F. How to...

assess

F.1 Example examination testing both subject knowledge and process skills, F-1
F.2 Example reflective journals: brief two-pager, F-5
   - strategy workshop
F.3 Example reflective journals: intermediate, F-11
   - interpersonal skills workshop, F-12
   - group skills workshop, F-20
F.4 Example reflective journals: detailed,
   - strategy workshop, F-29
   - self-directed learning workshop, F-40
F.5 Branda's PBEE (Triple Jump for large classes), F-45
F.6 Critical instant triad, F-50
F.7 Concept maps, F-58
F.8 Feedback/marking forms, F-61
F.1 Example examination testing both subject knowledge and processing skills

Name ______________________
Student number ______________________

GEOGRAPHY 101
Dr. D. R. Woods
Dec 1994

Duration of examination: 3 hours
McMaster University Final Examinations

**Special instructions:** Candidates may use pocket calculators. The marks allocated for each question are proportional to the time suggested in the left hand margin beside each question. Work directly on the examination sheet if you wish. Please be sure that your name is on all material that you hand in.
Answer all ___ questions.

This examination contains ____ pages and ____ questions. You are responsible for ensuring that your copy of the paper is complete. Bring any discrepancies to the attention of the invigilator.

Time 1. Geography question
20 min

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

Time 2. Geography question
30 min

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

Time 3. PBL Processing skills question
20 min

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.

****** end of question 3 ******

examination continues on the next page
**PBL Processing skills question**

For your group please complete the following table that asks you to describe the learning preference of each of the group members and the evidence you used to reach that conclusion.

<table>
<thead>
<tr>
<th>Name of group member</th>
<th>Learning preference</th>
<th>Evidence you used to reach this conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

********** end of question 4 **********

Total time: 180 min.
end of examination
Example options for questions 3 and 4

Time 3. **Personal Uniqueness**
15 min

Figure 3 show 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?

![Diagram of Michelle and Andy's Jungian typology]

Time 3. **Defining issues**
15 min
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.

********************************************************************************

Time 3. **Chairperson**
15 min
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.

********************************************************************************
Time 3. Conflict
15 min 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. Personally 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.

****************************

Time 3. Conflict
15 min 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 HTGM.

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

b. Personally 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.

****************************

Time 3. Personal Uniqueness
15 min Your group has the following members with the following scores on learning preference given in Table 4:

<table>
<thead>
<tr>
<th>Name</th>
<th>Jungian typology</th>
<th>Approaches to studying</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>S on the SN</td>
<td>T on the TF</td>
</tr>
<tr>
<td>Tanya</td>
<td>24</td>
<td>19</td>
</tr>
<tr>
<td>Adam</td>
<td>15</td>
<td>20</td>
</tr>
<tr>
<td>Troy</td>
<td>30</td>
<td>22</td>
</tr>
<tr>
<td>Sharif</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>Nicole</td>
<td>20</td>
<td>30</td>
</tr>
<tr>
<td>You</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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 4, outline how you would teach the group. Assume you have 30 min. Create the handout sheets you would use. Comments: This question might require that the exam be "open book."
F.2 Example reflective journals: brief two-pager

For any assessment, we need evidence. The reflective journal is an excellent source of evidence. This two-pager is
- written in class,
- consists of evidence and reflection

Required components: in-class evidence plus in-class reflection. The reflection may be written several times during the activity.

The advantages to the student are:
- This requires the minimum amount of time,
- This gives them confidence that some skill is being developed,
- This nurtures reflection (which improves the processing and development of the skill, Kimbell et al., 1991),
- This develops their understanding that assessment is based on evidence.
- This provides elaboration that improves learning and skill acquisition.

The advantages to the tutor are:
- This requires a minimum time to mark,
- This gives you feedback about what went on in the groups,
- This allows you to give feedback to them about the reflection process and about assessment.
Table 4-4: What I have discovered?
Record here what you have learned about strategies and how you and others use them:

I have learned that it is important when solving a problem to read, explore, and extend the problem in order to properly define what the problem is. After re-reading, re-examining, and then redefining the problem, we plan a solution. Relentless, it is like its own puzzle, possible solutions, and then decide them. We evaluate the problem being asked.

I think that the most difficult aspect is learning the 'more' statement. If they weren't right in front of me, I'm not sure I would have noticed them, but upon first reading, my partner shared a strategy similar to mine in solving problems. Reading the paper, however, I think that part is not the only way to solve these problems. It is very critical in problem solving. To keep yourself engaged in the problem, problem-solving.

It was good to have a partner who kept track of my ideas for me as well.

About your use of Strategy and the management of it

[Checkmark and signature]

reprinted with permission from Sarah E. Baer, 1995
<table>
<thead>
<tr>
<th>Talker</th>
<th>Listener</th>
<th>Exercise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sarah B</td>
<td>Keri</td>
<td></td>
</tr>
</tbody>
</table>

**Stage**

<table>
<thead>
<tr>
<th>Entry</th>
<th>Define-stated</th>
<th>Explore</th>
<th>Plan</th>
<th>Do it</th>
<th>Look back</th>
</tr>
</thead>
</table>

**Elapsed Time, min.**

0 2 4 6 8 10 12 14 16 18 20

Good monitoring

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Table 4-4: What I have discovered?
Record here what you have learned about strategies and how you and others use them:

- I have learned that although limited by time, we should relax and look at the big picture before focusing in on trying to solve the problem all at once.
- I myself need to follow a more logical sequence of techniques in order to get the solution.
- I also found that I underestimated myself and when I actually had the answer, I thought there could only be more to it so it caused me to get confused and continue pondering over something needlessly.
- I found speaking about what I was thinking kind of awkward and distracting.
- I should have used underlining etc. to help clear up important sentences in the problem.

About your use of Strategy and the management of it:

- As stated above, I think I need to improve my strategy by taking things slower in the beginning so I don't get caught up in details at the end.
- Also, more monitoring was probably necessary on my part.

Excellent reflection.

---

reprinted with permission from Steve Lau, 1995
<table>
<thead>
<tr>
<th>Entry</th>
<th>Define-stated</th>
<th>Explore</th>
<th>Plan</th>
<th>Do it</th>
<th>Look back</th>
</tr>
</thead>
</table>

**Elapsed Time, min.**

reprinted with permission from Steve Lau, 1995
F.3 Example reflective journals: intermediate

Here is are two example journals. Both are written following a structured format to make it easier to create and to mark. We asked the students to spend less than 2 hours on this reflection. I placed little emphasis on the bridging and extension activities. These are for MPS 52 and MPS 27-28.

Required components: in-class activity sheets, reflection, objectives, discovery, plus interpretation of these relative to the degree to which you can achieve the objectives. In the short version, little emphasis was placed on the bridge and extend sections where students discuss how they are suing the skills in other contexts.
**Title:** Interpersonal skills  
**Name:** R. Smith  
**Date:** 95-01-15

<table>
<thead>
<tr>
<th>MPS Unit 52</th>
<th>Objectives</th>
<th>Key Concepts:</th>
</tr>
</thead>
</table>
|             | Numbered on attached orange sheet. Plus personal objective of:  
1) To become more aware of and control the number of my facial expressions when in one-on-one or group situations.  
2) To learn the definition of vexed as Dr. Woods used it in class. | List five or six you feel were important: (Attach "Discovery" Sheet)  
- It's okay to make a mistake in a group! You can be forgiven.  
- It's okay to disagree - it's your right.  
- Body language communicates a great deal of information.  
- It's important to speak loud enough to be heard in a group situation.  
- I learned the definition of vexed. |

<table>
<thead>
<tr>
<th>Objective:</th>
<th>Before:</th>
<th>After:</th>
</tr>
</thead>
</table>
|            | Omitting (as was done in Unit 19)  
(fill in for next lab 😊) | marriage videos + role playing |

<table>
<thead>
<tr>
<th>Comments about pre &amp; post test on orange sheets:</th>
</tr>
</thead>
</table>
| Before the first lab session on unit 52, I felt that my interpersonal skills were really good. However, during the lab session, I began to realize four things:  
1) I tend to make facial expressions communicating my thoughts/feelings whether I wanted them communicated or not.  
2) I feel as though I may "hurt someone's feelings" if I disagree strongly in a group situation.  
3) I often worry my ideas are not on the right track.  
4) Because of (2) and (3), I tend to be a silent group member. I am aware of how I tend to think of myself and how others in a group may misinterpret my unwillingness to speak as unwillingness to participate and/or pull my own weight.  
I now make a conscious effort to give ideas and explain I am a tad shy. |
<table>
<thead>
<tr>
<th>Activities</th>
<th>Discovered</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SEVEN RIGHTS</strong> <em>(ACREYMN)</em></td>
<td>&quot;THAT DR. WOODS THINKS THERE ARE SEVEN FUNDAMENTAL RIGHTS: - BY RESPECTING THE RIGHTS OF OTHERS IN TURN YOU ARE (OR SHOULD BE) RESPECTED. &quot;MAKES FOR A BETTER ENVIRONMENT IF EVERYONE IS AWARE OF THE OTHERS' RIGHTS AS WELL AS THEIR OWN.&quot;</td>
<td>&quot;NEEDED IN ANY GROUP SITUATION OR ONE ON ONE AT HOME, AT SCHOOL, AT WORK, EVERYWHERE. &quot;GOOD PUBLIC RELATIONS!&quot;</td>
</tr>
<tr>
<td><strong>STORY ABOUT DR. WOODS YOUNG SON AND HOW WE WOULD HAVE REACTED</strong></td>
<td>OFTEN IT IS EASY TO LOSE ONES CONTROL WITHOUT THINKING OF THE CONSEQUENCES THAT ACTS MAY CAUSE (E.G., YELLING AT YOUNG SON). &quot;MY PERSONAL RESPONSE WOULD HAVE BEEN TO LEARN (E.G., GROW UP, LEARN NOT TO YELL) AND TO CONTINUE TO RESPECT OTHERS' RIGHTS.&quot;</td>
<td>&quot;THINGS GO WRONG — HOW YOU HANDLE THE PROBLEM MAKES THE SITUATION BETTER OR WORSE.&quot; &quot;PARENTING IS IT!&quot;</td>
</tr>
<tr>
<td><strong>CCDW</strong> <em>(Goltman)</em></td>
<td>&quot;BODY LANGUAGE IS A MAJOR PART OF COMMUNICATION. I TEND TO WITHDRAW IN A GROUP NOT BECAUSE I WANT TO BUT BECAUSE I AM SHY.&quot; &quot;CRITICISM CAN BE HARMFUL IF PHRASED URGING. &quot;MY CLASSMATES ARE HILARIOUS!&quot;</td>
<td>&quot;GOOD MANNERS ARE IMPORTANT IN GROUP SITUATIONS — AT HOME, IN BSD, IN SCHOOL GROUPS, AT WORK.&quot;</td>
</tr>
</tbody>
</table>
| **20/20 MOVIE** | "VERY FEW COUPLES WORK TOGETHER!" "WITHDRAWAL WAS SAID TO BE THE MOST COMMON INDICATION OF DIVORCE. (OH NO!"

*"A CLEAN LEADER EMERGED." | "THE SEVEN RIGHTS AND GOOD MANNERS ARE IMPORTANT IN GROUP SITUATIONS — AT HOME, IN BSD, IN SCHOOL GROUPS, AT WORK." "EXPRESS YOUR FEELINGS!" |
<p>| <strong>MOVIE — JEAN, BRIAN, MALCOLM AND ANDY</strong> <em>(MEETING &amp; FIRING)</em> | &quot;RIGHTS NEED TO BE RESPECTED IN A GROUP SITUATION. THE &quot;LEADER&quot; IS JUST THAT IN A GROUP — ANOTHER MUST NOT ASSUME THAT ROLE. THIS DISRUPTS THE GROUP.&quot; &quot;FEELINGS SHOULD BE CONSIDERED. &quot;I WANTED IF JEAN HAD BEEN PLAYING THE ROLE OF BRIAN IF THE RESPONSES FROM THE CLASS WOULD HAVE BEEN DIFFERENT. I.E., IT WAS SAID THAT BRIAN WAS Expressing HIS OPINIONS AND MAINTAINING HIS GOALS. PERHAPS JEAN WOULD HAVE BEEN LABELLED AGGRESSIVE AND AMBITIOUS OR SIMPLY THE &quot;FIVE LETTER &quot;B&quot; WORD. PERHAPS NOT.&quot; &quot;FIRING IS A TOUCHY SUBJECT. ONE COULD EASILY CRUSH ONE'S EGO OR PRIDE.&quot; &quot;PHRASES LIKE &quot;PLEASE, I WANT TO HELP.&quot; &quot;I CAN UNDERSTAND YOUR UPSET.&quot; ETC. TEND TO EASE THE SITUATION.&quot; | &quot;PEOPLE MUST WORK TOGETHER IN A GROUP SITUATION — AT HOME, IN BSD, AT SCHOOL.&quot; &quot;EXPRESS YOUR FEELINGS!&quot; |
| <strong>JOHNSON'S STYLE OF RESPONDING TO CONFLICT</strong> <em>(PG. 52-53)</em> | &quot;I TEND TO ACCOMMODATE (NOTHING NEW) — I LIKE TO NEGOTIATE? (NEE?) I TEND TO AVOID CONFLICT (RESOLVE). &quot;I DON'T LIKE TO FORCE.&quot; &quot;TRUE BUT I KNOW THAT WHEN I GET AN IDEA INTO MY HEAD, I MAKE SURE EVERYONE KNOWS HOW I FEEL.&quot; &quot;IT'S GOOD TO HAVE A MIX IN A GROUP. IF EVERYONE ACCOMMODATED — YOU'D GET NOWHERE. IF EVERYONE FORCED — YOU'D END UP NOWHERE AND ANGRY.&quot; | &quot;A MIX AND COMPROMISE ARE IMPORTANT IN GROUP SITUATIONS — AT HOME, IN BSD, AT SCHOOL.&quot; &quot;GOOD POINT!&quot; |
| <strong>REFLECTION</strong> | &quot;GOOD TO STOP AND PONDER WHATS BEEN ACCOMPLISHED. IT SLOWS THE PACE.&quot; | &quot;IMPORTANT TO MONITOR HAPPENINGS AND PROGRESS IN EVERYDAY LIFE.&quot; |</p>
<table>
<thead>
<tr>
<th>MPS Unit 52</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observations &amp; Evidence from the Workshop:</td>
</tr>
<tr>
<td>Green sheets from unit are attached and identified separately by Fig or table number. Discussion of this evidence: (In my opinion, objectives 1.2 and 3.2 were not covered in the lab session as well as objective 1.2. Also, objective 1.4 was read by Dr. Woods but no activity was given to prove the extent to which the objective was reached. Objective 5.1 was not included as this is not my personal enrichment topic. Instead, focus on my personal objectives.)</td>
</tr>
<tr>
<td><strong>Figure 1</strong></td>
</tr>
<tr>
<td>Dr. Woods taught us the acronym for the Seven Fundamental Rights - in class. (Objective 1.1) As seen in Figure 1, I can now list the Seven Rights. The guidelines were read over by Dr. Woods in class. They can be found in text (pg. 5.3-5.5). Upon request, I will gladly list ten of these guidelines. This proves I can fully achieve objective 1.1.</td>
</tr>
<tr>
<td><strong>Figure 2</strong></td>
</tr>
<tr>
<td>Dr. Woods related a story about his young son to us in class. In groups we were given the opportunity to share how we would respond. (Objective 2.1) As seen in Figure 2, several ideas were generated. Spanking and yelling were discarded; I decided later that such an act should not go undiscovered but that the act was not vicious. I would explain that we did not paint on the walls in this house but he could paint on paper. He could help clean up or sit in his room to ponder his next painting. (Objective 2.2) Thus, his rights have been respected. (Objective 2.3 - First Part) Thus, this proves objectives 1.3, 2.4, and the first part of 1.1 have been fully achieved by this activity.</td>
</tr>
<tr>
<td><strong>Figure 3</strong></td>
</tr>
<tr>
<td>At home I looked up the word veiled as used by Dr. Woods. (Personal Objective) See Figure 2. Now I know the definition and thus, have fully achieved personal objective 2.</td>
</tr>
<tr>
<td><strong>Figure 4</strong></td>
</tr>
<tr>
<td>In class we were given the opportunity to give an example of each of the Gottman Four. This figure/activity doesn't deal with one particular objective. However, later on when we analyze a situation and a response we use these four criteria. Thus objectives 1.1 and 1.2 are dependent on knowing Gottman Four. The Gottman Four are memorized now that I truly am aware of how facial expressions - my expressions - can be interpreted. I try to control them. Thus, personal objective #1 has been fully achieved.</td>
</tr>
<tr>
<td><strong>Figure 5</strong></td>
</tr>
<tr>
<td>In class we watched an excerpt from a 20/20 episode. The 'expert' identified various violations of fundamental rights. We were asked to identify these violations ourselves. The 'expert' achieved objective 3.1 fully.</td>
</tr>
<tr>
<td><strong>Figure 6</strong></td>
</tr>
<tr>
<td>In class, we watched two scenarios. My group was asked to observe Brian in a group situation and to identify whether his actions violate the fundamental rights of others. (Objection 3.1) As seen in Figure 5, I indicated the degree to which I thought Brian claimed and honored the fundamental rights. Also, in Figure 6, I listed five (5) areas of his strengths and two (2) areas to improve upon. This is one of the guidelines. Thus, I can fully achieve objective 3.1. The other classmates watched different people in the first scenario - I wrote down their objective.</td>
</tr>
<tr>
<td><strong>Figure 7</strong></td>
</tr>
<tr>
<td>In class, we watched a second scenario and again were asked to identify any fundamental rights being violated. (Objective 3.1) As seen in Figure 7, Jean was excellent and violated no fundamental rights while firing Brian. This proves I can fully achieve objective 3.1.</td>
</tr>
<tr>
<td><strong>Figures 8a &amp; 8b</strong></td>
</tr>
<tr>
<td>We were asked to fill out sheets 52-23 on our own time, so as to obtain feedback and discuss personal preferences and implications. (Objective 3.1) As seen in Figure 8a, I have been categorized into preferences and have identified implications. Also, I explain how and why I respond in certain ways in certain situations. This proves I can achieve objective 3.3 fully.</td>
</tr>
<tr>
<td><strong>Reflection</strong></td>
</tr>
<tr>
<td>These are just thoughts. Personal objective 4 is cited. I feel I am aware of this and have fully achieved personal objective 4.</td>
</tr>
</tbody>
</table>
**Title:** INTERPERSONAL SKILLS  
**Name:** R. SMITH  
**Date:** FEB 15, 95

<table>
<thead>
<tr>
<th>Observations &amp; Evidence from Application to Che 2D4, other courses [red] and to everyday events [green].</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green sheet for the week is attached. Discussion of this evidence:</td>
</tr>
<tr>
<td>This week there were only individual assignments. Next week we will be working in groups of two for a simulation assignment. The seven fundamental rights will be remembered, as well as the guidelines and Gottman Four.</td>
</tr>
</tbody>
</table>

In 3L2 lab last week I spilled a substantial amount of distilled/deionized water on the floor. The lab supervisor was very kind to me - rather than angry. Perhaps this was because I didn't assume it was her job alone to clean it up. I offered to help clean up, apologized profusely and thanked her for her help or - maybe it was just because she felt I had enough to worry about! HA! It's those guidelines again! ... Objective 11. **Great!** |

Additional applications:  
(sorry - my green pen ran out - purple will have to do.)

As VP Admin of my residence, one of my jobs is to collect hall fees. Our Hall Constitution claims any hall resident that has paid hall fees as a hall member. There is one girl, who, because of financial reasons, could not pay the $75 non-alcoholic hall fee. She very much wanted to participate in hall events and be considered a 'hall member.' She was very upset when she came to explain this to me. I said that paying the hall fee in one lump sum was not absolutely necessary and that installments would be perfectly acceptable. We agreed on $15 for the month of September and $10 for each month after (omitting December due to the holiday season) thus, by the first week of April she will have paid her hall fees. This worked out beautifully. She doesn't feel inadequate due to her financial situation and I am collecting the hall fee. I feel her rights were respected. (Objective 3.1 achieved even before. I knew of Dr. Wood's fundamental rights!) 

Last year, the hall gave 'warm fuzzies' to the residence executive. (I was the programmer then). Each girl in the hall wrote down something she remembered or thinks of for each exec member. It was so nice. I have my card up on my wall at home. It's those guidelines again.... Objective 11.
Title: INTERPERSONAL SKILLS
Name: R. SMITH  
Date: Feb 15, 1995

<table>
<thead>
<tr>
<th>MPS Unit</th>
<th>52</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other Evidence &amp; discussion:</td>
<td>I organized the hall raffle this year. I made sure I was always smiling when I was asking for prize donations (as much as I hated asking for donations). I made sure I sent out thank yous for everything, and again when the raffle was over. As well, I sent out season's greetings cards to each establishment that donated a gift to my surprise, 8 of the 10 establishments sent the hall a holiday greeting! it just tickled me. do unto others...</td>
</tr>
</tbody>
</table>

| Conclusions: | This unit 52 was an eye-opener. I have identified the areas I need to work on. I will continue to work on them. As Dr. Woods says, "In order to grow, you need to know those things that need to be improved upon." I am able to list the seven fundamental rights and ten guidelines. I am able to identify if the response violates the fundamental rights. Given a questionnaire and feedback about personal preference, I can discuss the implications of my responses. Given a scenario, I can identify an appropriate response given the fundamental rights. It is my opinion that objectives 1.2, 1.3, 1.4 and 3.2 were not covered such that evidence could be collected the text covers this material. I feel I can achieve the four objectives covered in class. However, because 4 of the 5 were not covered and I would like to achieve them, I will give myself an 82.5% progress. Always room for improvement... |

<table>
<thead>
<tr>
<th>Progress in Achieving Objectives:</th>
<th>Date: Feb 15, 1995</th>
</tr>
</thead>
<tbody>
<tr>
<td>(90% awareness)</td>
<td></td>
</tr>
<tr>
<td>(75% skill)</td>
<td></td>
</tr>
<tr>
<td>82.5%</td>
<td>☺</td>
</tr>
</tbody>
</table>

| ☑ |
**Figure 5**

- **Seven Fundamental Rights**  Respect Ideas/opinions Goals/needs Have feelings Troubles and make mistakes Select/choose/decide. and Accept Rights in Others

**Client**: BRIAN  **Observer**: BEK

The degree to which your client honoured the fundamental RIGHTS of others

<table>
<thead>
<tr>
<th>None of these behaviours</th>
<th>Few of these behaviours but major omissions</th>
<th>Most features demonstrated</th>
<th>All of these behaviours</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
</tr>
</tbody>
</table>

The degree to which the fundamental rights were claimed by your client

<table>
<thead>
<tr>
<th>None of these behaviours</th>
<th>Few of these behaviours but major omissions</th>
<th>Most features demonstrated</th>
<th>All of these behaviours</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
</tr>
</tbody>
</table>

- The degree to which principles of Shangri La are demonstrated by your client.

<table>
<thead>
<tr>
<th>None of these behaviours</th>
<th>Few of these behaviours but major omissions</th>
<th>Most features demonstrated</th>
<th>All of these behaviours</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
</tr>
</tbody>
</table>

- **Gottman's CCDW**

Contempt, Criticism, Defensiveness and Stonewalling/Withdrawal

The degree to which CCDW were absent by your client.

<table>
<thead>
<tr>
<th>None of these behaviours</th>
<th>Few of these behaviours but major omissions</th>
<th>Most features demonstrated</th>
<th>All of these behaviours</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
</tr>
</tbody>
</table>

**Strengths**  **Areas to work on**

(from D.B. Woods (1995))
MOBILE

Andy  Malcolm  Brian  Jean

(BRIAN)
- focus on how he
1) honors the fundamental rights
2) claims those rights?

(Write on handout)
POSITIVE
- knew his goals
- had experience
- exercised opinions
- doesn't waste time
- aggressive

BRIAN
1) didn't honor the rights of others
2) claimed most of his rights

IMPREDMENT NEEDED
- tends to criticizing & be contemptuous
- interrupts
- jumped from topic to topic
Activity. Continued... Fig 6 Cont!

Other groups findings...

Malcolm
- 5 strengths
  - Assertive relative to Brian
  - On time at the meeting
  - Didn't interrupt Andy
- 2 areas to improve
  - Respecting others
  - criticizing

Rights: Others: honored 4 of the 7 (didn't really honor Jean's rights)
His: Claimed most of his rights.

Andy
- 5 strengths
  - Claimed right to be
  - Respected by standing up
  - On time for meeting
  - Chatted nice
  - Appeared organized
- 2 areas to work on
  - Defensive
  - Clear & concise explanation?

Rights: Others: Honored them all
His: Didn't claim them all.

Activity: Jean, firing Brian

"I wanted to hear your response..."
"...awarded early retirement..."
"...as a colleague and head of personnel..."
"I wanted to tell you myself..."
"I can understand you're upset..."
"...your knowledge and experience going to waste..."
"...you've done a difficult job..."
"I want to help..."
"...Please..."
"Let's discuss the options..."

Flecked Jean, angry?

Actions: Smiles
folds hands
Looks directly at Brian
Flogging technique
Screams down

Aquagiveness

Eyes
**Title:** Group Skills

**Name:** Rebeckah Smith

**Date:** February 15, 1995

### Objectives
- Numbered on attached orange sheet. Plus personal objective of:
  1. To be vocal at least twice in a group situation
  2. To volunteer at least two ideas regardless of whether or not I feel they are inspiring
  3. To feel proud and be happy with myself for volunteering my ideas out loud

### Key Concepts:
- Regardless of the type of response from other group members,
- List five or six you feel were important (Attach "Discovery" Sheet)
- A mix of personality types is ideal in a group situation
- Conflicts are best resolved immediately rather than allowing them to fester
- Team morale is important
- Teamwork and communication is essential if a task is to be done within a certain time frame
- Differences must be put aside for the good of the group
- A leader emerges quickly in a group situation

### Objective:

**Before:**

**After:**

**AS FOR UNIT 18, THIS SECTION IS OMITTED.**

Comments about pre & post test on orange sheets:

Before the lab session for Unit 27 began, I was anxious about the group work. Even though I knew I felt more comfortable with it after Unit 52, I think knowing I would be observed was the problem. However, once in the group, I was feeling more at ease. It sounds corny but I was proud of myself for tackling my three personal objectives one step at a time...
### DISCOVERY

<table>
<thead>
<tr>
<th>Activities</th>
<th>Discovered</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTIVITIES (2701) (Task or Nothing?)</td>
<td>- Everything is open to interpretation. Task orientation is just as important as maintaining morale. Feedback is essential. The tone of one's voice communicates feelings/opinions. It is annoyance, irritation, anger, etc.</td>
<td>- Monitoring the group is a good idea. Be it at home, at work, at school or at play. (i.e. extra-curricular activities)</td>
</tr>
<tr>
<td>FRED AND PAULINE</td>
<td>- I do remember things from 262. I am an N/T/H (just like Pauline). A mix of personalities in a group is an added bonus - you get different ideas and perspectives.</td>
<td>- An ideal group has 'opportunities' i.e. think and feel introspectively and extrovertively. &quot;Apply this at home, school, work or play.&quot;</td>
</tr>
<tr>
<td>OBSERVING PEGGY LI</td>
<td>- Other people are quiet in group situations. Sometimes she would have a great idea but because she spoke so quietly, no one heard her. Perhaps she thought she was being ignored. The group was bored, funky - it was hard to interact.</td>
<td>- Observing others can help you to see how you might change. Certain things you do or to realize the way you do things is more than okay!</td>
</tr>
<tr>
<td>TABLE 52.1c (see Unit 52)</td>
<td>- Engineers like to problem solve. Girls are accommodating. Our class tends to force or withdraw.</td>
<td>- A good mix in a group is essential.</td>
</tr>
<tr>
<td>OBSERVING AN ENTIRE GROUP (ADAM, JASON, MIKE, PEGGY AND MICHELLE)</td>
<td>- A group has trouble functioning when two people were for the position.</td>
<td>- Input from an outsider/observer can better a group be it at school, work or at home.</td>
</tr>
<tr>
<td>GROUP ACTIVITY (JON, JEN, VIC, MYSELF)</td>
<td>- When you know the group, it's easier to work in a group. Collaborative work is in a small circle or across from one another. Then no one feels excluded. A group leader emerged almost instantly. Very hard to praise oneself in a group situation. i.e. I felt I contributed. It's much easier to find fault with yourself.</td>
<td>- Group work is a reality, be it at work, school, at play or at home. Teamwork is essential.</td>
</tr>
<tr>
<td>FEEDBACK FROM GROUP OBSERVERS (ADAM, JASON, MIKE, PEGGY AND MICHELLE)</td>
<td>- Sometimes criticism is hard to swallow. &quot;I wanted to live up to being &quot;good&quot; and keep bettering themselves. Feedback is necessary for one to &quot;grow&quot; and keep bettering themselves.</td>
<td>- Feedback can improve group situations greatly. Sometimes the smallest changes make the largest differences.</td>
</tr>
<tr>
<td>GIVING FEEDBACK</td>
<td>- &quot;Easy to find faults!&quot; &quot;Easy to criticize when you're not being criticized!&quot; &quot;Hard to come up with 5 positives for every 2 negatives!&quot; Negative feedback should be phrased properly, i.e. &quot;Not that group effort sucked!&quot; Rather: &quot;If you might improve by...&quot;</td>
<td>- Feedback provides the opportunity for you to get someone else's opinion. You didn't have to take their ideas to heart but realize some change can be a good thing.</td>
</tr>
<tr>
<td>MPS 27-</td>
<td>Unit 28</td>
<td>Title: GROUP SKILLS</td>
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</tbody>
</table>

### Observations & Evidence from the Workshop:

**Figures (a) and (b)**

- Green sheets from unit are attached and identified separately by Fig or table number.
- Discussion of this evidence:

  In class we were given the opportunity to listen to statements and categorize them as task or morale oriented and whether the statements delivered plus or minus contributions. Objective note: *I made my record agree within box with the record made by one other observer...* as seen in figure (a) and the accompanying questions in figure (b), Victoria and I agreed 100% on whether the questions were morale or task contributors. 5 of the 7 were listed identically in plus/minus positions. (71.4%) However, upon discussion of the two differences, it was clear we interpreted the questions differently. After explanation, we agreed with each other. Dr. Woods also agreed with our decisions. Thus, I can categorize a statement as task or morale oriented and whether said statement is a plus or minus contributor. This proves I can fully achieve objective 7 (as modified).

**Figures 2a) and 2b)**

- We were given the opportunity in class to observe one particular member of a group as well as the group as a whole. (Objective as can be seen in figures 2a) and 2b)) I can record plus/minus contributions towards both the task and morale components of individual and group behaviour. Thus, I can achieve objective 7 to its fullest.

**Figures 3a, 3b, 3c)**

- In class we were allowed to choose groups of 4 or 5 people and then given the opportunity to participate in task and morale building within a group. Objectives 9, 10, 11, 12, 13 as seen from figure 3a). I was observed in a group situation and am happy to report I was verbal, more than twice and volunteered to help.

  However, my three personal objectives were fully achieved. Figure 3b) also indicates that my participation was judged to be 'active' and there are more positive than negative contributions. This proves objective 1 is fully achieved as seen in figure 3b). 80% of the contributions (task) are judged positive and 20% of the morale attributes are judged positive. Thus, objective five and 6 are fully achieved. We were given 30 minutes to complete a task. As seen in figure 3c) the task was completed and feedback from Dr. Woods was obtained. Proving the task was completed, thus objective 4 has been fully achieved as seen in figure 3c).

- The group was able to assess our (the groups) performance as a whole concerning task and morale attributes. I am positive our assessment agreed 80% with our observers. This proves objective 8 is fully achieved. Within listening distance of Dr. Woods, I was able to self-assess my group contribution, albeit with some difficulty, to the task and morale components of the group process. This proves 1 can achieve objective 10. But I am not fully comfortable with this objective yet. It was agreed upon by all four members that we would choose to work together again. Indeed we will as this is the Bartek Group!! This proves both objectives 5 and 6 have been fully achieved.

**Figure 4**

- We were given the opportunity to provide feedback to an observed group (objective 2). As can be seen in figure 4, we provided written suggestions for how the group could improve its task and morale skills and provided praise for a good group effort. However, I'm not sure if Dr. Woods agrees with us. Therefore, I will say that objective 8 has been achieved in half.

**Figure 5**

- This is my reflection sheet. Personal objectives 1 and 2 have been cited as can be seen from the evidence provided above, I can fully achieve objectives — my personal objectives 1 and 2.
Green sheet for the week is attached. Discussion of this evidence:

(CHE 3L2)

Marsha Henderson and I are...the only twosome in this lab. Everyone else is a threesome. Given that we are completing the same labs with one less pair of hands, the labs can prove to be stressful - especially when time seems limited. Morale has to stay high. We do this by telling jokes or stories. We also get together two hours before the lab to prepare blank charts and graphs that need only to be filled in...anything to stay ahead!

We are extremely task oriented as time is limited and the lab must be completed. Here, objective I has been completed halfway as no one observed or recorded our plus/minus contributions.

- No other group work this week. Next week however --

Additional applications:

Our hall executive have meetings every Wednesday. After each meeting, we have a "Good of the Group" session. We use this opportunity to praise an organizer of an event, congratulate someone on a good test/essay grade or "rub someone in a friendly manner" about their new man. Everyone leaves the meeting with a good-positive feeling. (Objectives I, S, ACHIEVED)

Also, every two months, our president brings nine pieces of construction paper to the exec meeting. Each piece of paper has the name of one of the nine exec members. Rather than holding a "good of the group" session, we pass around these papers; making sure no one gets their own name, and write down 2 positive things and one thing (be it about an event, school, etc.) that could be improved upon. This has worked out great. The group is definitely more "together". A real team - and it has something to do with the fact that we're all open and honest with each other.

(Objective I, ACHIEVED)
| MPS 27- | Title: **GROUP SKILLS** | Date: **FEBRUARY 15, 1995** |
| Unit 28 | Name: **REBEKAH SMITH #9205330** |

**Other Evidence & Discussion:**
I don't have any evidence for this—well, I suppose I could submit my sheet music (marks and corrections, accents and pedal indications and all...) but I'm not since I need it Thursday, my partner and I really have to pay attention to each other. We really have to listen to each other play and compromise. That is our biggest obstacle. We have different styles and our teacher has a style all her own!

The piece is sounding really good but some days I feel like Ludmilla (the teacher) is being so nitpicky and negative. We just can't seem to do anything right. But, when she's pleased with a practice it's such a good feeling... 😊

(Objectives 9 and 10 are achieved in part)

₧ You know when you're having a good playing day or when you have lead fingers! 😊

**Conclusions:**
This unit was great for me. I do enjoy group work—but when I can pick the group and when I am not being observed 😊 I do feel more comfortable speaking in a group solving an engineering related topic. I still find it easier to be an observer but I wasn't expecting an instantaneous conversion! I feel I can achieve the three personal goals! Objectives 1, 2, 3, 4, 5, 6, 7, and 9 fully. Objectives 8 and 10 can be achieved but I feel I need to work on them some more in order to become completely comfortable with them.

😊

HAVE A RELAXING BREAK, TRACY! 😊

Thanks!

**Progress in Achieving Objectives:**
Date: **Feb 15/95**

90%

Yippee! 😊
### Example Assessment Feedback Form

#### Morale

<table>
<thead>
<tr>
<th>Role</th>
<th>Description</th>
<th>Vic</th>
<th>Ray</th>
<th>Jan</th>
<th>Sue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observer-Interpersonal process</td>
<td>Sensitive to interpersonal dynamics, comments on +</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ignores conflicts and tension, hopeful, appears -</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Giver - praise, support</td>
<td>Warm, responsive, gives help, rewards</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Putdowns, aggressive, self-centered, defensive -</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seeker - Interpersonal problem solver</td>
<td>Mediates, harmonizes, helps resolve conflicts +</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Causes problems, seeks personal goals -</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energizer - Tension relief</td>
<td>Jokes, laughs, shows satisfaction +</td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Withdraws, causes tension -</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Task

**!!! Way to go Bek !!!**

<table>
<thead>
<tr>
<th>Role</th>
<th>Description</th>
<th>Vic</th>
<th>Ray</th>
<th>Jan</th>
<th>Sue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observer - Task process - How you solve the problem</td>
<td>Monitors, seeks distinct identifiers; focuses</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Ignores phases, asks whatever works, blanks, unaware of -</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Giver - Information opinion</td>
<td>Withholds information, silent, aggressive or passive</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seeker - Information opinion</td>
<td>Jumps to conclusion; not a leader; lacks for opinion; checks for comprehension</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Refuses to ask for information, silent -</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energizer - Risk taker</td>
<td>Enthusiastic, follower, agrees, silent, unsure -</td>
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</tr>
</tbody>
</table>

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Activity: OBSERVING PEGGY IN A GROUP

(Chair: Adam . . . Task: 20 mins to identify key bits of info to solve problem)

Peggy: ____________ [FIGURE 2b]

- node head to agree
- very quiet when talked to; interrupted
- silent at beginning, warmed up to the group
- silent while brainstorming
- constantly puts hair behind ear

February 8, 1995

Looking at Table 52.16 - See sheet.

Compared figure 5.2 (pg.5-7) to class averages.

- Our class is more willing to face and withdraw compared to the
- professional engineers who are more willing to accommodate, compromise
- and problem solve!!

Feedback for Adam, Jason, Mike, Peggy and Michelle's Group:

- 2 dominant speakers (often in disagreement); 3 quiet members - choir should ask for
  their opinions
- time management could be improved
- organization could be improved

- We noticed they worked against each other rather than with each other
  - joked, lightened the atmosphere, when it got tense
  - the group asked lots of questions - on task
  - the group responded well to the questions asked
  - excellent recap of previous days work

(→ hard to get 5 positives for every 2 negatives)
Reflection:

February: Today we talked about group skills. It is so necessary to work "together" as a group. I know in group situations that I often am quiet. It's not that I don't wish to share ideas or give opinions - I'm just shy. It's much easier when I know the people in the group. I will work on this. Also, I only like to assume the role of "leader" when I feel comfortable with the task.

Today, I was the observer. I observed Reggy. I was able to watch how their group interacted. It always amazes me how quickly a leader emerges in a group.

February 8th: Discussed Table 2.6. It's funny how men and women are said to act so differently in a group. Sometimes I don't see a big difference - sometimes I do. We are going into our groups today. I'm going to try hard to be vocal and give opinions. I do have a little edge as Vicky is my close bud and I know Jen and Jen. We'll see.
F.4 Example reflective journals: detailed

Here are two example journals. The one is written following a structured format to make it easier to mark. I allow about 5 min per report for about 60 reports. The first student is writing about the strategy workshop from Chapter 3 in HTGTM or MPS 4.

This requires between 3 to 8 hours of writing throughout the week.

The second is less structured and is about the development of self-directed learning skills, MPS Unit 36. This report is written after four cycles of PBL. However, the student tracks the evolution of skill from problem to problem. These are called SDL 3, 4, 5, and 6 respectively.
<table>
<thead>
<tr>
<th>MPS Unit 4</th>
<th>STRATEGIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td>OCTOBER 1, 1983</td>
</tr>
</tbody>
</table>

**Objectives**

Numbered on attached orange sheet. Plus personal objective of: Modifying the strategy I use so that I feel comfortable with the new one; losing that ugly panic feeling when I first read a problem; being confident and efficient when using a strategy.

**Key Concepts:**

- Having a strategy before beginning to tackle a problem is extremely helpful.
- Once you've found a strategy you're comfortable with, it begins to become easier to use each time you are confronted with a problem.
- Using a strategy like the MAC-G step in engineering related problems is fundamental. Method of attack.
- A strategy decreases or eliminates the initial panic. You can say to yourself: "I've got a strategy. Let's read the problem first, be calm. You can do it!"
- Having a strategy or thinking you have one, makes you a bit more confident.

**Objective:**

Before:

- I have a strategy similar to the MAC-G step. I read the problem first, define it, find a method of attack, do it, and then check.
- Sometimes, however, when I'm strapped for time or I just don't have a grasp of the material, I jump to the MAC-G thinking I might accomplish something almost everything. I end up going back to the beginning, reapproaching the problem and using a strategy of sort.
- I need to spend more time in the EXPLORE stage, if I find one usually come up with one idea and go with that one instead of thinking there could be other methods of solution. 
- I have to work on assessing all my mental processes, keep don't say to myself: "What will that do for me? вместо: Instead, I feel I am not doing a certain something and I do it.
- I have to figure out the difference between the MAC-G step. Talking aloud can be distracting. 
- I feel like I'm interrupting or being rude when I intervene with praise or a question.

After:

- When confronted with a problem, I try to stick to my strategy. (Now modified somewhat to contain a bigger alphabetic step.)
- I am more aware of sticking to first understanding the exact problem and related material instead of jumping to the MAC-G stage. When I feel the question is "impossible hard".
- I'm spending more time in the EXPLORE stage compared to before, but I still think I should be spending more time here. Brainstorming many ideas is better than one solution method.
- The Schoenfeld management will help in being more aware of your situation.
- If I'm unsuccessful with a problem, I'm keeping going to say: "That's okay. Let's try it again. You can do it."
- I still need some work on assessing myself and I'm starting to say things like, "What did I learn from this? What will this do for me?"
- The distinction between plan and explore is still a bit fuzzy.
- Talking aloud is becoming less distracting sometimes how I don't even listen to my own voice.
- Intervening is part of being a listener. I like praise and suggestions. My OD should do.

**Comments about pre & post test on orange sheets:**

When the pre-step was filled out, I felt very aware of my own strategy. I knew I always read the problem first, defined it, figured out a method of attack, did the problem, and double checked. So, I feel very aware of my strategy and skill. However, I overestimated my awareness a bit when it comes to the MAC-G step, that I'm trying to adopt. I found I don't use it all the time, especially in some engineering-related problems, and that it slip back into my old method.
Unit 4: Strategies

Definition:

A strategy is a universally applicable, overall sequence of steps or stages used to complete a task or solve a problem. For example, the McMaster 5-step Nursing strategy is 1. I want to and I can. 2. Assess. 3. Plan. 4. Implement. 5. Evaluate.

Awareness:

How aware are you of how you apply this skill? Use an "x" to indicate your assessment.

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
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</table>

Unaware. Aware Very aware. I just do it of some I can describe the details of how I do it

Skills:

How would you rate your skill? Use an "x" to indicate your assessment.

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<tr>
<th>0</th>
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</table>

Poor Fair Good Very Good Excellent

Comments:

Unit 4 Strategies

1. given any of the concepts introduced, you should be able to define, state characteristics and illustrate the application.

2. given any of the concepts introduced, you should be able to define, state characteristics and illustrate the application.

3. given the name "McMaster 5-step strategy", you should be able to state the steps and evaluate.

4. given the name "McMaster 5-step strategy", you should be able to identify relationships between the elements (analysis, creativity, decision-making, broadening perspectives, simplification and generalization) and steps in the strategy.

5. given a problem, you should be able to identify a minimum number of times you might apply the general strategy to solve the problem and identify the subproblems to which you hypothesize that you would apply the strategy.

6. given a problem in a Whimbey-pair context, you should be able to verbalize the process, identify the step that you are working on and move a marker to show someone else what step you are working on. The listener/observer should agree with your assessment 80% of the time; you should need prompting no more than 3 times during a 7 minute period.

7. you should be able to describe the observable differences between a person solving with and without a Schoenfeld management. Refer to p. 4-10

8. you should exhibit at least four verbal management statements/tasks during a seven minute period of problem solving via Whimbey-pair procedure. (Ticks on graph)
## DISCOVERY

<table>
<thead>
<tr>
<th>Topics &amp; activities in Unit</th>
<th>Discovered</th>
<th>Application</th>
</tr>
</thead>
</table>
| **DESCRIPTION OF MAC-6 STEP** | - It's hard to differentiate between the plan and explore stage.  
- Even when given MAC-6 step, it's sometimes best to use your own method.  
- A lot is going on at the same time. It's concurrent.  
- When I got stuck on a problem, and required some help from a text, I just kept jumping back to the 'jump' stage and repeated what I had said before. | - Can apply MAC-6 step or a similar strategy to engineering related problems and those that come up in everyday life.  
- It's hard to apply if you don't have the required knowledge to do the problem. The 'jump' stage is inhibited and then so is the rest of the strategy. |
| **STRATEGY BOARD** (Talk Aloud & more) | - It's difficult to play the role of listener when constantly looking at the time.  
- It's hard to do the problem if you don't have the required knowledge. It helps if you know the stuff the question is asking about.  
- Sometimes talking aloud is distracting.  
- Felt like I had to be in a specific stage - no limbo  
- I don't like having to move the marker, it's easier to just say, "I'm moving to jump."  
- As listener, it's hard to concentrate on the problem when writing down stages and looking at the time. It's then hard to help out the P.S.  
- I was constantly aware that unsuccessful P.S. were erratic and jumped from define to do it.  
- I was consciously aware of the MAC-6 step and going through it.  
- Stopwatch is better to use. | - It might be difficult to have the strategy board with you every time you have a problem arise. |
| **STRATEGY BOARD PLUS MANAGEMENT** (Talk Aloud & more) | - Constantly assessing myself doesn't come naturally yet.  
- I'm a bit uncomfortable talking aloud saying, "If I find this, what will it do for me?"  
- It's better than cutting yourself up, give yourself a little boost even if you're unsuccessful. | - Assessing yourself keeps you aware of your strategy.  
- Being nice to yourself increases the desire (?) to finish the problem if you're unsuccessful. |
**Title:** STRATEGIES

**Name:**

**Date:** October 4, 1993

---

### Observations & Evidence from the Workshop:

**TABLE A: I**

As you can see, I spent approximately the same time in each step. This table was related to Table C—the case of the railroad crash. This problem was relatively straightforward, requiring only a few deduction skills. The problem definition was given as well, so looking back, I must have felt the need to go back and determine the problem definition.

---

**TABLE A: II**

This table is related to Table B—Terry Sleuth and the case of the delinquent decanter. I still followed a step pattern similar to Table A: I, but the trial was not as good. The total time was spent in the design stage. I'm happy with my improvement here, but still, I need to work on speeding up a bit more time in design. For this exercise, the length of time spent in each stage varied. The main reason for this is that the problem was an engineering-related one, and even though I'm getting better at controlling my initial panic, some still managed to surface. Again, the problem definition was given, but this trial, a proportional amount of time was spent in the define stage.

---

**TABLE B: I**

This is a record of my thoughts directly following the first trial (train crash). Basically, I found it hard to pay attention to the problem (as a listener) while watching the time and marking on Table A. As a result, it's getting easier to talk aloud.

---

**TABLE B: II**

These are my thoughts following the chem. eng. problems. As the R.S., I found it difficult not to get stuck. I felt the need for reference material—I needed that comfort. Also, continuing to talk after I got stuck, or was having a mental block was difficult. As a listener, it was a little easier to concentrate on the problem—but not much.

---

**TABLE C**

The case of the railroad crash—the case in the previous table. I was active in circling and underlining what I felt to be the key names and phrases. The problem had already been defined. I wrote down a few of the main clues in a list to help me see them more clearly.

---

**TABLE D**

The delinquent decanter... I was active in circling key points but didn't write much down to make it easier to see. I think I was at a loss as to what to write down. Once I got stuck, I just went back to explore and concentrated on the same points I had before.
**TABLE A**

<table>
<thead>
<tr>
<th>Talker</th>
<th>Listener</th>
<th>Exercise</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MARYANN</td>
<td></td>
</tr>
</tbody>
</table>

**Stage**

<table>
<thead>
<tr>
<th>Entry</th>
<th>Define-stated</th>
<th>Explore</th>
<th>Plan</th>
<th>Do it</th>
<th>Look back</th>
</tr>
</thead>
</table>

**Elapsed Time, min.**

**12 MINS**

<table>
<thead>
<tr>
<th>Talker</th>
<th>Listener</th>
<th>Exercise</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>JENNIFER</td>
<td></td>
</tr>
</tbody>
</table>

**Stage**

<table>
<thead>
<tr>
<th>Entry</th>
<th>Define-stated</th>
<th>Explore</th>
<th>Plan</th>
<th>Do it</th>
<th>Look back</th>
</tr>
</thead>
</table>

**Elapsed Time, min.**
Table 4-4: What I have discovered? 

Record here what you have learned about strategies and how you and others use them:

It's getting easier to encourage the PS. Because the time sheet was involved, it added more to the listener's role. I sometimes felt like I was interrupting the PS when I'd say "Have you moved the marker to Explore?" Again, it was a bit difficult not to jump in and try to help but the urge to do just that is diminishing. It was a bit more difficult to fully concentrate on the PS task while I was checking off the time sheet and looking at clock.

When the PS got stuck, it was hard to suggest going back to beginning because the problem was such that you went over and over the same thing.

Being the PS, I found it easier to read the problem aloud - I didn't feel embarrassed or nervous. The marker sheet did make me a little uneasy because I felt like I had to know what stage I was in and have the marker there immediately. Circling key points was a big help.

About your use of Strategy and the management of it...
This time as Listener, I found it difficult to concentrate on the problem while I was marking down stages and constantly checking the time. So, when Jen said she was stuck, I was at a loss to suggest a different look at the problem. Also, I found that as a Listener, I wasn't very knowledgeable on the topic of the problem. I did find it easier to praise and encourage. This time.

September 31/93

Problem Talker (40%)  

Problem talking on a question about chemical engineering is a little tough because you're not too sure of yourself quite yet. Defining the problem is okay—pretty straightforward—but what to do afterward is the hard part. I found I did get stuck—not knowing the coalescent rate of heptane at 60°C—perhaps the handbook of chemistry and physics would have helped. It might have improved confidence on the problem-solving method once stuck, hard to keep talking. What to say?
"Ring..." The inescapant ringing of the telephone disrupted the steady hum of the engineering office. Betty answered, looked perplexed, looked across at Terry Sleuth's desk and knit her brow as she carried on an animated conversation. Terry could almost guess from Betty's reactions that the call was about the hexane-water decanter on the soybean-miscella still. The Ministry of the Environment people had been after us for the last weeks to get the concentration of hexane in the waste water down to acceptable limits. Unfortunately, the decanter wasn't operating. Betty hung up, donned her hard hat and headed toward Terry's desk. "It's the decanter again, isn't it!", said Terry.

"You've said it", replied Betty disheartenly. "Before we head out to see the beast, let's review what we know", suggested Terry encouragingly. "OK", and taking out pen and paper Betty sketched as follows and said:

```
<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hexane</td>
<td>60%</td>
</tr>
<tr>
<td>Water</td>
<td>40%</td>
</tr>
</tbody>
</table>
```

Hot water enters the feed line. The foam or droplet layer fills the center band and coalesces to form pure layers of hexane (that rises to the top) and a pure layer of water. The top is sealed but a line goes to vent. The last time we talked we realized that some hexane will dissolve in the water and some droplets of hexane may go out with the water because the drops haven't coalesced. How's that?

Terry replied, warmly, "Very good; I assume that scratching you've drawn in the middle of the tank is to represent the band of coalescing drops". "Yes, and I've been doing a lot of reading since last time we thought we had this one solved. Misrahi and Barney say that for every 10°C increase in temperature, the coalescence time will be faster by a factor of 2. I think I'll rig up a heater on the feed line so that the incoming temperature is about 60°C instead of 50°C. That should fix this Baby!" gloated Betty. Terry paused, checked in the Handbook of Chemistry and Physics and said "don't be too sure". What did Terry look up and why did Terry cast doubt on Betty's idea?

\[ 10°C \uparrow \text{ temp} \rightarrow \text{ coalescence time is decreased by a factor of 2.} \]
What I learned about PS from the assignment exercises & problems this week:

Assignment: CHEM 2D4, ASSIGNMENT #2, DUE SEPTEMBER 30/93. CHAPTER 3, #1 (PROB). #9, #12, #24, #30, #34 (PER). For this assignment, I read the chapter thoroughly, took an hour break, came back and reread the chapter, as well as doing the test yourself questions. I found my understanding was pretty complete. I then attempted the problems (following the MAC-6 step minus the plan stage) and found the time it took me to complete the assignment was less than I had expected. I double checked my answers by checking my results, consulting the answers in the back of the text and compared with classmates.

About PS: One thing I discovered when reflecting on the 2D4 assignment was that a lot of times I forgot I was using a strategy and didn't explore instead, I'd jump from "need to find this" to "let's do this." I need to work on spending more time thinking about possible solution methods rather than just jumping in. Before this class, I always read the problem before attempting it. Now I find myself re-reading the problem over two or more times to be sure of a clear understanding.

I find that it's easier to follow a strategy in 2D2 tutorials or when dealing with everyday-life problems than in CHEM 2D4 problems, but I'm getting better at it.

Experience Factors I learned & will memorize:

Use SI units.

- $g = 1 \text{ kg m/s}^2 = 1 \text{ g cm/s}^2 = 980 \text{ cm/s}^2 = 32.174 \text{ lb m ft/s}^2$
- $N = \text{ N m}^2$
- $\text{ m/s}^2 = \text{ cm/s}^2 = \text{ lb m ft/s}^2$

Absolute zero: $0K = -273.15^\circ C = -459.67^\circ F$

- $1 \text{ atm} = 101,325 \text{ kPa}$
- $1 \text{ atm} = 760 \text{ mm Hg}$
<table>
<thead>
<tr>
<th>Observations &amp; Evidence</th>
<th>Green sheet for the week is attached. Discussion of this evidence:</th>
</tr>
</thead>
<tbody>
<tr>
<td>from Application to ChE 2D4, other courses [red] and to everyday events [green].</td>
<td></td>
</tr>
<tr>
<td>I found myself being much more aware of how I attacked a problem whether or not it was how I had originally wanted to.</td>
<td></td>
</tr>
<tr>
<td>CHE 2D4 questions can sometimes seem scary when they talk about distillation columns and reactors because, up until Wednesday and the tour in 2D4, I had no idea what they were talking about. Still, using the given data, I was able to come up with a “method of attack” but at the back of my mind I was still worrying about the distillation column. Now that I’ve seen one and along with my proactive strategy, I have an easier time beginning a 2D4 problem.</td>
<td></td>
</tr>
</tbody>
</table>

| Additional applications: |
|-------------------------|---------------------------------------------------------------|
| ITALIAN 126: I listened to all the audio tapes. I am having trouble getting the accent on the right part of the word. I reread the chapter and looked at how the text indicated accent (e.g., p[ACC]o). I then listened to the tapes and am slowly catching on. The point is I used a strategy: I isolated the problem, went to the lab, got the tapes, listened and read the material, and got positive results. |
| MATH 2M16- ASSIGNMENT #3 DUE OCT. 4/93. BEFORE I READ THE CHAPTER-SECTIONS, I QUICKLY PERUSED THE QUESTIONS OF THE ASSIGNMENT. I THEN READ THE CHAPTER-SECTIONS AND ATTEMPTED THE PROBLEMS. I FOUND THAT I DID GET STUCK BUT INSTEAD OF GOING ON TO THE NEXT PROBLEM AS I MIGHT HAVE DONE BEFORE, I STUCK TO IT. I RE-READ THE SECTION AND EXAMPLES IN THE TEXT. I REREAD THE PROBLEM AGAIN, USED A DIFFERENT APPROACH AND WAS SUCCESSFUL. IT WAS SUCH A GOOD FEELING TO HAVE COMPLETED A QUESTION SUCCESSFULLY WHEN IT INITIALLY APPEARED TO BE A BIG PROBLEM! |
Title: STRATEGIES

Other Evidence & discussion:

I HAD A RATHER IMPORTANT DECISION TO MAKE—WHETHER OR NOT TO ATTEND MY UNCLE'S WEDDING. I HAD TWO THINGS TO CONSIDER. ONE WAS MY KNEE. I JUST HAD MAJOR KNEE SURGERY THIS SUMMER AND SITTING IN ONE PLACE FOR AN HOUR IS ABOUT ALL I CAN TAKE. THEREFORTH, FIVE HOURS ON THE BUS HOME WOULD BE PAINFUL PLUS THE 8 HOURS IN THE CAR TO GET TO CHICAGO. I COULD DO DAMAGE TO MY KNEE BY MAKING THE TRIP. THE SURGEON STRONGLY DISCOURAGED ME FROM ATTENDING THE WEDDING. SECOND, 24 HOURS ON THE ROAD PLUS THE WEDDING LAVE NIGHT WOULD UPSET THE REST OF MY WEEK. (SLEEP, ASSIGNMENTS, ETC.) ON THE OTHER HAND, I WANT TO GO. IT'S A SPECIAL DAY FOR MY UNCLE AND I WANT TO BE THERE TO SHARE IN THE CELEBRATION.

COMING TO A DECISION TOOK A WHILE. BUT I DECIDED NOT TO GO. EITHER WAY I WOULDN'T BE 100% HAPPY BUT I MADE A DECISION AND I THINK IT'S THE RIGHT ONE FOR ME.

Conclusions:

HAVING A STRATEGY GREATLY INCREASES ONE'S CONFIDENCE WHEN ATTEMPTING TO SOLVE A PROBLEM AND IT DECREASES THE AMOUNT OF TIME THAT WOULD HAVE BEEN SPENT ON A PROBLEM OTHERWISE. I AM MORE AWARE OF WHEN I USE A STRATEGY (OR SOME OF IT) WHEN SOLVING PROBLEMS. I HAVE FOUND THROUGHOUT THE WEEK THAT I DON'T ALWAYS SPEND ENOUGH TIME IN THE CREATING SENSE. I NEED TO WORK ON THIS, BUT AT LEAST I AM AWARE OF WHERE I NEED TO PLACE MY CONCENTRATION.

I'M FINDING WHEN I ATTEMPT ENGINEERING RELATED PROBLEMS (OR OTHERS) I DON'T BEGIN TO PANIC (OR AT LEAST IT'S NOT A PANIC ATTACK) AND A LITTLE VOICE NO LONGER SAYS "THIS IS IMPOSSIBLE." INSTEAD, I SAY "BEK—YOU CAN DO IT! READ IT THROUGH..."

I AM FEELING QUITE CONFIDENT WITH MY MODIFIED STRATEGY. I CAN USE IT AND APPLY IT TO MY PROBLEM. BECAUSE I KNOW THIS, I'M MORE CONFIDENT WHEN DOING A PROBLEM.

Progress in Achieving Objectives: Date: OCT 4/93

| 75% | Awareness and Skill | | | |
2 December 1992

TO: Dr. D.R. Woods
FROM: Nick Dunn

RE: Self-directed Learning Report

In response to your request of 23 November 1992, please find attached my self-directed learning report. This report outlines the topics covered in each unit and the progress myself and the group made according to Perry's scale of attitude toward learning.

Overall, I felt that I had improved from a 2 to a 4 over the course of the unit. However, I felt that the group displayed only a slight improvement, increasing its rating from a 2 to around a 3. The main reasons for my rating is that I felt that I learned a lot from the unit, evidenced by my consistently good teaching evaluations and my ability to function effectively in this type of learning environment. The main reasons for the groups lack of improvement was the lack of effort and emphasis placed on these meetings. This unit was side-lined against other courses as their work level increased.

My main recommendation for improving this unit is to introduce it earlier in the curriculum. For instance, chemical engineering 2G3 is ideal to teach the concepts and then allow the students to practice with some of the fundamental topics. This would help increase the amount they learned and would better prepare them for life outside of school.

I hope you find this report to satisfy your requirements.
1.0 INTRODUCTION

As chemical engineers, we are problem solvers. In order to be effective and knowledgeable, we must continually learn to keep up with technology. As there is a vast amount of material to cover, we must utilize the knowledge of others to reduce the endless amount of work that would be required if we were to learn everything ourselves. Therefore, to become more efficient learners, we must employ others in the quest to learn. This is best accomplished through self-directed learning. The effective use of individuals striving towards predetermined objectives at their own speed increases the amount we can learn and it helps us to evaluate what we have learned. This method of learning was used for the financial portion of chemical engineering 4N4. As it was relatively new, the different stages of Perry’s scale of attitude towards learning could be seen. This report will outline my progress throughout each of the four units through the evaluation sheets I received on my teaching ability and in addition, my impressions of the group progression using self-directed learning.

2.0 SELF-DIRECTED UNITS

2.1 UNIT 3

This unit was the building block of all the financial analysis that the subsequent units would build upon. Therefore, it was important to establish a high standard of work from each group member. In addition, this unit would help set the expectations of each member so a high degree of learning would result. As the group had worked together many times before, the group norms had been set, but as we were embarking on a new learning experience where the interaction of the group members was seldom seen in this area, it provided a basis upon which our further learning would grow.

The first meeting enabled us to set our objectives for the unit with concerns from any member being voiced and discussed until a consensus was reached. As I was the only group member with prior knowledge concerning financial concepts, I was used as a resource to provide direction and areas that needed addressing before more difficult topics could be looked at. I identified the principle concepts that I thought were necessary for everyone to learn so that they would build a strong foundation in the costing and financial analysis of plants and processes. Although I was not required to take part in these introductory units, I felt that my presence would help the group in the learning process and reduce the barrier between management students and the regular students.

This meeting was productive and it led us into the first presentation/learning meeting. The feedback I received from the group members was positive concerning my presentation on stocks, bonds and mortgages. They learned from my presentation which was indicated by the evaluation forms. All the members rated my
quality of knowledge to be high, along with my quality of instruction. The group felt that they had learned some of the fundamentals but, they still needed to review them and practice some problems. I expected this as the topics were large and some of the basic fundamentals are not easy to understand at first. The topics I covered in the 10 minute presentation took a month in the finance courses I had taken previously. Although we went into much more detail, it demonstrates that these subjects cannot be understood after a short presentation. Therefore, after this meeting, the group decided to eliminate the time restrictions for the presentations. Also, each group member was to make up a problem for the other members that represented what they were teaching. This helped to increase the amount of information that was transferred by offering a practical problem to integrate the theory.

It was evident that the group was still a little unsure of what was expected with the self-directed learning. Time was required to fully implement the objectives of the unit without expecting a lecture in the formal nature we are accustomed to. However, the problem solving courses we have taken previously have helped to give a score of about 2-3 on the Perry’s scale. For the group's score to improve, more emphasis must be placed on this unit. Currently, I don't feel that the group is placing enough priority on the work. As the work is directed by ourselves, the group is putting the work behind the work in other courses. As a result the improvements will not take place until this attitude changes.

2.2 UNIT 4

The second set of meetings focused on determining the financial attractiveness of different projects available to a company. This included learning methods such as net present value (NPV), payback time and internal rate of return (IRR). These topics are not easy to understand which led us to schedule a floating presentation meeting. This would enable us to use as much time as necessary to complete the presentations until everyone felt comfortable with them. The presentations would proceed in one hour blocks with the additional meetings being scheduled once we determined how much time was required. Again, emphasis was placed on developing a practice problem at the end of each presentation to ensure that the important points were understood.

The presentations went smoothly, but another meeting was scheduled to complete all the presentations. From the feedback I received via the feedback forms, my presentation was good. The ratings I received on my knowledge and instruction had improved from my first presentation. More importantly, the group felt that the amount of follow-up required consisted of a basic review of the material and practice problems. All the group members felt that I had a good understanding of the material and presented it effectively through the use of a summary sheet. However, the group felt that I needed to direct the group towards the basic ideas
instead of trying to explain more advanced topics. In addition, I
needed to speak up and inspire more interest in the subject.

The group was now half way through the SDL unit and it was
apparent that frustration was developing from this type of
learning. The lack of direction from an outside source was
unfamiliar to many individuals and increased their stress level.
In addition, the relative importance of this exercise compared to
other courses was decreasing as the quality of presentations
generally declined. Also, meetings had to be re-scheduled as
people were not prepared. Overall, I don’t feel the group has
moved along Perry’s scale. However, I feel that my own learning
ability has improved from these exercises and as a result, I rate
myself as a 3 on Perry’s scale. This progression was not as
difficult as anticipated because I have had to use this type of
learning in my work experiences. Although it was never this
formal, it did develop my ability to use others as resources and
help teach others about a topic unfamiliar to them.

2.3 UNIT 5

This unit focused on cost estimation of materials, equipment
and utilities for a plant. This topic was large and required more
time to complete than the other units. In addition, this topic had
not been taught in other courses so there was not a resident expert
within the group. Therefore, this was the first real test of how
our group would function using self-directed learning on a topic
previously unfamiliar to us. The specific topics for presentation
were selected in the first meeting, with the presentations to take
place in the subsequent two meetings.

My presentation for this unit was rated similarly to the
previous ones, except that my knowledge rating was a little lower.
This was expected as I had not used these methods in the past and
therefore, I could not provide further insight into topic. The
comments received were consistent with those received for the
previous presentations, however, conflicting comments arose. This
happened when group members described the pace at which I was
teaching the subject. This can be attributed to the learning
abilities of the different group members.

The most significant problem with the group, is the emphasis
placed on the time of presentations. Although it is necessary to
follow the time allocations on the agenda, I don’t feel that it is
more important than learning the material. This demonstrates that
the group has put less importance on this material than other
courses. Although it may reduce the workload now, it will mean
that more work will be required in the future when the topics will
have to be learned individually. The purpose of the unit is now
lost, as the quality of presentations has decreased, leading me to
feel that I will have to learn the topics on my own before I
understand them properly. Again, the group has not progressed
along Perry’s scale. I still feel that I am improving as I am
using self-directed learning in my design project for another
2.4 UNIT 6

The final unit of the self-directed learning segment of the course dealt with costing equipment. This unit was easier than the previous one, but part of that was from the familiarity of the learning process. Again, these meetings ran smoothly with the presentations conducted effectively.

My teaching performance remained consistent with previous times with my strengths being found with my knowledge and understanding of the topic. The areas that required improving were the morale components and providing a handout. The appraisals identified my frustration with the group as I thought that they were taking the whole experience too lightly. I didn’t think that the group had made much progress in the self-directed learning objectives and that it was reduced to the motions of the learning without really doing any. I felt that the quality of presentations was poor and that the group needed to appreciate what the point of the exercises were.

3.0 CONCLUSIONS

My first observation was that we started the unit with a positive attitude, but as the workload in other courses increased, the effort put forth for these units decreased. Therefore, I rate the group as being between 2 and 3 on Perry’s scale, although there is the possibility for considerable improvement. However, I do feel that I did learn a lot from this unit. I have reinforced my ability to learn in small groups using others as resources and my confidence in my teaching abilities has increased. In addition, my communication skills have improved through the interactions within the group. Therefore, I rate myself as a 4 on Perry’s scale and with further practice, will be able to move up to a 5. This unit is very important and the concepts must be taught and understood by everyone as self-directed learning is the only way we can keep up to date with all the new developments in the field of chemical engineering. To aid in this learning, and increase the receptiveness, I feel that self-directed learning should be introduced into the curriculum in second year. This would make the students realize the importance of this type of learning and hopefully, increase the amount learnt by each individual throughout the program. Chemical engineering 2G3 would be an ideal course to teach the unit as it already focuses on problem solving.

Good analysis
Appreciated your frankness
and will use Perry's models as a guide
**F.5 Branda’s PBEE (Triple Jump for large classes)**

The triple jump exercise is an assessment of an individual’s problem solving and self-directed, independent learning abilities. The exercise was developed by Vic Neufeld’s tutorial group, McMaster University, in 1975. The “jump” consists of the three steps in Table F-1. In its original design, the tutor meets separately for 15 to 20 min with each student for both the first and third steps. Thus, for a group of 6 students this takes between 5 to 6 hours of tutor’s time.

Luis Branda, Biochemistry, McMaster University, adapted this approach for classes of 100 to 150 students. The modified approach is given in Table F-2. Consider an example. The biochemical principles relevant to a specific PBEE are identified. Table F-3 gives the principles that are relevant to the problem is posed, for example, in Table F-4. The instructions to the students are given in Table F-5.

Hence, in class, students individually list four learning issues. They write identify and justify their top two issues. A copy of this is left with the tutor. Table F-6 illustrates the form the students complete. Table F-7 illustrates a student’s learning issues in Stage 1. For next class each student researches her/his top two issues and prepares a two-page summary. In the meantime, the tutor peruses the student’s learning issues and prepares a personal set of questions for each student. Branda suggests that for any case, this means the preparation of a bank of one to two dozen questions. Some example issues and questions (for the problem given in Table F-4) are given in Table F-7. At the next class, the students pick up their own set of questions and have 50 minutes to answer them. They work individually but may consult their notes. The student’s responses are handed in; the tutor marks the results. Table F-8 gives the marking sheets for Stage 1 and for Stage 3.

**Table F-1: The original Triple Jump exercise (Neufeld, 1975)**

<table>
<thead>
<tr>
<th>Stage</th>
<th>Description</th>
<th>Time allowed, min:</th>
<th>Observer assess</th>
</tr>
</thead>
</table>
| 1. Problem definition, learning issues explored, prioritized. | Student, individually with tutor, talks aloud through the problem, asks questions for clarification, identifies and prioritizes learning issues. Identifies several key learning issues. | 15 to 20 | - ask questions, identify issues  
- define issues more clearly  
- recall pertinent prior knowledge  
- think through new areas of knowledge given by the tutor or posed in the problem |
| 2. Individual study and research | For the learning issues, the student locates, assesses and synthesizes information and writes outline notes similar to a problem write-up. | 120 | assessment of the outline submitted by the student:  
- efficiency in sticking with a realistic task.  
- knowledge of resources and ability to locate key information  
- note-taking and referencing. |
| 3. Synthesis and feedback | Student meets with the tutor, presents knowledge and insight gained. The tutor gives feedback to the student about the whole process. | 15-20 | - ability to present and synthesize ideas;  
- ability to pose questions about issues that were not explored;  
- self-assessment |
Table F-2: The PBEE: Branda’s Triple Jump exercise modified for large class application (Branda, 1989)

<table>
<thead>
<tr>
<th>Stage</th>
<th>Description</th>
<th>Time allowed.</th>
<th>Assessed for</th>
</tr>
</thead>
</table>
| 1. Problem definition, learning issues explored, prioritized. | Student, individually lists four learning issues. Selects most important two learning issues and justifies choice.  
Student works on a standardized form: keeps one copy and hands duplicate in to the tutor. | 50 min        | - relevance of four issues to problem/situation  
- relevance of the four issues to the course learning objectives  
- appropriateness of the two top issues for research/study  
- justification of choices |
| 2. Individual study and research                | For the learning issues, the students study the proposed issues; they may consult any resources (including people and peers). They can prepare any notes they wish. [Variations include preparing a 2 page summary of key ideas] | several days   | assessment of the outline submitted by the student:                                               |
| 3. Synthesis and feedback                       | Students return to class. In class, each picks up a personalized list of four questions that the tutor has prepared (that probe understanding of the student’s personal learning objectives). Each answers these questions, without consultation with anyone, but having access to his/her notes.  
Variations include having access to any books or notes that were brought to class.  
Answers are handed in at the end of class. The tutor marks and gives feedback to the student about the whole process. | 50 min        | assessment of the answers to the questions.                                                       |
Table F-3 Example relevant biochemical principles to be used to generate a "problem" (L.A. Branda, © copyright 1995-1996, used with permission)

**PBEE**

*A PROBLEM-BASED EVALUATION EXERCISE*  
**BIOCHEMISTRY 3GG3**  
**METABOLISM AND HUMAN PHYSIOLOGICAL BIOCHEMISTRY**

**Biochemical Principles Relevant to the PBEE**

**Nutrients as a Source of Fuel for the Human Body** The human body acquires and stores chemical energy in compounds which can be utilized as fuel. Essential for the catabolism of these compounds are specific enzymes which often require cofactors; the precursors of these cofactors are often vitamins in the diet.

**The Role of Carbohydrates in Energy Production** Carbohydrates are stored as source of fuel in the form of the polysaccharide glycogen. When the concentration of blood glucose falls below the normal range, glycogen is broken down in the liver to supply glucose to the body tissues. The breakdown of glycogen stored in the muscle does not contribute to the concentration of glucose in the blood. Glucose can also be made from sources other than carbohydrate by a process called gluconeogenesis.

**The Role of Carbohydrates in Energy Production – Glycolysis** Glucose is anaerobically oxidized in the cytosol by a process known as glycolysis. One result of glycolysis is the production of ATP. Glycolysis provides entry points for metabolizing other monosaccharides.

**Non-carbohydrate Production of Energy – Gluconeogenesis** The brain and red blood cells are almost completely dependent on glucose as fuel under normal conditions. During fasting, most of the glucose needs of these tissues must be met by gluconeogenesis, i.e., the synthesis of glucose from non-carbohydrate compounds.

**The Role of Fats in Energy Production – Storage and Lipogenesis** Fat (triacylglycerols) is stored in the adipose tissue as a source of fuel. When required, fat is mobilized and its components, fatty acids and glycerol are used for aerobic production of energy. Glycerol may be used for gluconeogenesis.

**The Role of Fatty Acids in Energy Production – Aerobic Production of Energy** Fatty acids can be mobilized from triacylglycerols and degraded in the mitochondria by an aerobic process. The products of this process are acetyl-CoA and reducing equivalents; these products result in the production of ATP. An excess in the production of acetyl-CoA may result in the production of ketone bodies, acidic compounds affecting body homeostasis.

**Protein and Amino Acid Metabolism** Proteins are broken down to their constituent amino acids which are used primarily as building blocks for the biosynthesis of body peptides and proteins. Surplus amino acids are metabolized by the removal of the amino group which is excreted in the form of various nitrogen-containing compounds.

L. A. Branda, McMaster University, Department of Biochemistry (1995-1996)
Roq is talking to a friend and mentions that he "has been plagued by obesity for a long time" and wishes to reduce weight. His friend gives him a pamphlet about a product, NU BODY®, he found in a health food store in a shopping mall. The pamphlet claims that this product has the ability to help curb appetite, reduce food intake and inhibit the production of fats from carbohydrates.

Roq starts to take NU BODY® and after a week he is very pleased with himself because he has lost a significant amount of weight. He and his friends plan a get together to celebrate Roq's success with his diet. When Roq's friends come to his apartment, they find him lying on the floor almost unconscious. He is taken to Chedoke–McMaster Hospital Emergency. His laboratory test results show high levels of ketone bodies in the blood; a low concentration of urea and high concentration of ammonium salts is found in the urine.

He is diagnosed as suffering from ketoacidosis and is treated for this condition.

PBEE

A PROBLEM-BASED EVALUATION EXERCISE

This evaluation exercise is developed around a problem/situation/scenario. It is designed to provide an opportunity for an individual student to independently work through a problem and demonstrate learning relevant to the problem and the learning objectives.

INSTRUCTIONS

Stage 1
This stage must be done without consultation; however, you may consult the list of principles provided with the course Learning Objectives.
In Part A of the Stage 1 Evaluation Form, list four issues (areas of knowledge) relevant to both the enclosed problem/situation/scenario and the course Learning Objectives. Each issue must be preceded by a statement (Context Statement) based on your prior knowledge and showing the relevance of the issue to the Learning Objective(s).
In Part B of the Stage 1 Evaluation Form you must identify two of the issues from Part A that will be the focus of your study. Justify your choices on the basis of their importance for a better understanding of the problem/situation/scenario. These two issues will be the subject of your work in the following stage.

Leave a copy of the completed Stage 1 Evaluation Form with the instructor.

Stage 2
During the time allocated to this stage you are expected to study the areas of knowledge proposed in Part B of the Stage 1 Evaluation Form. You may consult any resources during this stage; e.g., people (including peers), books, journals, non-print resources.

During this time, specific questions related to your chosen area of study will be prepared by the instructor and will be given to you in Stage 3.

Stage 3
In this stage you may consult books or notes. You will be expected to write a short essay on the questions prepared for you and relevant to the areas of study that were identified in Part B of the Stage 1 Evaluation Form during Stage 1 and pursued during Stage 2.

Leave the answers to the questions with the instructor.

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PBEE
A PROBLEM-BASED EVALUATION EXERCISE

STAGE I EVALUATION FORM

Student Name ___________________________ Date: ___________________________

Part A - Issue Identification List four issues (areas of knowledge) which are both relevant to the enclosed problem (situation/scenario) and the course Learning Objectives. Understanding of these issues would help you to better understand the problem (situation/scenario). Proceed each issue by a statement (Context Statement) showing the relevance of the issue to the Learning Objectives.

Issue 1 (Context Statement and Issue/Area of Knowledge)

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

Issue 2 (Context Statement and Issue/Area of Knowledge)

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

Issue 3 (Context Statement and Issue/Area of Knowledge)

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

Issue 4 (Context Statement and Issue/Area of Knowledge)

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

Part B - Research/Study Issues Identify two of the issues from Part A that will be the focus of your study. Justify your choices on the basis of their importance for a better understanding of the problem/situation/scenario. These two issues will be the subject of your work in the following stage.

I - Issue # ___ Justification

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

II - Issue # ___ Justification

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________
Table F-7 Examples of the research/study issues identified by the students in Stage 1 (for the problem given in Table F-4) and questions posed by the tutor, in Stage 3, to the student. (L.A. Branda, © copyright 1995, used with permission)

PBEE

- a problem-based evaluation exercise

BIOCHEMISTRY 3GG3

Examples of Research/Study Issues selected by the student in the Stage 1 – Part B and of the Relevant Questions asked to that student in Stage 3.

STAGE 1

Part B - Research/Study Issues selected by the student:

# 1

Context Statement:
Fat synthesis is dependent on acetyl-CoA, which can be produced from pyruvate via the glycolytic pathway. Fat synthesis also requires carboxylation reactions & reductions using NADPH + H⁺.

Issue (the students may write the issues as questions)
At which biochemical steps could fat synthesis, from carbohydrate catabolism, be inhibited?

# 2

Context Statement:
Ketogenesis is the last stage of starvation and is stimulated by the hormone glucagon. The liver makes ketone bodies [mainly] for the brain (not for itself) because the brain cannot use fatty acids for more energy like the liver; the products of ketone bodies can be used in the citric acid cycle.

Issue (the students may write the issues as questions)
What is the biochemical mechanism by which ketone bodies are produced and utilized (e.g., in the brain) during periods of starvation?

STAGE 3

QUESTIONS RELEVANT TO THE ISSUES SELECTED IN STAGE 1

Question 1.
Outline the pathway from the pyruvate produced by glycolysis to cytosolic acetyl-CoA for fatty acid biosynthesis; compare the reactions of fatty acid biosynthesis with those in fatty acid oxidation.

Question 2.
Describe the production of ketone bodies and their utilization and showing their chemical structure explain their effect on body homeostasis.
Table F-8 Example marking sheet (L.A. Branda, © copyright 1993-1995, used with permission)

**PBEE**  
*A PROBLEM-BASED EVALUATION EXERCISE*

Course:  

Student Name ____________________________  PBEE #  Date: ___________________

**COMMENTS FROM EVALUATOR**

**Stage 1 - Part A - Issue Identification**

<table>
<thead>
<tr>
<th>Clarity of Issues and Correctness of Context Statements</th>
<th>Relevance to the Learning Objectives and to the Problem/Situation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor</td>
<td>Excellent</td>
</tr>
<tr>
<td>Poor</td>
<td>Irrelevant</td>
</tr>
<tr>
<td>Poor</td>
<td>Relevant</td>
</tr>
<tr>
<td>Issue 1: □ 0 □ .25 □ .5 □ .75 □ 1.0</td>
<td>□ 0 □ .25</td>
</tr>
<tr>
<td>Issue 2: □ 0 □ .25 □ .5 □ .75 □ 1.0</td>
<td>□ 0 □ .25</td>
</tr>
<tr>
<td>Issue 3: □ 0 □ .25 □ .5 □ .75 □ 1.0</td>
<td>□ 0 □ .25</td>
</tr>
<tr>
<td>Issue 4: □ 0 □ .25 □ .5 □ .75 □ 1.0</td>
<td>□ 0 □ .25</td>
</tr>
</tbody>
</table>

Stage 1 Part A Issues & Statements Subtotal  

Stage 1 Part A Relevance Subtotal

**Stage 1 - Part B - Research/Study Issues**

<table>
<thead>
<tr>
<th>Appropriateness of Issues Identified</th>
<th>Justification of Choice of Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor</td>
<td>Excellent</td>
</tr>
<tr>
<td>Poor</td>
<td>Poor</td>
</tr>
<tr>
<td>Poor</td>
<td>Excellent</td>
</tr>
<tr>
<td>Issue I: □ 0 □ .25 □ .5</td>
<td>□ 0 □ .5 □ 1.0 □ 1.5 □ 2.0</td>
</tr>
<tr>
<td>Issue II: □ 0 □ .25 □ .5</td>
<td>□ 0 □ .5 □ 1.0 □ 1.5 □ 2.0</td>
</tr>
</tbody>
</table>

Stage 1 Part B Iden subtotal  

Stage 1 Part B Just subtotal

**Stage 1 SUBTOTAL**  

**STAGE 1 SUBTOTAL**  

**SUBTOTAL** Percent

**Stage 3 - Knowledge and Understanding of the Area of Research**

**QUESTION 1**

| Poor                                | Excellent                        |
| □ 0 □ .25 □ .5 □ .75 □ 1 □ 1.25 □ 1.5 □ 1.75 □ 2 □ 2.25 □ 2.5 □ 2.75 □ 3 □ 3.25 □ 3.5 □ 3.75 □ 4 □ 4.25 □ 4.5 □ 4.75 □ 5 |

**QUESTION 2**

| Poor                                | Excellent                        |
| □ 0 □ .25 □ .5 □ .75 □ 1 □ 1.25 □ 1.5 □ 1.75 □ 2 □ 2.25 □ 2.5 □ 2.75 □ 3 □ 3.25 □ 3.5 □ 3.75 □ 4 □ 4.25 □ 4.5 □ 4.75 □ 5 |

**STAGE 3 SUBTOTAL**  

**SL 3 SUBTOTAL** Percent  

**TOTAL** (out of 20)  

**TOTAL** (Percent)

See comments on your work

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F.6 Critical instant triad.

In medical education, a "simulated patient" may be used. Here an actress trained to simulated the conditions of a "sick" patient. The student interacts with the "patient" by asking questions, gathering information. Often a tutor may be present to add technical information (the results of laboratory tests) and to give feedback to the student about his/her processing skills. The three people involved are the student (trying to display diagnostic or trouble-shooting skills), the simulated patient (the course of the problem that you are trying to solve and who responds to questions and tests) and the observer/assessor. Table F-9 illustrates the three roles. Another variation is to replace the simulated patient and the tutor by a computer program or a pack of cards, P4 deck, that poses possible questions; when selected the card provides the answer to the question. We could call this clinical skills, trouble-shooting skills or diagnosis skills. The situation is a "critical instant" when someone poses a problem to us.

In engineering, the equivalent is trouble-shooting skills. These are required in those critical instants when the process, plant or machinery is not functioning correctly. Again there are the three elements: the trouble shooter, the "expert system" and the observer assessor. Our experience has been to empower the students with all three roles. Surprisingly, the role that the students identify as helping them learn the most has been the "expert system."

F.6-1 Tutor's role

Here are the details for the tutor. Prepare the expert system packages. This is equivalent to training the simulated patient and collecting the results of lab and other tests. This includes, a half page problem statement, details of what is the fault, the answers to a variety of questions that are likely to be asked and data from lab and consultants. For one illness or piece of equipment, I prepared 15 different cases the first year and then enlarged that to 45 different cases. The cases all deal with the three "typical faults with pumps." (Other sets of cases have also been prepared for three typical problems with "heaters" and so on.) Table F-10 gives an example.

The tutor also provides training to all on how to observe and assess the trouble-shooting skill. Table F-11 is the feedback form I use. I believe it to be reasonably generic.

F.6-2 Student's roles

The students play, successively, the three roles in the triad. The physical layout is illustrated in Figure F-1. One person plays the role of the trouble shooter. One is the "expert system" that responds with written data only about how the system responds to the tests requested by the trouble shooter. The observer uses the form in Table F-11 to provide feedback to the trouble shooter. Here are the details about each role.

Observer

As the Trouble Shooter is tackling the problem, your task is to assess how well the problem solving components are handled. This is challenging because the skills are difficult to identify-- let alone observe and assess. The feedback form is made to help you look at the mental process used by the trouble shooter. Try to focus more on the "types of questions asked", and "how can I create a hypothesis and test it?" and not on "what information do I need?" or on "what action should I take?". Look at the organizational pattern used; listen for the monitoring of the process. Consider, "does he/she confuse activities unknowingly?"

Let the Expert System focus on "how well the trouble shooter wrote out the questions and tasks to be done".

Expert System

Before class, read over the background. Understand the case extremely well. Think about how "the fault" will affect all of the variables. Try to anticipate the kinds of questions that the Trouble Shooter might ask; or experiments that he/she might ask to be performed. What would the fault do to the system under those conditions? Give results of experiments. Do not give explanations. Give correct information but do not be generous. If, for example, the fault occurs periodically, and you are asked to give the lab analysis for one sample taken: assume Murphy's law applies and give them the result when the system was operating normally.
So that everyone has clear evidence, insist that they write out all requests; write down the results opposite. Do not talk..... just acknowledge that they are working on it by saying "Ahemmm, mmmmm,"

Insist on their instructions, or requests be written precisely.

If they write "Inspect the instrument" then respond "It's OK". If they ask what you did, then say "I went out and looked at it." Be tough. Do not offer more information than they asked for. Help them acquire the skill of asking "good" questions and being precise in what analyses are to be done.

_the Trouble Shooter._

You have a challenging role to play:

- you are to display all the good problem solving skills we have developed. Do this by verbally monitoring your progress, being active with pencil and paper to keep track of the route you are following,

- you are to write out your requests for information from the Expert System. These should be written out precisely. A sample form is given in Table F-12.

References

<table>
<thead>
<tr>
<th>Context</th>
<th>Problem solver</th>
<th>Problem + source of data about the problem</th>
<th>Assessor/observer</th>
</tr>
</thead>
</table>
| Medicine    | student (diagnostician) | Real world: patient + history & physical & tests & consultants  
simulated patient + tutor to supply some data + problem box that contains some data  
student playing role of simulated patient plus supply information for all tests requested  
P4 deck | tutor or student |
| Engineering | student (trouble-shooter) | Real world: machinery, equipment, process + history & physical/chemical evidence & tests & consultants  
tutor or student playing roles of "expert system" to supply data for any requested tests requested.  
Doig's SYSCHEM computer simulation | tutor or student |
| Pharmacy    | student (pharmacist)   | Real world: patient + history & physical & doctors or nurses reports  
student playing role of patient and who supplies data for any requested information from doctors or nurses. | tutor or student |
Table F-10 Part of the "Expert System" package

**TS Exchangers #10:**

That place is like a zoo out there. We have three, multiple effect evaporators to concentrate glycerine. However, we just can't seem to get the system to behave. It will not steady out. The flow rates and the pressures in the three evaporators all seem to cycle. Correct it. Below is a sketch of the system.

![Diagram of TS Exchangers #10](image)

**TS Expert System for TS Exchangers #10 from Industrial Experience:**

Many different causes of cycling might be investigated. One of the first TS activities would be to put the control systems on manual and try to level out the process. This would help to isolate interactions among the different columns.

Here THE DIFFICULTY IS THAT ALL OF THE CONDENSATE FROM STEAM AT DIFFERENT PRESSURES GOES TO A SINGLE COMMON TRAP. This is not good practice under any conditions but here especially, where the steam is coming at different pressures we can get even more cycling. The corrective action is to put each condensate line on a separate trap system.

What about giving feedback to the TS on this one. Well, the instruments all are reading correctly; the design calculations show that none of the evaporators is over or underdesigned. There are no leaks. The rest is up to you to manufacture reasonable answers to the TS's questions.
Table F-11 Feedback form for trouble-shooting: the critical instant triad

TS name ___________________ Case _______ Initials ES _______ Obs _______

Rough work area:

PROCESS: HOW
Monitoring ___________________ Data/ ANALYSIS: WHAT
Checking ___________________ Data resolution ________________
Systematic ___________________ Fundamentals? ________________
Subs and perspective ________ Reasoning ___________________

DECISION MAKING: HOW
Priorities ___________________ SYNTHESIS: WHAT
Bias _________________________ Hypotheses __________________

RATING AND FEEDBACK

Clarity of Communication

None | Some | Most | All
0 | 0 | 0 | 0

Process used:

None | Some | Most | All
0 | 0 | 0 | 0

Data collections and analysis:

None | Some | Most | All
0 | 0 | 0 | 0

Synthesis:

None | Some | Most | All
0 | 0 | 0 | 0

Decision-making:

None | Some | Most | All
0 | 0 | 0 | 0

Five Strengths: Two areas for improvement

________________________________________________________________________

________________________________________________________________________
Table F-12 The Trouble-shooter’s worksheet

<table>
<thead>
<tr>
<th>Question to ask/ test to perform/ request for consultant’s input</th>
<th>Cost, $</th>
<th>Expert system response</th>
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</thead>
<tbody>
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<td></td>
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<td></td>
</tr>
</tbody>
</table>
Figure F-1 The trouble-shooting triad: the critical instant triad

- Trouble Shooter
  - Let's see, now...
  - If the temperature is too high here, then...

- Expert System
  - "Expert System responds to action requested in writing."

- Observer

- Action Request Form
- Case Information Sheet
- Expert System Information
F.7 Concept maps

All the feedback forms given in HTGTM and this book have focused on the "processing skills." What about the subject knowledge? Concept maps provide an excellent way to assess the degree to which students see the connecting among the information and illustrate the structure of the knowledge they have learned.

A concept map is a diagram showing the hierarchy, connecting links among concepts for a particular topic or subject. The map may be rich or it may be skimpy; the map may be correct or it could be misleading. Figure F-2 shows a concept map for a commerce course on "marketing;" Figure F-3, for a chemical engineering course on "process control." Novak and Gowin (1984, p. 36) suggest guidelines for assessing. The concept map should show:

- propositions or concepts and their connecting links. Novak and Gowin suggest that each concept be shown in an ellipse or bubble; that connections between concepts be shown by a line link and that line be annotated to explain the link. [For each valid and noted link they score 1 point.] In Figures F-2 and F-3 many links are shown but none are annotated. Some bubbles in Figure F-3 contain several concepts.

- hierarchy; is a hierarchy shown? is it correct? Thus, there might be a key concept or model (in Figure F-3, system analysis); the key concept might have two general concepts (In Figure F-3, the basis for the system analysis: these are fundamental laws and modeling using these laws). The general concepts consist of a number of concepts (fundamentals: law of conservation of momentum, law of conservation of mass...) and modeling (of the frequency domain and the time domain). These become a set of specific concepts and these, in turn, become detailed concepts. [For each valid level, Novak and Gowin score 5 points.] Figure F-3 does not correctly distinguish between the laws and the modelling. Many levels are shown. However, Figure F-3 should be redrawn so that the intended hierarchy is more clearly visible.

- cross-links relate one section of the concept hierarchy with another. [Novak and Gowin score 10 points for each cross-link that is both valid and significant; 2 points for each valid cross-link but where the linkage is relatively insignificant.]

- limitations: critical to understanding the applicability of concepts is the limitations and assumptions. Sometimes this is shown as part of the hierarchy (for example, ideal and non-ideal). Sometimes there is only one concept: the limitation should be identified. [Score 1 point for any concept where limitation must be added and no hierarchical designation is appropriate.]

- examples: specific events that are valid instances of the concept are scored a point each by Novak and Gowin.

- pointers to problem statements: valid key word additions that link when a concept is applicable. Score 2 points for each.

Scoring systems can be developed for your purposes.

Although concepts maps are often used by faculty to help develop programs, they also can be used to assess the student's comprehension of the knowledge gained from each problem. For more on concept maps see Novak and Gowin (1984). Conrick (1994) reports using this approach.

References

Conrick, M., (1994) April 18 e-mail on PBL-LIST <M.conrick@hbs.gu.edu.au>


Figure F-2: A student's concept map for a course in marketing.
Figure F-3: A student's concept map for a course in Chemical Engineering "process control"
F.8 Feedback/marking forms

F.8-1 Feedback forms to supply "evidence"

Feedback forms are those forms completed by observers or by self to reflect on a performance. These give evidence from which claims can be made about the degree to which goals have been achieved.

The companion book HTGTM gives feedback forms for self-assessment, creativity, problem solving, individual contributions in group skills, team skills, stress management, "teach" component for self-directed learning, general forms for the "processing skills." In this book, forms have been given for "group process" (p. B-32), and interpersonal skills, (p. B-26), troubleshooting skills (p. F-57). Table F-13 gives a feedback form for Chairperson.

F.8-2 Writing forms to structure and standardize journal writing and reporting

Because we often base much of the student assessment on their reflections and their journal writing, we need to sample this often. This puts a heavy load on the tutor to mark and return this to the students promptly. Table A-10, p. A-14, gives a format for journal writing. Table F-6, p. F-50 gives the format for PBEE, Branda's Triple Jump. Hansen asks students to use the SOAP model (Symptoms, Observations, Assessment and Plan). As the marking load increase, you will evolve your own standard format.

F.8-3 Marking forms to facilitate marking large numbers of reports

A marking form for journals is given in Table A-11, p. A-15. Table F-8, p. F-52, is a marking form that can be used with PBEE. Table F-14 gives marking forms for critical instant skills reports and for Self-directed learning reports.
Table F-13: Feedback form for Chairperson skills

<table>
<thead>
<tr>
<th>Decision mode</th>
<th>Chairperson Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Task:** Problem defined, explored, alternatives considered, criteria identified, task carried out and looked back. Monitoring occurred. Task completed on time. Group avoids contributing excessive information, sticks to main themes without meaningless side tasks.

**Overall**

<table>
<thead>
<tr>
<th></th>
<th>None of these</th>
<th>A few but major omission</th>
<th>Most of these</th>
<th>All of these</th>
</tr>
</thead>
<tbody>
<tr>
<td>C. tried but group wouldn't</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Role of Chairperson</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C. let group</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group tried but C wouldn't</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In box show extent to which Chairperson affected the behavior:

<table>
<thead>
<tr>
<th></th>
<th>0 (none)</th>
<th>5 (moderately)</th>
<th>10 (dramatically)</th>
</tr>
</thead>
<tbody>
<tr>
<td>morale:</td>
<td>Group relaxed, enjoyed working together; they gave emotional support to each other and are able to express disagreement or disappointment directly. Members are enthusiastic and involved. Most of these</td>
<td>All of these</td>
<td></td>
</tr>
</tbody>
</table>

**Morale**

<table>
<thead>
<tr>
<th>C. tried but C wouldn't</th>
<th>G. tried but G. wouldn't</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neutral</td>
<td></td>
</tr>
<tr>
<td>Role of Chairperson</td>
<td></td>
</tr>
<tr>
<td>C. let group</td>
<td></td>
</tr>
</tbody>
</table>

In box show extent to which Chairperson affected behavior:

<table>
<thead>
<tr>
<th></th>
<th>0 (none)</th>
<th>5 (moderately)</th>
<th>10 (dramatically)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decision making: Chairman's understanding of... poor(0)</td>
<td>(10) excellent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chairman's skill in directing... poor(0)</td>
<td>(10) excellent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfaction Index: Personal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Your perception of other members: extremely dissatisfied 0... 5, 10 very satisfied</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

With Decision made: | With process used to get the decision: |

To Chairman: Five Strengths. Two areas to work on.

...
Feedback on SDL

attitude and risk: 6
understanding of interdependent learning. Perky attitude and shifts you may have had to address. Include attitude scale?
overall plan and strategy: 10
have one? 2
address learning issues: 2
explores issues? measurement? learning objectives?
include learning context? 2
include example "test questions"? 4
Improvements: 10
maintain strength: 4
note and comments
shift one weakness: 4
note and comments
other: 2

Your Analysis: 10
analysis: 10
communication: 9
cover memo 5
report 4

If the memo only is marked, the marking will be based on how well these issues were summarized in the memo.

37.5.5