

PBL Case-Writing Workbook

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Introduction

This workbook is designed to introduce middle or high school teachers to PBL case-writing. It offers a step-by-step guide to writing cases for the classroom. While one template is offered here, experimentation with different formats and case structures is encouraged. Please do not reproduce or distribute without permission.

General Principles

PBL cases tell a story. An effective case:

- Tells an engaging story
- Stirs emotions
- Is realistic to the audience
- Makes us care about the characters
- Raising learning issues important to the curriculum

The Anatomy of a Case

At the medical school, an average PBL case is usually 5-8 pages long. However, there are many models of PBL cases, and you should consider your goals, available time, and other issues in determining which model is best for you. This workbook describes the development of a concise **3-page case**.

Pages 1 introduces the problem and the people

Pages 2 tells us what happens

Page 3 brings closure to the case

Each case also has a “**Resource List**” which offers reading material, web sites, community resources, and faculty/teachers that may be of particular help to students as they research their learning issues.

Each case also has a set of “**Teacher Notes**” - usually background information and tips for processing the case for teachers only. Teacher Notes should be simple and clear enough for teachers to gain an insight and understanding sufficient to facilitate the case.

Cases may also include a “**Student Tips**” page that focuses students and sets the tone for beginning the PBL process.

Pre-Step: Identify the context of the case to be written

Case-writing checklist: Before getting started...

- Do I understand the context of where this case will fit in to the larger curricular plan? Have I reviewed the goals and objectives for this particular course or standards area?
- Do I know what experiences my students have already had? What expectations do I have for they should already know about the problems presented in my case?
- Am I confident that there are resources available for students to learn about the possible learning issues in this case?

Now it is time for you to identify the context for the PBL case you will be writing today. All PBL cases should fit into a larger framework of curriculum. PBL cases should be coordinated across the curriculum to provide sensible sequencing, avoid redundancies, and to ensure that all key curricular objectives are being covered.

For today, we will focus on the development of a single PBL case. The first step of PBL case development is to identify the course or curricular experience that you would like this case to become a part of.

Examples of case contexts include:

- **Health Education Class for high school sophomores**
- **Integrated coursework in math and science**
- **Summer session on earth science**
- **Life science class for 8th graders**
- **Medical school unit on the cardiovascular system**
- **Pediatric clinical clerkship rotation**

Pre-step exercise:

Write the case context you have selected here: _____

Step 1: Choose the Content Area and Topic of the Case

- The ***content area*** of the case refers to class objectives, curricular areas or standards that should be covered by the case
- The ***topic of the case*** refers to the basic storyline used to illustrate the content area.

Examples:

Content Area: Alcohol and Other Drugs

Topic of Case: Randall Nishimoto, a 16-year-old male high school student using club drugs.

Content Area: Sexual Health

Topic of Case: Jennifer Tom, an 18-year-old female high school senior exposed to HIV infection.

Exercise #1

Write the Content Area of your first case: _____

Write the Topic of your first case: _____

Things to check after choosing the case topic:

- Is it relevant to my course objectives?
- Is the case topic one of special need or interest at my high school or community?
- Will my topic be exciting to my students?
- Can I find a way to bring my student's environment into this case topic?

Step 2: Choose the Major Themes of the Case.

The major themes of the case represent the “learning issues” the case is designed to raise with students for research. For example, high school standards in “health” identify common ‘themes’ such as accessing valid information, analyzing the influence of media, etc. One or more themes can be written for each category and used as a framework for writing the text of the cases.

Example: Ashleigh Delgado – *Major Themes/Learning Issues*

Content Area and Case Topic

Content Area: Nutrition

Case Topic: Ashleigh Delgado, a 15-year old female with an eating disorder (*bulimia nervosa*)

Case Themes

Health Promotion and Disease Prevention

- What might cause a young person to faint?
- What is heat stroke and how can it be prevented?
- What is a normal nutritious diet?
- What are eating disorders?
- What is bulimia nervosa?
- What problems do people with bulimia nervosa have?

Access Valid Information

- What health information, products or services could you access if you, a friend, or a family member has an eating disorder?
- Who can provide treatment for eating disorders?

Analyze the Influences of Media and Culture

- How does the media portray the ideal body type of men and women?

Interpersonal Communication Skills

- How do people treat others with body types different from their own?
- What could you say to a friend or family member you suspect has an eating disorder?

Others

- How will I know I am too skinny?
- Who is at risk for developing eating disorders?

Exercise #2

Write the major themes for your case:

Objective/Standard #1: _____

1) _____

2) _____

3) _____

Objective/Standard #2: _____

1) _____

2) _____

3) _____

Objective/Standard #3: _____

1) _____

2) _____

3) _____

Objective/Standard #4: _____

1) _____

2) _____

3) _____

Step 3: Writing Page 1 of Your PBL Case:

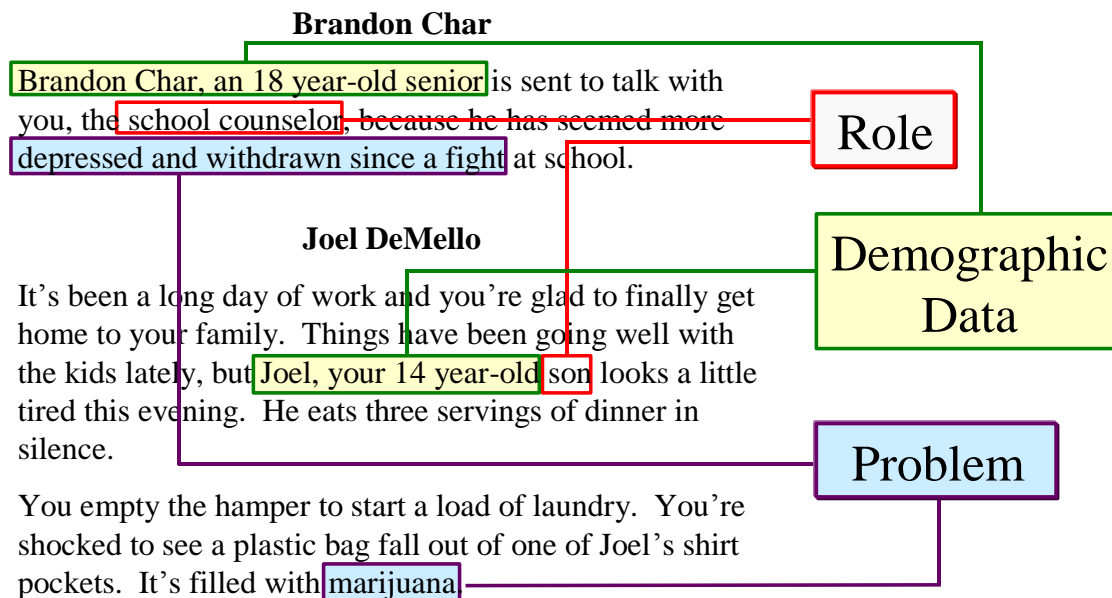
In page one of the case we begin the story by introducing the problem (the topic area illustrating the standard chosen in Step1) and the people involved. The problem is introduced in a realistic way, often by having one of the characters experience problem.

- Introduction of the problem:
Example: Fainting from an overdose or mouth pain from chewing tobacco
- Demographic information about the key characters
Example: Janis Lee, a 16-year-old sophomore in the high school band
- The role of the students processing the case.
Example: The students are friends of the main character

The first page is an introduction and case-writers may wish to withhold some information so that students may hypothesize broadly about what they think is going on.

Including a dramatic opening page often helps engage the participants.

Examples:



Exercise #3

- The Problem
- The Demographics
- The Role of the Students

Write Page 1 of your case:

Teacher Notes (We'll cover this later when we get to Step 7)

Step 4: Writing Page 2 of Your PBL Case

In page 2 we let the story unfold naturally and realistically, providing information that might answer some of the questions students generated from processing the first page. Some clues to the cause of the problem are provided. Key elements include:

- More information on the root cause of the problem
- More personal information about the characters

It's important to personalize the case to each student's environment. If the case takes place at your school, consider adding elements that will help students recognize the setting as their own. Include the names of your buildings, popular student catch-phrases, popular (or unpopular!) cafeteria items.

While real life experiences often provide great ideas for cases, be cautious of including characters that students might recognize as representing someone in their own environment, especially if it might embarrass that individual.

Case writers may wish to consider "learning cues" to raise student awareness of important themes planned for the case in step 2. Cues increase the chances that students will choose to research a particular item.

Examples of Learning Cues:

- "You wonder if..."
- "You try to recall the reason for..."
- "You decide to look up the web site for..."
- "You remind yourself to..."
- "You ask yourself..."
- "You remember learning about..."

Example

When the coaches arrive Ashleigh starts to wake up. The trainer gives her water to drink and her father arrives later to take her to see her doctor.

The next day you see Ashleigh in the cafeteria. "Geez, Ash! Are you OK?"

"I'm fine," she says.

You notice Ashleigh looks as though she's lost weight.

"Have you been eating anything? You are soooo skinny!" you tell her.

"Thanks," she proudly replies. "My doctor says I'm too thin. She's so wrong!"

You and Ashleigh have been friends for years – ever since the fifth grade. She's a good student and on the cross country and track teams with you. She has always been thin, but lately she appears unhealthy – her legs look like toothpicks! She now weighs 90 pounds.

Ashleigh gobbles down the chili con carne.

"I love this", she says, "but not as much as the wieners in a roll on Fridays. Are you going to eat yours?"

"You can have it", you say, sticking a finger in your mouth and pretending to gag.

"I'll just have the fruit, salad, and milk."

After finishing off your lunch, you notice Ashleigh swallow a pill, then walk to the bathroom. Funny, she always goes to the bathroom after eating. When she doesn't return, you decide to go in and check on her.

Exercise #4

Write Page 2 of your case:

- More About The Problem
- More About the People
- Personalize to Your Environment

Teacher Notes (Step 7)

Step 5: Writing Page 3 of Your PBL Case

Some cases will need more than 3 pages. Additional pages can help with sequential introduction of more helpful information and/or enrich the storyline on various levels. For today, we're going to talk about a 3-page case, so this will be the final page for us.

Classically, PBL cases end with some closure, resolving the problem introduced in the first page. Ideally, case characters have by now, analyzed and identified possible solutions to the problem. They've used their responsibility for their own learning, worked together, and been involved in complex thinking and problem solving. For DOE Health standards, two additional elements are highlighted.

- Practicing health enhancing behaviors
Example: a case character follows a nutritious diet or seeks medical attention for an illness
- Advocating for health
Example: a case character supports a friend through an illness like bulimia, educates his or her family about home safety, or participates in a health screen at a local mall.

While cases can have both happy and sad outcomes, remember that students become quite attached to case characters and often have a lot invested in the conclusion of their story, especially if the outcome is poor. Match the outcome of the case with your major themes, the tone you wish to set in the class for each particular case.

Continue to personalize each page to your learners and their environment.

Example

Ashleigh sees a counselor for her bulimia nervosa on a regular basis. While she suffers a few relapses of her self-destructive behavior, she makes good progress over time.

One day, Ashleigh confides in you. "There are a lot of other girls who are out there doing what I did," she says.

You nod. "Yeah, I hear it is a really big problem. I'm just glad you got some help."

"I'm glad too. If it wasn't for you, I'd be really sick – or worse. If you didn't see me in the bathroom at that restaurant, I don't know what would have happened to me."

As Ashleigh turns to go to class, you can't help but wonder how big the problems of poor diet habits, body image and eating disorders in teenagers are today...

Exercise #5

- Bring the case to a close.

Write Page 3 of your case:

Teacher Notes (Step 7)

Step 6: Writing the Resource List

A resource list provides students with books, articles, web sites, and people who may be able to help them learn the information they're seeking as a part of their learning. Remember to be selective in generating the list and ask permission of and reliable contact information for any individuals included.

Example:

Resource List

The following are selected resources that you might find helpful in your studies. There are many other terrific resources out there waiting for you to find them!

People and Organizations

Jane Doe	School Nurse	Phone: 959-9234
John Doe	Community Physician	Phone: 959-9232
		E-mail: John@aol.com

Websites

National Eating Disorders Association
<http://www.nationaleatingdisorders.org>

Offers information about eating disorders and ways to get help.

National Association of Anorexia Nervosa and Eating Disorders
<http://www.anad.org/facts.htm>

Another good source of information on eating disorders.

Familydoctor.org
<http://familydoctor.org/teens.html>

Hosted by the American Academy of Family Physicians, this site for teenagers has a lot of helpful information on various health issues important to teens.

TeensHealth.org
<http://www.kidshealth.org/teen/index2.html>

Has a lot of great information about health issues such as nutrition, drugs and alcohol, sexual health and mental health.

On the Teen Scene
<http://www.fda.gov/opacom/7teens.html>

A site hosted by the US Food and Drug Administration (FDA). Excellent resources about a lot of different topics.

Books and Journal Articles

Healthy Living By Jane Johnson pp. 112-119.

Exercise #6

Write the Resource List for your case:

Step 7: Writing Teacher Notes

The teacher version of each case may include notes on each page that gives some background on situation, some suggestions for facilitating the case, a list of possible teacher prompts (questions to ask the students), and importantly, a list of the major themes relevant to each page. The list of themes helps the teacher guide the learning process and lets them know the key items the case was designed to illustrate.

The Teacher Notes are very important guides to the important concepts within the case. They serve to help non-expert facilitators learn enough about the case and the concepts within it to participate effectively in the PBL tutorial. They also serve to remind all teachers about the important themes and concepts the case is intended to offer.

Ideally, Teacher Notes should not only offer key content information, but also provide suggestions for the PBL process. As the case author, you have the best understanding of what the goals of the PBL case are, and you may also have insight into what areas students will find most challenging.

There are many ways of organizing Teacher Notes. One very helpful way of organizing them is to provide a brief introduction followed by page-specific tutor notes.

When writing “teacher notes” for my PBL case did I:

- Clearly state what the major intended themes of the PBL case are?
- Include enough detail of the content so that the teacher can be confident about major concepts and themes?
- Avoid including so much detail that the important “key” points are lost and the Teacher Notes become less helpful?
- Include suggestions for “learning prompts” that teachers can use to further facilitate learning?

Example: These would be added below the actual case text, on the “teacher version” only.

Teacher Notes

This page focuses attention on some of the interpersonal skills one might use to discuss eating disorders with a friend. Attempting to non-judgmentally present the behaviors you see and their effects may be helpful. Beside parents, school counselors, and dieticians, teens may consider asking for help from a trusted mentor, a religious figure, their physician, the school nurse, or a knowledgeable friend.

Possible Teacher Prompts

- 1) *How would you discuss this problem with Ashleigh?*
- 2) *Would you tell Ashleigh’s parents?*
- 3) *What if you did and Ashleigh got mad at you or stopped being your friend?*
- 4) *How much should someone like Ashleigh weigh?*

Possible Learning Issues

Goal Setting and Decision Making

- 1) Given my age and height, what targets for weight should I set?

Interpersonal Skills

- 1) What could I say to a friend or family member I suspect has an eating disorder?
- 2) How do people treat others with body types different from their own?

Writing the Teacher Notes for each page is encouraged, especially when a case will be used by teachers other than the author.

Exercise #7

Begin drafting the teacher notes under the text for each page of your case.

Step 8: Writing a “Student Tips” Page

A “Student Tips” Page precedes the first page of the case and is read out loud to set the tone for the case and remind students of certain learning skills. It can also be used to focus student attention to certain areas. There may be a long list of learning skills, sentiments, or messages you would like to pass on to students periodically and longitudinally throughout the PBL course.

Example:

Student Tips

Welcome to your first problem-based learning case! This case will put you in the role of a student at _____ High School.

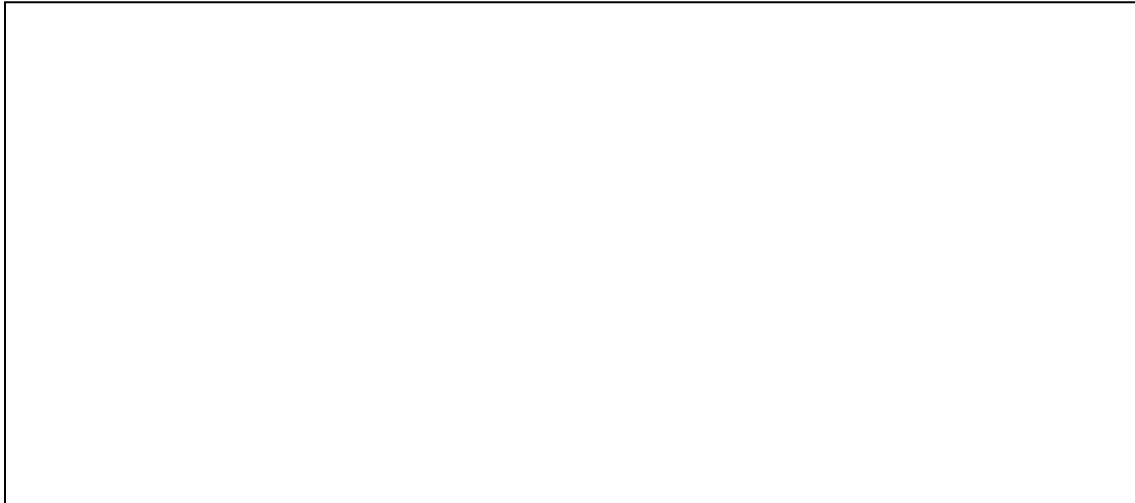
As we review this first case, try to identify and explore a variety of learning issues. Remember to keep a running list of important things that you wish to learn.

Finally, remember to think out loud, share your ideas, and contribute to the discussion. Our collective ideas, curiosity, and enthusiasm will carry us far!

Exercise #8

List very briefly, some of the tips you would like to share with your class to help set the desired tone in your classroom.

- e.g. Learning is fun
 The class material is important for their future
 How society sees certain issues
 Care about your classmates
 Care about your family and community



Choose one of the tips above and expand on it to write the “Student Tips” Page for this case.



Adding special features to your PBL case

You have now completed the basic structure of your PBL case. You have incorporated themes and topics, organized each page of the case, and provided Teacher Notes and selected learning resource suggestions to your students.

However, just having accurate case material is not enough. To have an outstanding PBL case, you must find ways of creating special meaning to the student. Here are a few examples of ways to make your PBL cases unique and effective.

Put students in a clear role within the PBL case. Rather than have students in the role of distant observers, we find it more effective to put students in a specific role within the case itself. For example, we may put the student in the role of the physician caring for the patient. This approach tends to add meaning for the student, and gives them a greater sense of involvement, investment and interest. Put students into challenging situations that require them to think, learn and apply new knowledge.

Learning cues are phrases we can insert directly into PBL cases that serve to stimulate discussion and/or generate learning issues. These differ from suggestions in the Teacher Notes in that these cues are embedded within the text of the case itself. Examples of some learning cues include phrases like:

- “You wonder if...”
- “You try to recall the mechanism of...”
- “The patient asks...”
- “You make a mental note to review...”
- “You practice what you will tell the patient about...”
- “You consider the available diagnostic options before deciding to...”
- “A colleague asks you...”
- “You consider the meaning of the patient’s cardiac examination findings...”
- “You wonder how the finding of an enlarged thyroid gland might relate to the patient’s symptoms of fatigue...”

Dialogue is a simple way of adding meaning to a PBL case. The use of dialogue highlights communication issues, adds depth to the personality of characters in the case, and can be used to add emotion or humor to cases.

Role Play can be used at the start of the PBL case to provide students a chance to “meet” the characters, or at the end of the case to provide students the chance to counsel characters or apply what they have learned. For example, your case might highlight how to effectively decline an offer to try an illegal drug, and be followed by having students role play to practice what they have learned. Students often state that having a role play associated with a PBL case helps “bring the case to life” for them.

Video is another way to add meaning to PBL cases. Like dialogue and role play, video can make the PBL experience more realistic for students. Cases can use video selectively, or entire cases can be video-based.

Adding emotional content helps create more meaning for the student. For example, medicine is often an emotional experience, and students should be introduced to some of these powerful emotions through their PBL cases. Emotional issues can be raised through the use of dialogue, video, role play/scripts, or articulating social and/or behavioral issues within a PBL case. Use important and realistic ethical situations, to encourage students to learn about these important issues. Be sensitive to the impact of these emotional issues on your students. It is an important practice to observe and monitor your students carefully for any extreme or unanticipated impact it might have on them.

Introducing multiple characters with different problems in a single PBL case is another novel way of designing selected PBL cases. For example, maybe you want to put the student in the role of a counselor, who sees several students with different problems in single day.

Revisit characters or their family members in future cases. Consider having the characters in your PBL case return in future cases. This allows students to see the effects of continuing certain lifestyle behaviors, the evolution of relationships, etc. It also allows you to build on the social and behavioral issues appropriate to the patient and/or his family unit. We have created several “families” of patients in the PBL cases in our medical school curriculum that span the first two years of the medical school curriculum.

Create timely PBL cases. Ideally, any curriculum should be constantly updated and responsive to the latest important advances or issues facing physicians. Some cases should be repeated every year as they represent core content in your course or unit. However, you may be able reserve one PBL case slot for significant current events. Using this method, we have introduced cases on bioterrorism, natural disaster (tsunami), emerging infections, and other current international, national and local health issues.

Pilot testing the case

Consider piloting your case with a group of students or faculty before it is used. Piloting the case is valuable because it often points out:

- Previously unsuspected areas of confusion for the students or tutors.
- Inconsistencies in the time course of events.
- Problems with the pacing.
- Whether the amount of content in the case is too much or too little.
- How many pages a group can process effectively in the allotted time.
- Typographical errors.
- The level of student interest and emotional reactions to the case.
- Where a case best fits in the sequence along with other cases.

Final thoughts

Remember, PBL relies on more than just a great PBL case. To make PBL most effective, you must also have the following ingredients:

1. Teachers/facilitators who are well-trained in facilitating the PBL process, and who believe in PBL.
2. Learning resources (books, computers, journals, resource faculty, etc.) that students can utilize for their independent research.
3. An educational culture that supports students' use of PBL, and trusts students to be responsible for their own learning.

As you implement your PBL curriculum, be sure to attend to all of these important educational components.

The final step of case-writing is to look back and be sure that you took all the appropriate steps to ensure that you have produced a high quality learning tool.

CONGRATULATIONS on completing this case-writing workbook!

Case-writing Checklist

General tips about case writing:

- For students new to the PBL process, try to limit coverage to a small number of pages per PBL session. Cases any longer than that can cause students to rush, miss opportunities for fruitful discussion, skip valuable potential learning issues, and become frustrated and anxious with the PBL process.
- Avoid too much text on any given page. Students should be able to read through the pages quickly and easily identify key issues for discussion.
- Limit excessive detail that are not critical to the core learning objectives of the case. This often serves to confuse students and initiate discussions about unimportant topic areas. This is a **very** common mistake of passionate, overly-enthusiastic case writers!
- Consider writing most of your cases from the perspective of a student in your class. This tends to motivate and interest the learner. In some cases, putting them in the role of a professional (a scientist, doctor, teacher, nurse, policeman, counselor, etc.) can provide a fresh perspective and excite students about new learning issues they might not otherwise have identified.
- Develop the system and expectation that cases will be reviewed and revised yearly. There is nothing less satisfying than an inaccurate or out-of-date case! Seek feedback about the cases from students and teachers to help guide your revisions.
- Remember that there are several different approaches to “telling the story” in a case. While you might find one that works best for your teaching context, mix up the formats from time to time to keep things fresh for your students.

Before getting started:

- Do I understand the context of where this case will fit in to the larger curricular plan? Have I reviewed the goals and objectives for this particular unit of study?
- Do I have a clear understanding of what major themes I want this particular case to cover?
- Do I know what experiences my students have already had? What expectations do I have for what they should already know about the problems presented in my case?
- Am I confident that there are resources available for students to learn about the possible learning issues in this case?

When selecting the main problem to base the case on:

- Did I select a common/prototypical problem that my students would be expected to learn about at this point in their training?
- Did I select a problem that fosters interdisciplinary input and covers a broad range of content areas?

When developing my case did I:

- Choose the best “case structure” for my problem?
- Keep it to a length that is appropriate for my learners?
- Write simply and clearly, and avoid including non-essential details?
- Present actual concrete tasks for the learners to handle?
- Maintain a degree of complexity and sophistication appropriate for my learners’ prior knowledge?
- Explicitly cover all of my desired objectives for the case?
- Seek out and incorporate feedback from other teachers or counselors who can lend expertise and perspective to my case?
- Work with other faculty to develop supplemental, integrated learning experiences for my case such as facilitated discussions, lectures, laboratories, suggested readings, computer assisted instruction modules, etc.?

When writing page 1 of the PBL case did I:

- Begin with a realistic, classic problem that will help students meet my learning objectives for the case?
- Include sufficient patient demographic data to help students focus their learning?
- Clearly set the context of the case and the role of the student within the story?

When writing page 2 of the PBL case did I:

- Include all the “key” relevant information in a concise and selective manner? Did I avoid including too much detail for the level of the learner?
- Include “learning cues” that appear natural and logical?
- Keep page 2 to a reasonable length (1/2-2/3 of a page)?

When writing page 3 of the PBL case did I:

- Bring the case to some form of closure?
- Include “learning cues” that appear natural and logical?
- Keep page 3 to a reasonable length (1/2-2/3 of a page)?

When developing my “resource list” for the PBL case:

- Did I aim to be selective in what I included, limiting them to things I felt were most helpful to students?
- If I included the names of resource persons, did I first get their permission and offer them information about the case so that they can best help the students?
- If I included books or articles, did I include only those that I felt the students could understand and find useful at this point in their education?

- Did I make it clear to students that they should NOT limit their learning to the resources on this list?
- Do I have a mechanism for having students make suggestions for revising the list on a regular basis?

When writing my “Teacher Notes” for my PBL case did I:

- Clearly state what the major themes of the HCP are?
- Include enough detail of the content so that the teacher can be confident about major concepts and themes?
- Avoid including so much detail that the important “key” points are lost and the teacher notes become less helpful?
- Include suggestions for “learning prompts” that teachers can use to further facilitate learning?

Did I consider ways of making my case creative?

- Did I incorporate dialogue?
- Did I put the student into a clear and meaningful role in the case?
- Did I consider using video or other forms of media?
- Did I effectively communicate emotion, or otherwise give my students a reason to “care about the characters as people”?
- Did I consider including current events that would interest my students?

When my PBL case is used:

- Will students have access to appropriate learning materials (computers, books, magazines, resource faculty, etc.)?
- Have I provided the teachers with enough background information about the case and the information within it to effectively facilitate student discussions in all the major objectives?
- Do I have a mechanism for getting student and teacher feedback about my case and revising it as necessary?

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