- (e) grounded in a strategic learning model
- (f) under the guidance and management of a capable instructor
- (g) with assessment
- (h) with the whole process coordinated in an efficient way via a Web-based learning-support system.



## Basic premises



- Blended learning involves increasing flexibility: options for what, how, when, where, and with whom they participate in the course
- The focus of blended learning is not about presenting content: Start with a learning model focused on what the learners will be doing and contributing
- Technology design focuses on what the learners will do supported by the Web environment

## Two types of changes...



- Improving the logistics of learning:

To make processes more efficient, easier, more professional, better organized, just-in-time, archivable

- Improving the pedagogies of learning:

To extend and enrich how you learn; via better social learning, new models of learning; new ways of creating, designing, and building learning

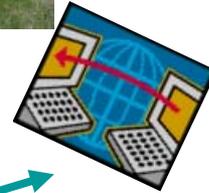


## The first type of improvement...



- Improving the logistics of learning:

To make processes more efficient, easier, more professional, better organized, just-in-time, archivable



## Logistics of learning



- Organizing
- Archiving
- Finding
- Saving
- Maintaining agenda
- Synchronizing
- Communicating
- Submitting & returning with feedback
- Contacting
- Transferring, sharing

With flexibility of style, also time and place



## The second type of change...



- The experience of learning:

To extend and enrich how you learn via better social learning; new models of learning; new ways of creating, designing, and building learning

## Pedagogical change

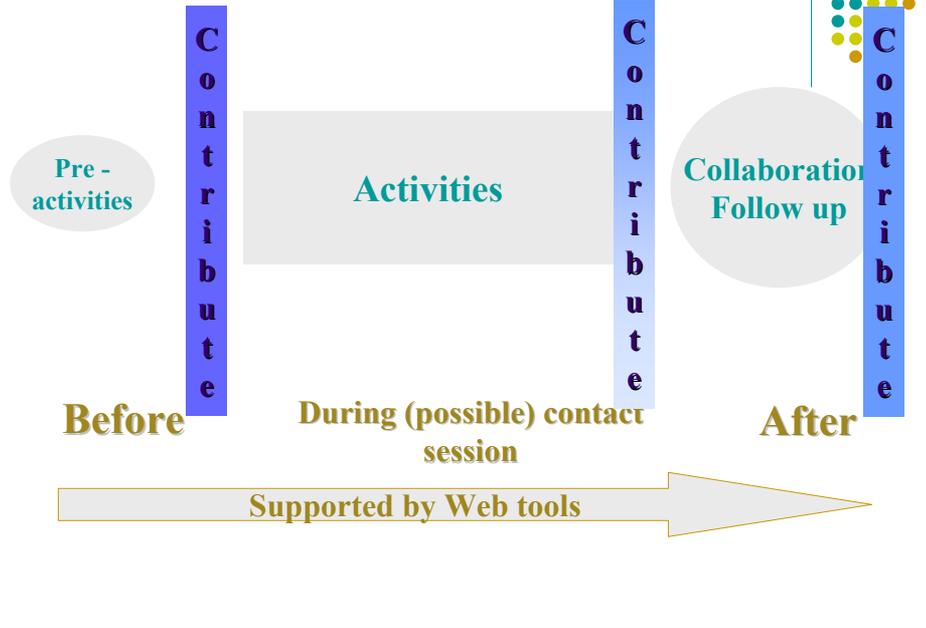


- From being given to finding or creating
- From fixed to options
- From listening to doing
- From one-size-fits-all to tailoring
- From copying notes to presenting your own work for others

Teaching and learning change



# Contribution & Flexibility



http://www.teletopsou.com/02shelp262.nsf/FramesForm?ReadForm - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites Media History Mail Print Edit Real.com Messenger

Address http://www.teletopsou.com/02shelp262.nsf/FramesForm?ReadForm

## P262 Petrophysics

### Roster

	DATES & TOPICS	ORIENTATION	ACTIVITIES	WORKPLACE
00				
001		<a href="#">Start Here</a>		
01	<b>Welcome Everybody!</b> TST Week 1 (23.9.-29.9.)	<a href="#">Make Yourself at Home</a> (Week 1 = 4 hrs. study time)	<b>Finish by Sept. 29</b> <ul style="list-style-type: none"> <li>Explore TeleTOP</li> <li>Meet your peers</li> <li>Reflect on role of Petrophysicists</li> <li>Poll: How are you doing?</li> </ul>	<b>Finish by Sept. 29</b> <ul style="list-style-type: none"> <li>Talk to your supervisor</li> <li>Communicate your PP set-up and arrange a visit to the "shop" of the logging contractor</li> </ul>
02	<b>Introduction &amp; Awareness</b> Petrophysics Week 2 (30.9.-6.10.)	<a href="#">Get to Know Petrophysics</a> (Week 2 = 4 hrs. study time)	<b>Finish by Oct. 6</b> <ul style="list-style-type: none"> <li>CD-Rom (Intro, 1.1, 1.2, 2)</li> <li>Finish readings on temperature, shaly sands</li> <li>Quiz</li> <li>Poll: Find enough time to study?</li> </ul>	<b>Finish by Oct. 6</b> <ul style="list-style-type: none"> <li>Talk to an experienced Petrophysicist from your OU</li> </ul>
03	<b>Working Knowledge</b> Petrophysics Week 3 + 4 (7.10.-20.10.)	<a href="#">The Tools &amp; Quicklook</a> (Week 3+4 = 8 hrs. study time)	<b>Finish by Oct. 20</b> <ul style="list-style-type: none"> <li>CD-Rom + Quiz (lithology, porosity, resistivity, fluid typing, permeability)</li> <li>CD Rom + Quicklook assignment</li> <li>Poll: The Petrophysics CD is ...</li> </ul>	<b>Finish by Oct. 20</b> <ul style="list-style-type: none"> <li>Explore Petrophysical Concepts in your OU</li> </ul>
04	<b>Workshop Preparation</b> Petrophysics Week 5 (21.10.-27.10.)	<a href="#">Preparation for the Workshop</a> (Week 5 = 2 hrs. study time)	<b>Finish by Oct. 25</b> <ul style="list-style-type: none"> <li>Register for SKS membership</li> <li>Poll: I registered for SKS ...</li> </ul>	<b>Finish by Oct. 25</b> <ul style="list-style-type: none"> <li>Get ready for your Workshop Presentation</li> </ul>

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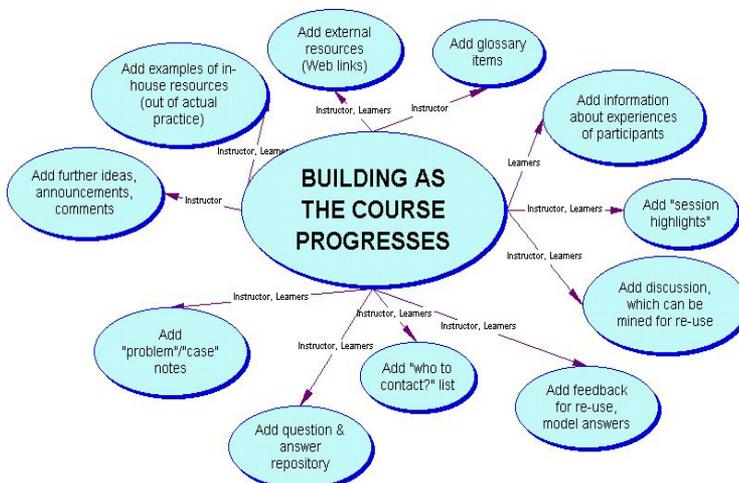
Start | Telematics Ap... | http://www... | Index - Micros... | Soltaire Master | Windows Com... | Microsoft Pow... | Internet | 5:23 PM

## The student as active contributor (co-producer):



- A co-creator of learning materials (study resources, quiz questions, model answers, help materials for other students, lecture materials, etc.)
- A good selector from a variety of real-world resources
- Someone who extends rather than only reads the textbook, and also extends the work of others
- Someone involved in self- and peer evaluation as an assessed part of the course
- Someone who designs and builds an electronic portfolio or other product with a use outside of the course

## From content to contribution



# Designing a blended course



## Given your basic situation:

1. Design the learning activities and their supports
2. Design the assessment and its tools and processes
3. Design the Web environment to support the approach so far
4. Design the rest of the course

## Key aspects of your situation:



- **The students:**
  - How many?
  - Variety of backgrounds, experience?
  - Level, place in their program?
  - Technology access?
  - Kinds of flexibility desired?
  - Expectations and experiences with innovative pedagogy?
  - Importance of assessment?
- **The course situation:**
  - Credit units? Number of weeks? Planned sessions?
  - Labs?
  - Ways in which you now interact with the students?
  - Course topics and objectives?
  - Satisfaction with content resources
  - Major positive aspect of the course?
  - Major problem with the course?

# Learning Design



# Types of activities (Single and multi-step)



## *Rule or process focus*

Apply standard procedures and rules to come to a solution.

"Where can difficulties occur in the process? Create a resource that will help others to avoid them."

## *Find and Identify focus*

Extend the study materials with resources from the Web.

"Why is this a useful choice? How should you use it?"

## *Incident focus*

Start from a critical incident or scenario and argue a course of action

"What have others done? How does your choice compare?"

## *Problem focus*

Apply a problem solving strategy to a situation with multiple options

"As a group, create a resource that combines a variety of different solutions, each one contributed by a different group member- Make an overall flow chart to help others to see key points in the decision process and what happens based on different choices"

## *Creation focus:*

Visualize or design or illustrate a concept

"What way of visualizing a process you cannot actually see helps you best?"

Whenever possible, use authentic sources; learn where and how to locate appropriate information and assess its usefulness, for yourself and for others.

# Example: Extend the course resources



The screenshot shows the JBC Online website interface. At the top, it features the JBC Online logo, the title 'The Journal of Biological Chemistry', and an 'Open Access' button. A navigation menu on the left includes links for 'Submit Manuscripts Online', 'Subscriptions', 'Librarian's Resource', 'JBC in your Palm', 'Instructions to Authors', 'Editorial Policies', 'Advertising', 'Copyright Permission', 'Editorial Board', 'Related Resources', 'Net Tips', 'Help', 'Feedback', and 'Email Alerts'. The main content area is titled 'JBC in the News' and includes a 'JBC Papers in Press' section with 687 articles, a 'Select an Issue from the Archive' section, a 'Search the JBC' section, a 'Search HighWire Library of Science and Medicine' section, and an 'Article Statistics' section. On the right, there are sections for 'RECENT EDITORIALS', 'PAPERS OF THE WEEK', 'REFLECTIONS', 'CLASSIC ARTICLES', and 'MINIREVIEWS', each with an update date.

# Learn effective search habits...



The screenshot shows the JBC Online search interface. At the top, it features the JBC Online logo and a search box labeled 'optimized for Human Rat Mouse'. Below the logo, there are navigation links for 'HOME', 'HELP', 'FEEDBACK', 'SUBSCRIPTIONS', 'ARCHIVE', and 'SEARCH'. The search bar contains the text 'Full Text: 1 October 1905 - present' and a 'Search' button. Below the search bar, there are several sections for specifying search criteria: 'Specify Citation' (Year, Volume, First page), 'Specify DOI' (10.1074/jbc.), 'Specify Authors, Keywords' (Author, Title, Abstract | Title, Text | Abstract | Title), 'Limit Results' (From, Include articles in the section), and 'Format Results' (standard/condensed result format, View, Sort). The search results are currently empty, and there is a 'Clear Search' button at the bottom.

## And when to refine the search... then contribute one choice to the course Web environment for others



**JBC Online**  American Radiolabeled Chemicals, Inc. **RADIOLABELLED CHEMICALS FOR LIFE SCIENCE RESEARCH**

**QUICK SEARCH:** [advanced]  
Author: Keyword(s):  
Go: [ ] [ ] [ ]  
Year: [ ] Vol: [ ] Page: [ ]

HOME HELP FEEDBACK SUBSCRIPTIONS ARCHIVE SEARCH SEARCH RESULT

Institution: UKB - Universiteit Twente Centrale Bibliotheek [Sign In as Member/Non-Member](#)

**Results 1-10** (of 537 found) [Next 10](#) »

My search criteria:  
**transduction** (any words in title)

standard / condensed citation format  
10 / 25 / 40 / 50 / 80 results per page  
best matches / newest first

[Alert me](#) when new articles matching this search are published  
[Download all](#) citations on this page to my citation manager

For checked items below: [Go](#)  view abstracts in new window  download to citation manager

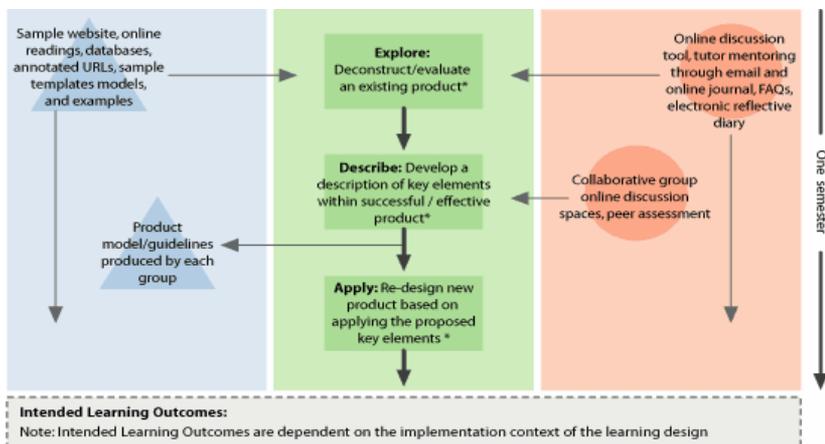
**MECHANISMS OF SIGNAL TRANSDUCTION:**

Uma K. Misra, Mario Gonzalez-Gronow, Govind Gawdi, Justin P. Hart, Carrie E. Johnson, and Salvatore V. Pizzo  
**The Role of Grp 78 in  $\alpha_2$ -Macroglobulin-induced Signal Transduction. EVIDENCE FROM RNA INTERFERENCE THAT THE LOW DENSITY LIPOPROTEIN RECEPTOR-RELATED PROTEIN IS ASSOCIATED WITH, BUT NOT NECESSARY FOR, GRP 78-MEDIATED SIGNAL TRANSDUCTION**  
J. Biol. Chem., Oct 2002; 277: 42082 - 42087 ; 10.1074/jbc.M206174200.  
(...) is a scavenger receptor that binds to many proteins, some of which trigger signal

[Abstract](#)  
[Full Text](#)  
[PDF](#)

Also, go beyond the textbook and journal...look for people in the field in action....[Members of the Signal Transduction group...](#)

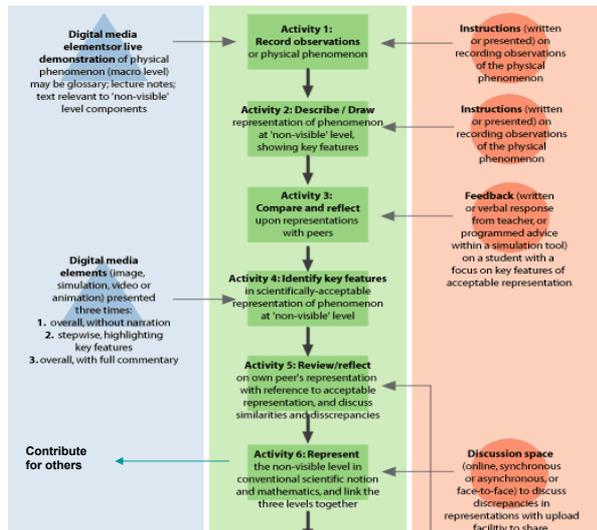
## Explore-Describe-Apply: Solving an open-ended problem



Oliver, R. & Herrington, J. (2002). *Explore, Describe, Apply: A problem focussed learning design*. Retrieved July 2, 2005 , from Learning Designs Web site: <http://www.learningdesigns.uow.edu.au/guides/info/G4/index.htm>

# Observe, Represent, Refine:

## Developing mental models of non-visible physical phenomena



Tasker, R., Lockyer, L. & Harper, B. (2002). *Observe, Represent, Refine: Developing scientifically-acceptable mental models of non-visible physical phenomena* Retrieved July 2, 2005, from Learning Designs Web site: <http://www.learningdesigns.uow.edu.au/guides/info/G5/index.htm>

# Plan the resources...



Some you provide....

Some they supply...



- Real data and authentic workplace documents
- URLs to external Web sources
- Books, manuals
- Instructor-created resources
- Learner-contributed resources
- Video/audio captures
- Professionally made resources, Web-based or CD-ROM
- Access to contact persons
- Professional portals (<http://stke.sciencemag.org/>)

# Plan the assessment and supports



- **Number, variety, and weight of assessed activities?**
  - Choose among: "Right answer" exercises, quizzes, one-step contributions, multi-step projects, exams
  - How much flexibility? In type, time, topic? Group or individual?
  - What support will be available, when, for help with each activity?
- **Prepare and place in the Web environment:**
  - Careful instructions and examples
  - Clear expectations for when, where, and to what standard
  - Time and expectations for feedback including peer feedback
  - Scoring templates, clear criteria (particularly for group work)
  - Policy for late submissions, re-submissions, unacceptable submissions,
  - Indication of who/what/when/how/where to get support

# Design the Web environment...



Integrate calendar, learning tasks, learning resources, learning supports in one matrix...Add all materials that will link to the Roster....

Roster					
00	📅	Reading and responding	Date and location of session	During the session	After the session
10	📅	"Course Info" and Ch. 1	30 March 2001, L209, 8:30-10:30	<a href="#">Dimensions of E-Learning</a>	🔗 Assignment 1: Part 1: Due 4 April, Part 2: Due 6 April, 10 pts
20	📅	Ch. 3, 4, 5 <i>Poll questions are available (29-04-01)</i>	6 April 2001, 8:30, L209	<a href="#">Pedagogy and Technology for E-Learning</a>	🔗 Assignment 2, due April 25, 30 pts <i>General feedback is available here (29-04-01)</i>
30	📅				🔗 Assignment #3, Due 2 May, 10 pts
40	📅	Ch. 7, 8, 9	4 May, 8:30, L209	<a href="#">E-Learning in the organisation</a>	🔗 Assignment #4, Due 23 May, 30 pts (small changes made, 03-05-01)
50	📅		1 June, 8:30, L209	<a href="#">Visions of the future, complete the questionnaires here for 5 pts</a>	🔗 Assignment 5, Due 1 June, 15 pts

# Plan the rest of the Web environment



**Course Information:** All the formal and procedural information about the course and its procedures

**Communication tools:** Instructor to class, Instructor to individuals or groups, Students to instructor, to individuals or to groups

**Extra resources**



Have a walkthrough...

Is everything consistent and clear?

# Options for the Web environment



Learner Tools
> Communication Tools
<input type="checkbox"/> <a href="#">Discussion Forums</a>
<input type="checkbox"/> <a href="#">File Exchange</a>
<input type="checkbox"/> <a href="#">Internal Email</a>
<input type="checkbox"/> <a href="#">Online Journal/Notes</a>
<input type="checkbox"/> <a href="#">Real-time Chat</a>
<input type="checkbox"/> <a href="#">Video Services</a>
<input type="checkbox"/> <a href="#">Whiteboard</a>
> Productivity Tools
<input type="checkbox"/> <a href="#">Bookmarks</a>
<input type="checkbox"/> <a href="#">Calendar/Progress Review</a>
<input type="checkbox"/> <a href="#">Orientation/Help</a>
<input type="checkbox"/> <a href="#">Searching Within Course</a>
<input type="checkbox"/> <a href="#">Work Offline/Synchronize</a>
> Student Involvement Tools
<input type="checkbox"/> <a href="#">Groupwork</a>
<input type="checkbox"/> <a href="#">Self-assessment</a>
<input type="checkbox"/> <a href="#">Student Community Building</a>
<input type="checkbox"/> <a href="#">Student Portfolios</a>

# Options for the Web environment (TeleTOP)



**Organization**

News ?  
Yes

Info ?  
Yes

Roster ?  
Yes

Assignments ?  
No

Administration ?  
Instructor only

**Communication**

E-mail/groups ?  
Yes

Discussion ?  
Yes

Questions & answers ?  
Yes

**Resources**

Glossary ?  
No

Weblinks ?  
Students can add

Archive ?  
Yes

Publications ?  
No

(HTML) Pages ?  
No

Quiz ?  
Yes

Poll ?  
No

WebQuests ?  
No

**Collaboration**

Workspace ?  
No

Presentation ?  
No

**Extra**

Category ?  
No

Feedback ?  
No

Search ?  
No

Plugins ?  
No

<http://www.teletop.nl/teletop.nsf/home/en>

# Example of roster set up and menu choices (TeleTOP)



Signed in as: Collis, Betty - administrator ([sign out](#))

Go to:

**Edit navigation**

- News
- Course info
- Roster**
- Administration
- Email / Group
- Discussion
- Question & answer
- Weblinks
- Archive
- Quiz

**Roster**

00	Before the session	Date and location	During the session	After the session
10		<b>START HERE</b> Welcome to P217A! 2-5 May	<b>STEP 1A</b> Finding Your Way Around study this	<b>STEP 1A</b> The Work Starts due 5 May 05
20		<b>STEP 2</b> Simulation guidelines 6 - 18 May	<b>STEP 2A</b> Introduction to Reservoir Simulation read the following	<b>STEP 2A</b> Modeling in your work environment due 11 May 05
25		TELEPHONE	TWO SESSIONS	Phone in details

# Lunch....



# 14:30-15:30 Choose your strategy...



1. **Work with a partner: Together, redesign one course**
2. **Indicate the key aspects of the situation (students, course context)**
3. **Plan for several activities (including a contribution type); work out what the students will do and what task instructions, resources, and support they will need**
4. **Think about criteria and resources for assessment**
5. **Share your ideas about one new activity with the rest of us**

**Pause....**



**15:50-16:30**



**Design (on paper) your course Web environment:**

- 1. Draw a matrix (roster) that integrates topics or time periods; activities, and resources. (Organize it with columns called Date/Topic, Before, During, After)**
- 2. Draw a sketch that shows your environment interface: what features do you want to make available in addition to your roster?**

## 16:30-17:00 Will it work for you?



- **What are positives and concerns...**
  1. **From the instructor's perspective?**
  2. **From the student's perspective?**
- **Will you try it? What do you need next?**

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