

Donald R. Woods, "Problem-based Learning: resources to gain the most from PBL,"
D.R. Woods, Waterdown, ON, ISBN 0-9698725-2-6, revised 1996

D. How to... set up courses and course objectives

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D.1 Example resource list

Resources for PBL 1:

D.R. Woods, Chemical Engineering, McMaster Univ.

This is a background Unit with many different resources available. No single resource seems to have all you might want to explore for this Unit.

1. A good starting resource is "Financial Decision Making in the Process Industries" Chapters 2,3 and 4. The advantage is that it ties the flow of money for a company in to the Venture business game that you have played. The disadvantage is that all the economic analyses are done in 4% and 6% economics that do not apply in today's 8% and 15% economics. Another challenge with this text is the nomenclature, at least, so say most students who have taken this course before.

Other texts use C for cost and for capital and for contingency annual cost, daily cost, and cost per unit of production, etc. This actually makes the other texts difficult to read. For FDMIPI, I chose a different symbol for every concept. Thus, there is no ambiguity. However, there initially appear to be, in FDMIPI, a proliferation of "crazy symbols". The key ideas are:

a superscript \tilde{A} means per annum;

a superscript \ddot{A} means per unit of production; or is the annual value divided by the annual production rate.

Next there are four symbols that we must keep straight:

R = net return or cash flow or net profit plus internal depreciation allowance.

P = net profit after tax with the internal depreciation as an expense.

C = total cost excluding tax but including the full internal depreciation as an expense as well as the out of pocket expenses.

S = the selling price.

Finally, all CAPITAL letters represent \$ or money;

all lower case letters represent rates or %.

2. A second resource that uses the same nomenclature but gives more recent %, and includes analysis of annual reports and gives a better overview of the Canadian context is Reg Clark's (from Queen's University) set of mimeographed notes. Reg and I plan to update FDMIPI but this is as far as we have gotten.

3. A third resource, are the sets of enrichment notes I have added and are in the Library package for this Unit. This includes:

- material from the Royal Bank of Canada on personal financing, "Your Money Matters," (1975) especially units 2,3 and 5.

- material from the Toronto Globe and Mail on stocks and investment, copies in the file.

- a personal budget, with information supplied from Credit Counselling Service, Toronto, phone 366-5251.

- a summary of the analysis of annual reports from Vince Uhl's AIChE course notes.

4. Depreciation seems to be a challenge for some to understand. In the resource centre is a 15 min Betamax tape I have prepared on "Depreciation: What is it?" Also in the Library package are the visuals used in this tape.

5. Most Texts on Engineering Economics, Cost Engineering, Plant or Process design, have some information on these topics although most are a repetition of interest depreciation and very little about personal economics.

Topics:

Flow of money in a Company: should know as a professional working in industry: 1. FDIPI *, 2. Clark ******

Allocation of Funds: nice to know: 1. FDIPI *, 2. Clark ******

Analysis of Annual Reports: What is a Balance Sheet? an Income Statement?: nice to know : 3. Notes ** 4. Uhl ** excellent but not in library and lengthy, 2. Clark ** takes real, very complex reports whereas you might want to start with a simplified one first.**

Depreciation: must know because this is necessary background for Units 4 and 6: 4. tape for definition, 1. FDMIPI *, 5. Peters and Timmerhaus Chpt 8 ***, and most texts.**

Personal Finance: nice to know as a professional: 3. Notes **, Royal Bank materials **

Interest: especially compounding and must know method of Present Value because this is necessary background for Unit 4: 1. FDMIPI *, 5. Peters and Timmerhaus Chpt 6 ***, Most texts are good on this topic.**

Sources of Money for Company: nice to know: 3. Notes **

Also included in the resource package are copies of all the transparencies and board work that I used when I used to "lecture" on this material.

D.2 Example course outline

Subject 101

Instructor: D.R. Woods

1994-95

Course outline:

Subject....

This course uses the Problem-based learning format because I think you will learn the subject _____ better and because this will help develop your skills in problem solving,

interpersonal skills, self-directed, interdependent learning and self-assessment. These latter skills, you no doubt are aware, are much-valued by employers today.

The relative importance of these in this course are:

_____ (subject) 60%

**PBL processing skills (problem solving,
coping with change, interpersonal skills,
self-assessment, self-directed, interdependent
learning & self assessment) 40%**

Texts:

Assessment:

I will try to provide many opportunities for you to provide evidence of accomplishment.

In particular:

1. Reflective journal about feedback forms: completed at least five times during the semester; keep track of the progress you make from one time to the next and submit this by Oct 30 as a reflection on your progress. This can be in:

- stress and time management;**
- problem solving;**
- self-directed learning;**
- group process and personal contributions to the group;**
- change management;**
- Perry shift in attitude to managing my own learning;**
- self-assessment;**

- chairperson skills.

worth 20% [weighting depends on how much you value this as a skill to be developed]

2. Subject project report:... worth 20%

3. 3 h mid-term: worth 20%

4. 3 h final exam: worth 40%

During the PBL activities, failure to attend and do your share of the activities for all of the session will result in a failure in the topic of "developing self-directed learning," or "developing group skills," or developing "chairperson skills." You will be accountable for learning the subject knowledge that you were expected to learn via PBL.

D.3 Example objectives for processing skills and assessment

How do you describe what you mean by "problem solving"? or how do you show someone that you can generate issues? or that you are a self-directed, interdependent learner?

We have wrestled with this question for the past 30 years. Our solution is to create a list of objectives for each skill. You may give these to the students, use them as a template to critique their creation of objectives, give them to the students after they have identified their objectives, or never give them to the students; rather use them to help clarify in your mind what is observable for different skills.

Over the years, this task of creating objectives for processing skills has been one of the most challenging for us.

Table 3-2 lists the key processing skills that support a PBL program. In this Section, we include example objectives and assessments.

MPS 1 Awareness

1.1 given a term listed under "concepts introduced", you should be able to give a word definition, list pertinent characteristics and cite an example.

2.1 given an exercise, you will be able to verbally describe the mental processes you are using to solve the exercise such that there will be fewer than two silent periods of more than 10 s duration.

2.2 given that you are the listener in the TAPPS, Whimbey pair method, the feedback from the problem solver will be that you are within two scale ratings of "about what I wanted" on both the "degree of interaction" and the "tone of the interaction."

2.3 given that you are the problem solver in the TAPPS, Whimbey pair method, the feedback from the listener solver will be that you are within two scale ratings of being active, methodical, careful and that you check and double check as you describe the process.

2.4 given an exercise, you will be able to write out the process you used to solve the problem. This will be judged to be at least 70% "complete" by the tutor or by an independent judge.

Concepts introduced

Awareness, characteristics of successful problem solvers, advantages of becoming aware of the process, TAPPS-Whimbey pair process, role of Listener, role of Problem solver.

MPS 1: Awareness: Example assessment tasks:

1. As a listener in the TAPPS-Whimbey pair method, the problem solver has misread the problem statement, has chosen an incorrect answer D and has said "That completes that problem."

Your response is:

- a. "You have misread the problem, please reread it and start again."**
- b. "I'm sorry, I should have told you earlier but you misread the problem; let's reread it carefully again."**
- c. "Are you sure?"**
- d. "You are wrong, the correct answer is C; you can do better on the next problem."**
- e. "Can you check?"**

f. "OK, Let's go on to the next problem."

g. Other (provide your specific response)

2. Record in writing the first 10 minutes of the process you use to solve the following exercises:

3. From the in-class activity, you have the following evidence:

- your reflections that you wrote three times during the activity.
- your worksheets and the statement of the exercises.
- the feedback forms as a listener and as a problem solver.
- the DISCOVERY sheet.
- your awareness and skill checklist before and after the activity.

Write up a reflective assessment of the degree to which you have achieved the objectives. Refer to the evidence by number and relate your evidence and claims to the objectives by number. For example, "The worksheets and statements in Table 1 show that I was active because I created charts, circled and underlined information in the problem statement. This suggests that I have achieved part of objective 2.3."

4. For one of the stations in an OSCE, describe your thinking process aloud.

MPS 2 Problem solving

1.1 given a term listed under "concepts introduced", you should be able to give a word definition, list pertinent characteristics and cite an example.

1.2 you will be able to describe the cognitive and behavioral understanding of "problem solving," contrast this with "exercise solving" and understand the role of "pattern recognition."

2.1 you will be able to explain why successful problem solvers are active, methodical and accurate.

5.1 given situations encountered in other courses, at work or in your everyday life, you will be able to reflect on how you solve problems in these contexts.

5.2 given a personal goal, you will write that in observable terms, create measurable criteria, select evidence and write a reflective journal such that an independent assessor will agree that you have achieved your personal goals.

6.1 given a checklist of characteristics of successful problem solvers, you will be able to self-rate your approach to solving problems. From this rating you will create goals for improvement.

Concepts introduced

Problem, exercise, problem solving, exercise solving, pattern recognition, internal representation, successive approximation, optimum sloppiness, Pareto's principle, LTM, STM, chunks, OPV, knowledge and knowledge structure, relationship between knowledge structure and problem solving, working backwards versus working forwards.

MPS 2: Problem solving: Example assessment tasks:

- 1. Tony and Marjorie look at the same problem statement. Yet both describe the problem differently. Explain why this might happen.**
- 2. Summarize your five major strengths and the two areas you would like to work on to improve your problem solving skill. Cite what you used as evidence to reach your assessment.**
- 3. Given a problem statement, create three levels of successive approximation for solving the problem. Identify the constraints and assumptions and your estimate of the resulting accuracy of your answer for each level.**

MPS 3 Self-assessment

1.1 given a term listed under "concepts introduced", you should be able to give a word definition, list pertinent characteristics and cite an example.

1.1 given an evaluation or appraisal situation, you will be able to state the components necessary to do the assessment.

3.1 given an evaluation or appraisal situation, you will be able to write out in observable terms the goals and expectations. Your results should agree to within 90% of that of the tutor.

3.2 given an evaluation or appraisal situation and an observable goal, you will be able to write out measurable criteria that are consistent with that goal. Your results should agree to within 90% of that of the tutor.

4.1 given your written evidence, you will be able to objectively discuss your self assessment with another person and reach agreement as to the assessment.

4.2 given a workshop activity related to problem solving, you will be able to write down what you did before and what you can do after the unit, to provide evidence and interpret that evidence in terms of the goals and the degree to which you can achieve the goals. Your reflections will be judged to be consistent and objective by the tutor.

5.1 given situations encountered in other courses, at work or in your everyday life, you will be able to evaluate how well you can apply your problem solving skills to solve those problems. The goals, criteria and evidence and your interpretation will be assessed by the tutor to be consistent, complete and objective.

5.2 given a personal goal, you will write that in observable terms, create measurable criteria, select evidence and write a reflective journal such that an independent assessor will agree that you have achieved your personal goals.

Concepts introduced

Self-assessment, assessment, criteria, decisions or assessments are made based on measurable criteria.

MPS 3: Self-assessment: Example assessments.

1. A friend says that he wants to "reduce his weight" and asks your advice on how to do it. For this goal "to reduce weight"

(a) If pertinent, break this into further subgoals.

(b) Rewrite the subgoal in "observable terms."

(c) Create at least one measurable criterion that you be used to measure success in achieving the subgoal.

(d) Write out one type of evidence you would collect to show progress toward your subgoal.

2. For the goal " _____ ", create two measurable criteria.

3. List six issues or subgoals that you think are pertinent for the following situation/problem:

4. My subgoal is "to improve my creativity." Rewrite this as an observable goal.

5. My subgoal is "to develop confidence in statistical testing." Write two observable, measurable criteria to be used to measure progress.

6. For the goal " _____ " and the criteria " _____ ", list three different types of evidence that could be used to show progress and achievement.

7. From the in-class activity, you have the following evidence:

- your reflections that you wrote three times during the activity.**
- your worksheets and the statement of the exercises.**
- the DISCOVERY sheet.**
- your awareness and skill checklist before and after the activity.**

Write up a reflective assessment of the degree to which you have achieved the objectives. Refer to the evidence by number and relate your evidence and claims to the objectives by number.

8. Given the following objectives and criteria and given the following evidence, assess the degree to which the objectives have been achieved.

MPS 4 Strategy

1.1 given a term listed under "concepts introduced", you should be able to give a word definition, list pertinent characteristics and cite an example.

2.1 given the name "McMaster 6-step strategy," you should be able to describe each and list the cognitive and attitudinal dimensions associated with each step.

2.2 you will be able to describe the concept of "nested strategy" and given a problem, identify the number of times the 6-step strategy might be used to solve the problem.

2.3 given a problem in a TAPPS Whimbey-pair context, you should be able to verbalize the process and place a marker to identify the step (in the McMaster 6-step strategy) upon which you are working. The listener should agree with your assessment 80% of the time. You should need prompting no more than 3 times in a 7 minute period.

2.4 given the TAPPS Whimbey-pair context, you should exhibit 4 verbal management statements during a 7 minute period of problem solving.

5.1 given you goal to improve your application of a strategy, you will be able to identify subgoals, write these in observable terms, create consistent measurable criteria, gather evidence to substantiate claims and write a reflective journal to summarize your claims.

Concepts introduced

McMaster 6-step strategy, criteria for selecting a strategy, attitudinal and cognitive dimensions of each step in the strategy, Schoenfeld's monitoring/management, nested strategy.

MPS 4: Strategy: Example assessment tasks:

1. As a listener in the TAPPS-Whimbey pair method, the problem solver has not moved the marker. You think she is now "Exploring" whereas the marker is on "Plan". Your response is:

- a. "Please move the marker."**
- b. Reach over and move the marker for her so that you don't disrupt her.**
- c. Forget it; she probably is "Planning."**
- d. "Are you still planning?"**
- e. "Can you check which step you are in?"**

f. Other (provide your specific response)

2. Your task is to identify Schoenfeld monitoring activities. Which of the following actions/statements would you classify as "monitoring." Rationalize your choice for each.

a. the problem solver puts his hand out to move the marker and pauses.

b. "Let's see if I am finished with this step."

c. "Which step should I go to now?"

d. "What did I learn from that?"

e. "If I measure the blood pressure, that should tell me..."

3. Given the following stage-time chart as evidence, to what degree can you claim to have achieved the goals of this workshop? Write out your discussion of this evidence.

4. From the in-class activity, you have the following evidence:

- your reflections that you wrote three times during the activity.

- your worksheets and the statement of the exercises.

- the strategy stage-time chart including the monitoring notations.

- the DISCOVERY sheet.

- your awareness and skill checklist before and after the activity.

Write up a reflective assessment of the degree to which you have achieved the objectives. Refer to the evidence by number and relate your evidence and claims to the objectives by number.

MPS 5 Stress management

1.1 given a term listed under "concepts introduced", you should be able to give a word definition, list pertinent characteristics and cite an example.

1.2 you will be able to list at least nine techniques for managing stress.

1.3 you can define stress and distress and describe Selye's model.

2.1 given a set of facts about a situation, you will be able to identify which facts are within your control and which ones are not. Your assessment will agree with that of the tutor 85% of the time.

2.2 you will be able to demonstrate the muscle relaxation technique.

2.3 you will list the traditions that are important to you and that provide touchstones of stability in your life.

2.4 given a week, you will be able to monitor your self-talk, assess whether it is positive or negative, identify the types of trigger situations that cause the self-talk and set goals to reduce the amount of negative self-talk.

3.1 given a task to do, you will be able to identify a sub-task which is challenging enough but not overwhelming to you. The criteria you used shall be described to the tutor and he/she will agree 85% of the time that the criteria are pertinent and they have been correctly applied.

3.2 given the results from the Billings-Moos test, you will be able to interpret your results and set goals for development.

4.2 given a future event, you will be able to verbally describe to a Whimbey-pair listener, an imaginary movie of the event. The movie will last 5 minutes.

5.1 given that you want to improve your ability to manage stress, you will set goals, create criteria and gather evidence to show growth and achievement of your goals.

Concepts introduced Stress, distress, Holmes Rahe inventory, Billings-Moos feedback, Selye model, self-talk.

MPS 5: Stress management: Example assessment tasks:

1.(a) Monitor your own stress level before you read question 2, after you have read it and after you have completed question 4. Use a rating scale of 0 (meaning negligible stress), and 10 meaning very high stress. Distinguish between positive stress and distress. Use Table 2 to summarize ratings.

Table 2: Summary of ratings

Concerning Qu. 2	positive stress	distress
before reading		
after reading		
after completing		

(b) List the stress management techniques that seem to work for you under "test" conditions.

******* end of question 1 *******

2. Define the stated problem and visual thinking

For the page-long problem given in Table 3:

- (a). identify the stated goal, task to be done, or unknown to be determined.**
- (b). draw a "good" diagram(s) to represent the situation.**
- (c). indicate the system by drawing (on the diagram drawn in (b) above) a dotted line around the system.**
- (d). identify the knowns.**
- (e). identify the stated constraints.**
- (f). identify the stated criteria.**

(DO NOT SOLVE THE PROBLEM)

stress rating after reading this problem statement ___ distress rating

stress rating after completing problem _____ distress rating _____

3. From the in-class activity, you have the following evidence:

- your reflections that you wrote three times during the activity.**
- your worksheets and the statement of the exercises.**
- the DISCOVERY sheet.**

- your awareness and skill checklist before and after the activity.

Write up a reflective assessment of the degree to which you have achieved the objectives. Refer to the evidence by number and relate your evidence and claims to the objectives by number.

MPS 7 Creativity

1.1 given a term listed under "concepts introduced", you should be able to give a word definition, list pertinent characteristics and cite an example. You will be able to describe d-lines, the limitations of short term memory and rationalize the processes and procedures used in brainstorming.

2.1 given an object or a situation, as a group of about six you will be able to generate at least 50 uses, attributes, or ideas in 5 minutes.

2.2 given an object or situation, as an individual you will be able to generate at least 50 ideas in five minutes (or write out 50 ideas in ten minutes).

2.3 given an object or situation, as an individual you will be able to generate at least 50 ideas in five minutes (or write out 50 ideas in ten minutes) and the ideas will belong to at least 7 different categories and a group of three independent judges shall identify one idea that is "unique".

3.1 given a brainstorming session, you will be able to recognize silences and negative feelings and to cope positively with these such that the flow of ideas continues.

3.2 given a brainstorming session that is faltering, you will be able to use a trigger to get the flow of ideas going again.

3.3 as a leader/facilitator of a brainstorming session, you will be able to instruct the group, maintain the brainstorming atmosphere and the morale of the group and facilitate their producing 50 ideas in 5 min.

5.1 given a crazy idea, you will be able to describe your mental processes used to convert that idea into a technically feasible idea by using the triggered idea as a "stepping stone."

6.1 as a member of a brainstorming session, you will refrain from elaborating excessively, and criticizing. You will have few silent periods.

Your assessment on these three items will be better than 8 on a 0 to 10 point scale.

6.2 you will be able to describe your preferred style of brainstorming and your preferred use of triggers.

Concepts introduced

Brainstorming, triggers, silences, names of a dozen triggers, characteristics of memory, d-lines, STM.

MPS 7: Creativity: Example assessment tasks:

Time1. Creativity, Classification and Awareness

40

minFor the trouble shooting problem given in Figure 1:

[10](a)brainstorm 50 possible causes and write these down in 10 min.

[13](b)analyze your list, note the basis of classification, and divide your ideas at least seven different categories.

[2](c)select four technically feasible ideas.

[15](d) select the "craziest" idea, and write out the your thought processes as you use this idea as a trigger or stepping stone to obtain a "new" technically feasible idea.

******* end of question 1 *******

Time2. Assessment, Objectives, Criteria and Creativity

30For the subgoal "in the context of creativity, to show that I can achieve objectives more

mincomplex than those expected in class and as outlined in the objectives for MPS Unit 7". (These are reproduced in Table 1, p 6)

(a)If pertinent, break this into further subgoals.

(b)Rewrite the subgoal in "observable terms".

(c) Create at least one measurable criterion that you be used to measure success in achieving the subgoal.

(d) Write out one type of evidence you would collect to show progress toward your subgoal.

******* end of question 2 *******

MPS 11 Personal preference: the Unique You.

1.1 given a term listed under "concepts introduced", you should be able to give a word definition, list pertinent characteristics and cite an example.

2.1 given the descriptors that are output from such inventories as the Jungian Typology, Kolb learning cycle, Perry inventory, Kirton-risk inventory, Lancaster Approach to Learning questionnaire and the DEW, you will be able to list of characteristics of each descriptor and give an example.

2.2 given the results of a person who has completed an inventory such as Jungian Typology, Kolb learning cycle, Perry inventory, Kirton-risk inventory, Lancaster Approach to Learning questionnaire and the DEW, you will be able to list the person's preferences (as suggested by the questionnaires).

3.1 given the results from completing Jungian Typology, Kolb learning cycle, Perry inventory, Kirton-risk inventory, Lancaster Approach to Learning questionnaire and the DEW, you will be able to assess the degree to which the predictions match your own perception.

4.1 given the results from completing Jungian Typology, Kolb learning cycle, Perry inventory, Kirton-risk inventory, Lancaster Approach to Learning questionnaire and the DEW, and elements where you think the questionnaires do not describe you accurately, you will create descriptors to identify how you think you do behave.

5.1 given the results from completing Jungian Typology, Kolb learning cycle, Perry inventory, Lancaster Approach to Learning questionnaire, you will be able to describe the implications for learning.

Concepts introduced

Jungian typology, Kolb learning cycle, Perry inventory, Kirton-risk inventory, Lancaster Approach to Learning questionnaire and DEW.

MPS 11: Personal uniqueness: Example assessment tasks:

Time1. Personal Uniqueness

15 min

Table 1 shows Michelle and Andy and the results of their Jungian typology. For each of the four dimensions, identify how Michelle and Andy would approach an issue. What would they say or do the same? and what would they do differently?

Table 1: results of Jungian typology

	SN	TF	PJ	IE
Michelle	25 S	30 F	21 P	18 E
Andy	15 S	5 F	35 P	22 E

2. Same as Question 1 but with the results from any of the questionnaires: Perry, LASQ, Kolb, KAI.

MPS 12 Learning skills

1.1 given a term listed under "concepts introduced", you should be able to give a word definition, list pertinent characteristics and cite an example.

1.2 you will be able to state the things you can do to improve your retention of information.

2.1 given a topic, you will be able to complete a Larkin checklist: verbal, visual and equation, list of the kind, signs, units and typical magnitudes of all of the quantities in the equation, the meaning in words of all concepts, identify any similar concept or symbol that might cause confusion and identify when this is applicable. Larkin's checklist was developed for Science. Similar "checklists" can be created for other subjects. This will agree 80% with the checklist from the tutor.

2.2 given a topic in your subject discipline, you will be able to classify it as a fundamental law, a theory, a concept, a model, an empirical correlation,

a semi-empirical correlation, a definition, or a convention. These will agree 100% with the classification by the tutor.

2.3 given a definition, you should be able to identify the concept, the usual symbol used, the units of measurement and typical orders-of-magnitude.

3.1 given a set of lecture notes, you will be able to classify the information: fundamentals, concepts, worked example, experience knowledge, problem-solving hints.

3.2 for your subject area, you will be able to list 20 key experience factors (their numerical value and their units) for each 1 week of learning activity.

4.1 given a textbook, you will be able to list the features that help you identify the structure of the information.

5.1 given your personal response to the questionnaires related to learning style, you will be able to list the implications for your learning.

Concepts introduced

Larkin's checklist, Gowin vee, beetle diagram, fundamental law, theory, concept, model, empirical correlation, semi-empirical correlation, definition, convention, experience factor, units.

MPS 12: Learning skills: Example assessment tasks:

Time1. Learning

25 min Complete a Larkin Checklist for "Henry's Law." Use the form given in Table 2.

2. Figure 1 shows a time schedule that Pierre has prepared for his week. Comment on his schedule with respect to how well he has accounted for improving his retention of the information. Modify it, where applicable.

(7 min)6. What are reasonable, order of magnitude values for the following:

the density of liquid water_____

the vapour pressure of benzene at 100°C_____

the heat of vaporization of water _____

the density of air at room temperature _____

the compressibility factor for "nonideality" for a gas at a pressure of 10 atmos. _____

for a reactor producing compounds like ammonia and methanol, the fraction of the reactor exit stream that would be recycled

the percentage of a recycle stream that is usually sent to purge

***** end of question 6 *****

MPS 14 Creating the Look back and extending experiences

1.1 given a term listed under "concepts introduced", you should be able to give a word definition, list pertinent characteristics and cite an example.

3.1 given a problem solved and a solution, you will be able to list at least four components that you could change to create a new problem and still be able to solve it based on the same fundamentals.

3.2 as in 3.1, you will be able to list the fundamental principles that were used to solve the problem. These will be judged 90 % correct by the tutor.

3.3 given 3.2, you will be able to list at least 10 major prerequisite ideas.

3.4 given a series of problem statements, you will correctly classify those as being similar based on the underlying fundamentals and not by the similarity of surface descriptors in the problem statement.

5.1 given 3.1 above, but for each of the identified components, generate at least 20 alternatives.

5.2 given a problem solved and a solution, you will be able to write out a new problem statement (and solution) that will be judged by peers or/and by tutor to be 100% based on the same fundamentals.

5.3 as in 5.2, but you may include up to 30% new fundamentals that are prerequisite knowledge.

6.1 given a problem solved and a solution, and given one new problem statement, you will be able to list the fundamentals for the new problem statement and judge whether the new problem can be solved using the same fundamentals as used in the original problem.

Concepts introduced

Pattern recognition, fundamentals, prerequisite, surface cosmetics for a problem statement, elaboration.

MPS 14: Create the Look back and extending experiences: Example assessment tasks:

- 1. Create four statements for problems which are based on the same fundamental principles as the problem and solution given in Table 1.**
- 2. Given the 15 problem statements in Table 2, classify these based on "similarity" of the underlying fundamentals. Within each class indicate the extent to which the solutions to the problems would be similar.**

MPS 17 Time management

1.1 given a term listed under "concepts introduced", you should be able to give a word definition, list pertinent characteristics and cite an example. You will be able to list the four time-management principles.

1.2 you will be able to list 10 suggestions to help you keep track or and manage time and be able to rate the degree to which each might work for/has worked for you.

2.1 given the need to manage yourself and your time, you will write down what you know about yourself: your preferences, your learning style, your strengths and limitations, your attention span, what motivates you and what distracts you.

2.2 you will be able to list your personal goals for a monthly, 2, 5, or 10 year time-frame. These include part-time job & other responsibilities, physical needs: (sports/exercise); mental needs (marks, success, challenge, scholarships); spiritual needs; social/emotional needs (family, friends, relaxing/clubs).

2.3 given your personal goals, from #2.1, you will be able to prioritize these and indicate your commitment per week to each.

2.4 given the tasks that you do each week, you will apply Pareto's principle so as to identify the component of each task that will create the most benefit.

3.1 you will be able to explain what it means by "be proactive," and, for your situation, indicate five things that you do each week to be proactive. You will relate this to your rating on Rotter's locus of control or Heppner's PSI and rationalize.

3.2 given the tasks you have to do each week, you will be able to classify them as to importance and urgency.

3.3 given the temptation that personally interferes with your ability to manage time, you will be able to, in a diad or triad activity, resist the temptation and say NO! two times out of three.

3.4 given a task that you have to do, you will be able to complete a Kepner-Tregoe Potential problem analysis and outline three options to keep the problem from having a major negative impact on your ability to complete the task.

5.1 given your goals and your tasks, you will plan and schedule so as to focus on the important task under non-urgent conditions and provide evidence that you were successful.

Concepts introduced: Pareto's principle, Gantt chart, Covey planner, Rotter locus of control, KT potential problem analysis.

MPS 17: Time management: Example assessment tasks:

1. A project report is due 6 weeks from now. You have to do a literature review, interview several people, sort out your ideas and write the report. List about 10 subtasks to complete the task, estimate the time required and display the results in a Gantt chart.

2. You have to give a speech. Do a Kepner-Tregoe potential problem analysis: list at least 6 things that could go wrong, complete the analysis and include options you would take in this situation.

3. List five things that you do to motivate yourself to manage your time. List the types of evidence you would present to illustrate the degree to which you have been able to keep yourself motivated during the past week.

MPS 23 Obtaining criteria

1.1 given a term listed under "concepts introduced", you should be able to give a word definition, list pertinent characteristics and cite an example.

3.1 given a problem statement, you will be able to list the stated and inferred constraints and criteria. Over 80% of these should agree with the tutor's list.

5.1 given a situation, a decision to be made or a goal to be achieved, you will be able to create the "must," and the positive and negative "want" criteria.

6.1 given a situation and criteria, you will be able to identify measurable methods by which the criteria can be quantified. You will use judgement to limit the sophistication of the measurement technique so as to be consistent with the time available to the criterion and be consistent with the situation.

Concepts introduced

Criteria, criterion, constraint, checklist method, APA method, how-to-judge-success method, imagining alternatives method, the what-if? method, previous critical incidents method.

MPS 23: Obtaining criteria: Example assessment tasks:

1. Our task is to design an erector set type of toy for children age 6 to 10. What criteria would you use to select the best?

2. Betty is going to be married and you, representing her friends at work, are to purchase a gift with the \$300 they have collected. Betty works in the accounting Department of the bank; she likes to sew, cook and paint. Her fiancée is an Army officer, and they have rented a small apartment. They expect to move frequently. What criteria would you use to guide in the choice of gift?

3. Describe the method you would use to measure and the general numerical value you would assign to the following criteria:

- a. a quiet motorcycle racetrack, from the view of the neighbours.
- b. the reddest apple.
- c. acceptable dust emission from a smokestack.
- d. acceptable Word Processing system for the office.

4. Hilda is trying to decide what to do with her friends on Saturday night. One criteria they suggested was that the event should not be more than 10 minutes away because "they don't want to spend the evening travelling." Many were interested in magic. The illusionist Doug Henning had a show at the Royal Alexandra Theatre. The trip would take 22 min. Now what?

5. For the last job you held, what were your supervisor's expectations? Identify those that were constraints, those that were criteria. Quantify at least three of them.

MPS 24 Decision-making

1.1 given a term listed under "concepts introduced", you should be able to give a word definition, list pertinent characteristics and cite an example.

2.1 given a situation, you will be able to decide if the decision is or is not within your control; your assessment will be correct 80% of the time.

2.2 given a decision statement, you will be able to convert it to a results statement.

3.1 given a situation and a decision to be made, you will be able to identify whether individual or group process might be the most appropriate. Your assessment should agree with the tutor's 80% of the time.

3.2 given a situation and a decision to be made, you will be able to state whether it is a decision under certainty, risk, uncertainty or conflict.

3.3 given a decision judged to be under certainty, you will be able to list the measurable criteria, assign weightings, rate or rank each option. You will be able to demonstrate the use of a decision-matrix procedure and select the best option. The demonstration will include the correct application of the must criteria, positive and negative want criteria and the personal feelings impact criterion.

3.4 for any decision, you should be able to list 8 methods of evaluating/comparing options, 8 methods of displaying preference and 9 methods of group decision-making.

3.5 given a decision judged to be under risk, you will be able to identify the pertinent states of nature and estimate the probability for each. You will be able to demonstrate the use of decision trees or tables to make the decision.

3.7 given a decision under uncertainty, you will be able to apply maximin, maximax, minimax and subjectivist approaches. You should be able to rationalize the selection of each approach.

Concepts introduced

Steps in the decision-making process, certainty, risk, uncertainty, conflict, maximax, minimax, maximin, subjectivist.

MPS 24: Decision-making: Example assessment tasks:

1. You are shipwrecked on a deserted island in the Caribbean. To attract attention of the ships and planes in the area, and so be rescued, you have to select "which of the following would be the "best:" matches, mirror or flashlight." Display the decision-making process.

2. (from Whetten and Cameron, 1985). You are the general plant supervisor. Seven product lines, that involve four of your eight foremen, must be disrupted to satisfy an emergency request from an important client. You want to minimize disruption. No additional personnel are available; time is short. The plant is new and is the only plant in an economically depressed area dominated by farming. This is the first industrial development in this area in the past 15 years. The wages are substantially above farm wages; the worker's jobs depend on the profitability of this plant. Your subordinates are relatively inexperienced. You have been supervising them more than you would prefer had the plant been located in a well-established industrial area, and they had been more experienced. They willingly accept your supervision and want the plant to succeed. The decision is "How to reschedule the work to meet this emergency within a short time frame and with the minimum of disruption." Who should make the decision?

3. Which duplicating machine should I use for the office, A, B or C? All have the same technical, ethical, environmentally safe, and safety merits. The criterion of discounted cash flow (DCF) should be used which means the option with the largest value is the best. However, our company will not accept any project with a DCF that is less than 40%. The values of the DCF calculations are 38%, 65% and 45% for A, B and C respectively. In addition, we estimate that the following adverse consequences might occur. Alternative A: our estimate of the downtime is incorrect. Probability is 2 and the impact is 3. Alternative B: delay in receiving a piece of equipment. Probability is 5 and the impact is 2. Alternative C: experienced maintenance engineer who could trouble shoot any problems on the machine leaves the company. Probability is 0.5 and the impact is 5.

Which would you select?

MPS 27 Group skills

1.1 given a term listed under "concepts introduced", you should be able to give a word definition, list pertinent characteristics and cite an example.

2.1 given a problem, as a member of a group, you will participate in the task and morale components of the process such that your participation will be judged by an observer to be "active" and to have more positive than negative contributions.

2.2 as above but your performance will be judged to be "most of these skills" for both task and morale by two independent observers.

2.3 given a problem, the group will complete the assigned task by the designated time and over 60% of the members of the group will choose to work together again.

2.4 given a group solving a problem, you will be able to observe the group, record plus and minus contributions toward both task and morale components. You will be able to do this observing an individual client or the group as a whole. Your records will agree to within 80% of the average records made by four other observers or with those of the tutor.

2.5 as a member of an observer group, you will be able to provide written suggestions on how the group can improve its task and morale components. Eighty percent of your recommendations will agree with those of the tutor.

2.6 as a member of a group solving a problem, you will be able to self assess the performance of the group. Your assessment should agree within 80% of the assessment of outside assessors.

2.7 as in 2.6, you will be able to self-assess your personal contribution to the task and morale components of the group process. Your assessment should agree within 80% of the assessment of an outside assessor.

Concepts introduced

Task and the positive and negative contributions toward task, Morale and the positive and negative contributions toward morale, FIRO-B, stages of group evolution, feedback form.

MPS 27: Group skills: Example assessment tasks:

1. Watch the videotape of a group meeting and use the feedback form given in Table 1 to assess the performance of each group member and the group as a whole. Note the five strengths of the group and the two areas to work on.

2. The following are the results of FIRO-B for Andre.

4	7	4
8	3	7

a. Assume that this is a reasonable description of Andre; how is Andre likely to behave in a group?

b. Based on your own FIRO-B, compare your responses with those of Andre and suggest how you and Andre might interact from at least four different points-of-view: inclusion, control, affection, expressed toward others and wanted from others.

3. You have just joined a PBL group. They have found out that you have had some training in group process. They ask you to "tell them how to improve their group skills." Summarize the key ideas about group process.

4. You have just joined a PBL group. They have found out that you have had some training in group process. They ask you to "give us some training in group skills." Prepare a workshop. Estimate the time required, outline the activities, highlight the main points you want them to focus on.

MPS 29 Chairperson skills

1.1 given a term listed under "concepts introduced", you should be able to give a word definition, list pertinent characteristics and cite an example.

6.1 given a group and a decision that had to be made and the process to be used to make the decision, and given the feedback forms from the participants, you will be able to objectively summarize the findings, extract a description of the role you played, contrast the descriptors the members give you with the ones you wrote in the pretest and write out an action plan to help you improve. Your analysis of the evidence should agree within 80% of that of the tutor.

6.2 concerning the assessment of the group and of the chairperson, given the same group functioning under different chairpersons at different times and with different tasks, as a group you will consistently rate the group's performance on task and morale and consistently discriminate between the group's inherent ability and the chairperson's contribution to the group. The consistency will be within 1.8 units on the 8 point scale.

6.3 concerning improvement, given the assessment in #6.1 and other opportunities to be chairperson, you will convert at least one of your "Areas to work on" into a "strength."

6.4 given that you are to chair a meeting and given the purpose, you will be prepare an agenda, devise ahead of time whatever materials you feel need to be brought to the meeting, run the meeting and complete 60% of the agenda in the time available and receive better than average ratings on both task and morale for the conduct of the meeting and receive fewer than 20% ratings of a negative contribution to the extent greater than 3 on any of the activities.

6.5 as in #6.4, but complete 80% of the agenda.

6.6 as in #6.4 but complete 95% of the agenda.

Concepts introduced

Agenda, chairperson, strengths, areas to work on or areas for improvement AFI.

MPS 29: Chairperson skills: Example assessment tasks:

1. You have been assigned the role of Chairperson for the "Goal setting Meeting" for the PBL Case given in Table X. The meeting is to last 2 h and is 1 week from today.

a. Create an agenda for the meeting.

b. List any activities you would do between now and then and rationalize.

2. You are chair of the teach meeting. Here are excerpts from part of the meeting.

Dave: "Let's keep on track. It's Jenn's turn to present what she has found".

Bonnie: "But I still have questions of Vickie; I don't understand.."

Jim: "You can ask that of Vickie after the meeting. The rest of us all understand."

Vickie: "Bonnie, I explained it in great detail. I also gave you good summary notes. You shouldn't have any questions from my presentation."

Given no additional information about the backgrounds of these people, and just based on this script:

a. What's going on here?

b. What action, if any, would you take at this time?

3. You are chair of an introductory meeting.

a. Outline the issues that you want to address.

b. Create an agenda.

4. a. Contrast the behaviour of a "group" with a "team."

b. If, over the next 4 weeks, you want your group to evolve toward a team, list four issues you want to address and describe one approach you would take for each.

MPS 31 Defining real problems: goals, mission and vision

1.1 Given a term listed under "concepts introduced," you can define, list pertinent characteristics and cite an example.

2.1 Given your "problem", you will be able to create and write out a mission statement and a vision statement to place the problem in a broader context. An independent observer will assess that your statement matches 80% of the criteria.

3.1 Given your "problem," you will be able to broaden the perspectives to list at least 10 issues that pertain. You will be able to use such techniques as Why? Why? Why? to "Happiness and Bliss." An independent observer will agree that 80% of your broadening statements are reasonable and in an appropriate increase in generality. Your statements will lead you "broader" and not narrower.

3.2 Given your problem and your mission and vision statements, you will be able to state if your present goals are consistent with your mission and vision and revise them to make them consistent if needed.

3.3 Given a situation and a goal statement, you will be able to identify whether it is a "symptom" or an underlying cause.

3.4 Given a situation and the problem, you will be able to identify who is the owner, and who are the stakeholders.

3.5 Given a problem statement, you will be able to identify whether it is results oriented or action oriented and convert it to results oriented.

3.6 Given a problem or goal statement, you will be able to identify whether it is written in observable terms or not and to correct it if necessary.

3.7 For your goal statement, you will be able to express it as "results" , you will be able to write it in observable terms and you will be able to creating matching criteria that are measurable.

Concepts introduced

Owner, stakeholders, perspectives, symptom versus cause, mission, vision, goal.

MPS 31: Defining real problems: Example assessment tasks:

1. For the problem in Table Y, use the Why? Why? Why? technique to broaden perspectives. Create at least five levels between the stated problem and "happiness and bliss."

2. For the problem given in Table Y,

a. List six issues that are pertinent to the problem, that are related to the overall course objectives and that, if you learned new knowledge about that issue, would help you to understand or solve the problem.

b. Prioritize the issues and rationalize your listing.

3. For the problem given in Table Y,

a. Identify the owner(s).

b. List at least six stakeholders and hypothesize as to their stance on the situation.

4. Describe how the problem given in Table Y, and the pertinent learning issues, relates to your overall learning goals for this year.

MPS 36 Self-directed learning or lifetime learning

1.1 given a term listed under "concepts introduced", you should be able to give a word definition, list pertinent characteristics and cite an example.

2.1 Given a problem, you will ask questions, explore issues so that within 30 min, as a group of five, you will be able to identify all of the five to six major issues, and these shall agree within 95% of those identified by the tutor.

2.2 Given a problem, you will be able to list the possible knowledge you would need to know to solve the problem; your list should agree within 80% of the list of others in your group and within 85% with the list of the facilitator/tutor.

3.1 Given a problem, a list of the possible knowledge and resource available, you will create learning objectives and methods of assessment. These will be 90% acceptable according to the criteria for self-performance assessment (in MPS 3)

3.2 Given the learning objectives and methods of assessment, you will be able to identify reasonable and pertinent sources of information and be able to allocate the resources to achieve the objectives in the time available.

3.3 Given the learning objectives, you will create for yourself examination questions that are consistent with the objectives. These will be judged by peers and or tutor to be 90% acceptable.

3.4 Given that other members of the group have acquired key knowledge pertinent to the situation, you will ask questions so that you can learn from them the knowledge you need. You will interact such that they will rate a willingness above 70% to continue to share information with you.

Concepts introduced

Peers as resources, Perry's inventory, learning objectives, assessment.

MPS 36: Self-directed learning: Example assessment tasks:

1. For the learning goal "to explore the environmental issues related to the Red Hill expressway" (the problem posed in PBL Case 3)

(a) If pertinent, break this into further subgoals.

(b) Rewrite the subgoal in "observable terms."

(c) Create at least one measurable criterion that you be used to measure success in achieving the subgoal.

(d) Write out one type of evidence you would collect to show progress toward your subgoal.

2. Given in Table Z are the results of the Jungian Typology and the LASQ inventories and the Perry level for all the members of your group. The handout that Ralph has prepared for the teach meeting is given in Table R. Critique the handout based on your interpretation of the learning needs and preferences of the members of the group.

3. List the learning preferences and level of Perry development for each member of your group. Document the evidence that you used to reach this assessment.

4. For the PBL Case given in Table X,

- a. List ten issues you think are pertinent;
- b. Prioritize these in the context of this course.

5. Given in Table Z are the results of the Jungian Typology, the LASQ inventories and the Perry Level for all the members of your group. For the PBL case 3, reproduced in Table X,

- a. Identify the topic you contracted to teach the group.
- b. From the information in Table Z, outline how you would teach the group. Assume you have 30 min. Create the handout sheets you would use.

MPS 45 Coping creatively with conflict

- 1. You will have a chance to think about your attitude about conflict.**
- 2. Given a questionnaire about your personal style in responding to conflict, you will be able to assess the degree to which that really describes you. You will be able to put your response in the context of others.**
- 3. You will be able to list the different types of causes of conflict and the implications.**
- 4. Given a situation, you will be able to apply seven criteria to select an approach for coping with conflict that may be most appropriate.**
- 5. Given feedback from an observer about how you handled conflict, you will be able to assess the degree to which this describes your usual approach.**
- 6. You will be able to contrast you style of responding to conflict with the approaches taken by others.**
- 7. You will be able to list and describe effective processes and procedures that PBL groups could use for handling conflict.**

Concepts introduced

Options: Accommodate, withdraw, compromise, collaborate/negotiate, force; criteria: context and content, your goals, time, place and complexity, trust, your style, needs of others, you/them; processes and procedures.

MPS 45: Coping creatively with conflict: Example assessment tasks:

1. Your PBL group has been meeting for the past 4 weeks. In your opinion, two of the five members, Jody and Ivan, are not "pulling their weight." They are free riders.

a. List 10 options for dealing with this situation and explain how each option might work.

b. Outline a strategy for asking the group to address the issue.

2. Your PBL group is scheduled to have its third meeting. According to the guidelines for effective groups, your group should "have an accepted method of resolving conflicts." Table 5-4 p. 5-16 in HTGTM.

a. From your knowledge of the group members so far, list the areas in which conflict is most likely to occur.

b. List 10 options for dealing with each of these potential conflicts and explain how each option might work.

c. Outline a strategy for asking the group to address the issue.

3. For the conflict scenario given in Table C, explicitly apply the criteria and suggest which strategy you would use to cope with this apparent conflict.

4. You are getting frustrated because no one else seems to be studying or teaching the new material in the depth that you think you are doing or that you want from others. List five ways that might be used to make the behaviour visible (and thus lead to a basis for resolving the apparent conflict).

MPS 49 Managing change

1.1 Define and describe the emotions and feelings that one typically works through when you are forced to change: grieving process, Bridge's 3 step and Taylor's model.

1.2 You can relate the change process to stress, management of anger

1.3 You can list the misconceptions related to change and note what current research suggests is the "reality."

1.4 You can list four tactics one can use to manage change effectively.

2.1 For team projects, you will assess your current attitudes and skills, list the opportunities for growth and skill development and proactively write out a plan to empower yourself with the skills.

2.2 For self-directed learning, you will assess your current attitudes and skills, list the opportunities for growth and skill development and proactively write out a plan to empower yourself with the skills.

2.3 For the changes that are thrust on you now, you will be able to list what you do now, what you are asked to do because of the change and to create "opportunities".

2.4 For a change that is thrust on you, you will be able to describe for others the elements of disengagement, disidentification, disenchantment and disorientation.

3.1 You can summarize how you currently manage change. you will identify the section of Billings-Moos that you think describes you and the section that does not.

4.1 Through lab report writing and monitoring, you will document growth such that an independent assessor will agree with your assessment.

5.1 If pertinent, you will create enrichment goals related to this topic, create criteria for achieving the goals, gather evidence to show achieve and summarize your findings such that an independent evaluator will concur with your conclusions.

MPS 49: Managing change: Example assessment tasks:

1. Alex, a member of your PBL group, is extremely angry. He exclaims to you, "The teacher isn't doing her job! She has set up these groups and is just sitting in the room. This is too important a subject for us to be trying to learn on her own. She should be lecturing."

a. Describe Alex's attitude in the context of Perry's model.

b. Describe Alex's response in terms of the grieving model and Taylor's model.

c. What actions might you take with Alex and with the group? Which would you recommend?

2. Any of the questions at the end of Chapter 1 in HTGTM.

3. For your interpretation of the Perry model, complete an opportunities chart.

4. List four tactics that can be used to manage change.

5. List five issues that build or diminish trust. From your activities this past week (in any context) list four actions that pertain and note whether they would build or diminish trust.

6. You are chair of a PBL group where all other members of the group have a Perry score of 3. Your Perry score is 5.

a. What are the implications?

b. What might you do?

MPS 52 Interpersonal skills

1.1 you will be able to list the five fundamental rights and at least ten of the guidelines.

1.2 you will be able to name and describe the four steps in the SIER model of listening and describe four different classes of responses and four different contexts.

1.3 you will be able to list the six criteria to decide what type of response is appropriate.

1.4 you will be able to describe and illustrate passive, assertive, aggressive and passive-aggressive responses.

3.1 given a situation and a response, you will be able to identify if the response violates the fundamental rights and be able to create an improved response for those that violate those rights. Your identification should agree 80% with the tutor and 80% of your responses shall be judged by three peers or the tutor as being consistent with the rights.

3.2 given a situation and a response, you will be able to identify if the response follow the guidelines and be able to create an improved response for those that do not. Your identification should agree 80% with the tutor and 80% of your responses shall be judged by three peers or the tutor as being consistent with the rights.

3.3 given questionnaires and feedback about your personal preference, you will be able to describe the implications for how you are more likely to respond to different situations.

3.4 given a scenario, you will be able to apply the criteria to decide what general types of responses might be appropriate.

5.1 given your personal awareness, skills and needs, you will create for yourself, as appropriate, your own enrichment objectives and criteria as they pertain to this topic.

MPS 52: Interpersonal skills: Example assessment tasks:

1. Watch a videotape or another PBL group meeting and identify the extent to which the fundamental rights of an individual are claimed and honoured.

2. Watch a videotape or another PBL group meeting and identify the extent to which the principles of Shangri La are used. Be specific.

3. Watch a videotape or another PBL group meeting and identify the extent to which Gottman's four behaviours are present.

4. What is acceptable conduct?

a. "I think that is an unacceptable idea."

b. "That's a stupid idea."

c. "What a damn good idea!"

d. "Only a woman would think of that."

e. "That's just like your ridiculous idea you had for last year's Christmas party."

f. "Let the guys finish up the calculations; the girls can tidy up this messy room."

D.4 Example creation of the guidelines for coping with anticipated difficulties

In Table D.4-1 are listed six guidelines. Illustrations of given, and, where appropriate, additional comments made.

Table D.4-1: Creating an environment for win/win.

If we value the processing skills needed in PBL, then	Illustration	Comments
1. Make the acquisition of process skills part of the objectives of the course.	See outline in D.2	The objectives include the processing skills; the processing skills are assessed, see F.1. and section D.3.
2. Help the students gather evidence of growth.	See outline in D.2 where the issue is addressed. I think it is important to address as many of the issues as possible early in the course.	Evidence is crucial for anyone. Without evidence, it is difficult for anyone to make claims. Some of the forms given in F.8 provide some evidence.
3. Be prepared to help them over some of the rough parts.	Publically display a force-field diagram that addresses some of the issues.	Use class ombudspeople to give you feedback about how the learning process is going and to identify the rough spots.
4. Give them an opportunity to demonstrate that they have acquired the skills.		
5. Build into the approach clear explanations of expectations and consequences.	Undoubtedly you will encounter "sticky" situations. Anticipate these and think of how you will handle this before it occurs. Include this in the course outline or create a class-teacher contract on how issues will be handled.	Anticipate the major difficulties. see Woods et al. (1995) about the major issues in smooth functioning of tutored and tutorless groups.

<p>6. Establish a climate of acceptance with the chair and academic deans.</p>	<p>Whatever you do in issue #5 above needs to be accepted by other administrators as being "fair." For example, the following example letter to student who habitually fails to attend the PBL meetings is given in Table D.4-2. This was discussed and approved by the Academic Dean before anything occurred. If and when it happened, the students, you and the Dean knew the consequences and the procedure.</p>	<p>This letter is only possible if the course outline, D.2, includes the proper wording. Rather Draconian but it works.</p> <p>The message is, create an environment that will allow you to gracefully and professionally cope with anticipated problems.</p>
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Table D.4-2 An example letter to a delinquent student

Dear ,

For the PBL part of the course I noticed that you have been (absent from the PBL meetings. In discussing this with group members I learned that you had not informed them ahead of time that you would be absent). The guidelines handed out at the beginning of the semester said:

" For the Unit on PBL, failure to attend and do your share of the activities for all of the sessions will result in a failure in that Unit on PBL."

In agreement with that condition, I have reconstituted the group to which you used to belong. You are no longer a member of that group. Furthermore, since a required component of this course is the development of interdependent learning and full participation in the PBL group process, and since you have failed to try to develop that skill, you will receive a zero on that Unit.

Concerning the subject knowledge being learned through the PBL process, you are responsible for learning that material.

I would be pleased to discuss this with you and help you in achieving as many of the objectives of the program as we can.

Sincerely,

Instructor

cc student file, Dean's file.

References

Woods, D.R. et al., (1995) "Tutored and Tutorless Groups in PBL,"

Chemical Engineering Dept.,

McMaster University,

Hamilton ON

D-4 D-5 D-6 D-7 D-8 D-9 D-10 D-11

D-12 D-13 D-14 D-15 D-16 D-17 D-18

D-19 D-20 D-21 D-22 D-23 D-24 D-25