PROBLEM-BASED LEARNING: NARRATING OUR EXPERIENCES

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Abstract

Using a narrative inquiry approach, this research report documents the experiences of students and the facilitator as they navigate a problem-based curriculum in an introductory computer software course. The decision to implement a problem-based curriculum was an attempt to improve course delivery so that it not only resulted in effective student learning, but also a renewed passion for teaching. Over a six week period, students provided periodic feedback, while the facilitator journaled daily about her observations and reflections regarding the class. Understanding the lessons embedded within these collective experiences is a critical step toward offering a better learning experience for both students and the facilitator. Based on both the experiences of the facilitator and student participants, it is apparent that problem-based learning can be used in computer applications courses, and with proper planning and facilitation, it can be an effective learning model.
Introduction

I began my journey in Master of Arts – Integrated Studies in pursuit of becoming a better college instructor. Throughout my four years of study, I felt excitement about the concepts I’d learned, but at the same time somewhat confused in synthesizing all the varied information. I was uncertain about whether I had actually accomplished my goal of becoming a better instructor. I was disillusioned about teaching; I was questioning my ability and skills, and seriously contemplating leaving the profession after sixteen years. After much thought, I realized that I could leave my current teaching position and hope to find excitement elsewhere, or I could embrace the responsibility for creating excitement in my own classroom. I’m pleased to report that I opted for the latter.

I had struggled for years to figure out the best way to teach an introductory computer applications course for students in our Culinary Arts program. Over the years, the skills that students entered the program with had changed. No longer could I assume that students entering the program had few, if any, computer skills. Students entering the program now possess a wide variety of computer skills which makes it more difficult to structure a course that all students will find meaningful. In order to accommodate this variation of skills, I have tried two different approaches: a very individualized program in which students worked through self-paced materials and completed various tasks, and an approach that relied on my demonstrating many of the skills and following up those demonstrations with projects. Both methods meant that students for the most part simply followed along and did not develop critical thinking or problem solving skills. Additionally, both of these models relied exclusively on individualized assignments and assessment and I was never convinced that either teaching strategy was effective.
After attending an intensive two-week professional development course on problem-based learning, I decided that this approach could potentially address the issues I was contemplating: how to improve the course delivery so that it was effective as well as re-ignite my passion for teaching. Therefore, I decided to pilot the problem-based learning model, or PBL as it is commonly called, in this introductory computer applications course.

Background

Many consider Harold Barrows to be the father of PBL, as much of the early PBL research can be traced back to his work. Barrows and Tamblyn (1980) offer simplicity in their definition of PBL. “Problem-based learning is the learning that results from the process of working toward the understanding or resolution of a problem” (p.1). The timing of the problem is an important distinction of problem-based learning versus other methodologies: it must come at the beginning of the PBL process. Emphatically, Barrows and Tamblyn (1980) posit, “The problem is encountered first in the learning process!” (p. 1). Since the presentation of the problem begins the process, everything the students and facilitator do is in an effort to learn what is necessary to solve the problem. Students take on more responsibility for their own learning while instructors support or facilitate the learning; hence the use of the term facilitator or tutor instead of instructor or teacher. Problem-based learning means that the role of “the PBL tutor is not to teach or give information but rather to facilitate students reasoning through the problem.” (Barrett, 2005b, p. 60). Barrett (2005a) qualifies however:

[t]hat does not mean that there cannot be other curriculum inputs e.g. lectures, labs, etc, rather the students are presented with the problem or trigger first and other curriculum inputs follow later and may take a different format than traditionally in order to complement/enhance the work on the problems in the PBL tutorials. (p. 14).
The problem is structured in a way that students must meet specific course outcomes in order to solve the problem. “Learning—not the completion of the project—is the main aim in PBL. The problem is the means to an end” (Uden & Beaumont, 2006, p. 33). Incorporating the term ‘learning’ in the name of the methodology emphasizes the focus on learning rather than teaching. Therefore, introducing PBL requires a paradigm shift in a teacher’s approach to learning. “Problem-based learning is problem-based learning (original emphasis) not problem-based teaching. It fits into the learning paradigm not the teaching paradigm and is part of a set of student-centred approaches...” (Barrett, 2005b, p. 57).

Problems are not tackled by individual students, but rather student groups working cooperatively to determine what information is already known and what content they must learn in order to solve the problem. Barrett (2005b) suggests a group size of five to eight students as optimal (p. 60) while others advise that “it is best to limit the size of each group to four, at most five students (Duch, 2001, p. 41).

But what is a problem? What does it look like? Barrett (2005b) indicates that “a problem is something that is problematic to the student; something that cannot be resolved with the current level of knowledge and/or way of thinking about the issues” (p. 56).

Problems are not always about difficulties that need to be sorted out. Challenges, dilemmas, and triggers are problems. Understanding a puzzling phenomenon or a difficult concept can be a problem. How to find a better, more ethical or cheaper way of doing something is a problem. How to design or create something is a problem. (Barrett, 2005a, p. 16)

Furthermore, problems are ill-structured, meaning that “they are real-life and authentic not teacher’s exercises, messy not tidy, incomplete in the sense of lacking information needed for their resolution and iterative in the way that they produce further ideas/hypotheses and learning issues” (Barrows, 1989; Stephen & Pyke, 1977; and Margeston, 2001 as cited in
Barrett, 2005b, p. 56). These ill-structured problems should be as messy and as real as possible in order to adequately prepare students for industry. The U.S. Department of Justice - C.O.P.S. Office (n.d.) indicates that ill-structured problems can take various forms, but that ultimately, the problem must be REAL: relevant and engaging for the student, one in which there are various alternative solutions, and one in which the learner can determine the learning objectives which represent what information and/or skills they need to acquire in order to solve the problem (p. 12). Barrett (2005b) concurs, “It is vital that the problems are engaging, that they ‘smell real’, are interesting and challenging to students” (p. 56).

While there are a variety of PBL models, including those posited by Massa (2008) and Barrett (2005a), most models align closely with Barrows and Tamblyn’s (1980) original framework:

1. The problem is encountered first in the learning sequence, before any preparation or study has occurred.
2. The problem situation is presented to the student in the same way it would present in reality.
3. The student works with the problem in a manner that permits his ability to reason and apply knowledge to be challenged and evaluated, appropriate to his level of learning.
4. Needed areas of learning are identified in the process of working with the problem and used as a guide to individualized study.
5. The skills and knowledge acquired by this study are applied back to the problem to evaluate the effectiveness of learning and to reinforce learning.
6. The learning that has occurred in work with the problem and in individualized study is summarized and integrated into the student’s existing knowledge and skills.

The PBL training I participated in was based on a PBL model that required working through and among five non-linear steps (see Figure 1) after the presentation of the problem: ideas, known facts, learning issues, action plan, evaluate product and process (The U.S. Department of Justice - C.O.P.S. Office (n.d.)). Therefore, I employed this model in my PBL classroom.
As with any methodology, variations on the original model may arise, thereby jeopardizing the authenticity of the model. Therefore, Barrows and Wee Keng Neo (2007) coined the term ‘authentic PBL’ or ‘aPBL’. “The term ‘authentic’ was chosen to reflect the desire to mirror the demands of the workplace as the contexts for learning” (Barrows & Wee Keng Neo, 2007, p. 4). Therefore aPBL not only incorporates the attainment of content-specific knowledge and skills, but also the development of employability skills including problem-solving, self-directed learning, critical thinking, and team skills.

The goals of problem-based learning align directly with the goals of Assiniboine Community College (ACC). ACC has penned an Academic Charter (2010) which describes a commitment to student-centered curriculum that focuses not only on cognitive knowledge and skill, but also on employability skills including self-directed learning, teamwork, critical thinking and problem-solving skills.

One of the many courses offered at ACC, and a course in which I teach, is Culinary Arts. I chose to study the implementation of PBL in this particular class for the following reasons:
1. I have a well established relationship with the two primary instructors for this program who regularly think ‘outside of the box’ in terms of education. I expect PBL will be a better fit with the teaching strategies already employed by these instructors.

2. Traditionally the computer skills of students in this program are varied. Therefore, in an introductory computer applications class, there is much that students can learn from each other and from prior experience. Both are ideal components for PBL.

3. Students in the Culinary Arts program historically have represented the diversity found in a typical classroom in our college. It is plausible that findings associated with implementing PBL with this group of students could extend to other classes.

This fall, Culinary Arts welcomed 22 students into the first year of the two-year program. The composition of this group included 5 female and 17 male students ranging in age from 17 to 35, with an average age of 21 years. Of the 22 students, 4 students declared themselves as either status First Nations, non-status First Nations, or Métis, while the ethnicity of the remaining 18 students was undeclared (Assiniboine Community College, 2010a). It is with this group of 22 students that I conducted my research.

**Method**

A review of the literature indicated that there was very little information available on the student experience with problem-based learning (Savin-Baden 2000, p. 9), suggesting that this would be an ideal area to explore in my research. Savin-Baden (2000) writes:

There is, as yet, little known about what actually occurs, as it were, *inside* problem-based curricula in terms of staff’s and students’ ‘lived experiences’ of the curriculum. This has consequences. First students’, and to some degree staff’s, voices are largely missing from the literature on problem-based learning. Second, key elements such as learning context, learner identity and ‘learning in
relation’ are rarely acknowledged or discussed when implementing or enacting problem-based learning. (p. 9)

Therefore, the purpose of this narrative study is to document the lived experiences of me, the facilitator and researcher, and of my students as we utilize the PBL methodology in a computer applications course at ACC. In telling the collective stories of students and the facilitator, I give voice to our experience so that we are able to learn from that experience. Specifically, the research questions I asked are:

1. What is the lived experience of a first-time PBL facilitator and her students in a computer applications course based in the PBL methodology?

2. What can be learned from this lived experience?

As I read Clandinin’s and Connelly’s (2000) work on the importance of matching the method to the research question(s), I realized that I wanted to conduct a research project that would delve into what was really happening in the classroom and what the students and I were thinking and feeling about the learning. Not only was I interested in my own experience as the facilitator in the redesigned course, but I was equally as curious about the students’ experience. Would this change be positive, would it be a disaster, or would it land somewhere in between? It became obvious to me that I would have an experience as the instructor and the students would individually and uniquely have their own experience in this class. Everyone experiencing the class in their own capacity would have a unique experience - all part of the same experience - yet uniquely different. It was the unique experiences that I hoped to document. Therefore as the course facilitator, I journalled each day about what happened during the course and how I felt about what was happening to student learning. This provided much data and was very therapeutic for me! In order to document the students’ experience, I sought the assistance of
students in the class to provide periodic feedback about their experience in the course. Student feedback can be found in Appendix A, while facilitator/researcher journal notes can be found in Appendix B. I had anticipated taking photos of student group interactions in order to document the experience; however this was not realized, primarily because of the requirements of the consent form and the ever-decreasing number of student participants who agreed to participate in the study. Appendix D includes the informed consent documentation. This consists of two different Letters of Information presented to the student participants and their corresponding consent forms. One Letter of Information was presented to students at the beginning of the research project, and another was presented to student participants prior to the quasi focus group discussion. The consent forms were signed and retained by the researcher. The listing of student participants is contained in Appendix E.

It is important to note that this research project was conducted during a beginning level course that ran for an hour each day over a six week period. When I saw the students in class for the first time, they had already been together for one week, completing a variety of program-specific workshops and seminars. However, they were still very much strangers and not yet comfortable with each other. While I had hoped that all students would agree to participate in the research project, initially nine out of twenty-two students agreed. During the first seven weeks of classes, six students left the program for various reasons. In total, of the six who left, only two actually provided feedback at any point in the project. In the end, three students form the backbone of the data collected that reflected student experience in the course. Their names were:

- Jay
- Joe
- Kira
I sought feedback by email, initially asking students what their experience was to date in the course. I wanted to provide the opportunity for students to discuss whatever came to mind without influencing them. However, this yielded very little data. I was expecting students to write a paragraph or two and found that students wrote a sentence or two. Therefore, I needed to revise my initial collection strategy. The remaining requests for feedback were more pointed and took the form of specific questions: What did you like about this project? What didn’t you like about this project? This did result in slightly more detailed responses, but did not provide the detail I was looking for. As a result, I applied for permission and was approved to conduct a quasi focus group discussion when the course was complete with the three students who had consistently provided feedback throughout the course and who remained in the program. I must recognize that these students were very positive and so their feedback may have been skewed in that direction. Questions I asked when we met as a group were:

1. Tell me about your experience in the class.
2. Did we follow the PBL process?
3. Did you learn software skills using PBL?
4. In addition to content coverage, PBL has been said to improve skills such as teamwork, self-directed learning, problem-solving, critical thinking, and intrinsic motivation. Would you report any of these positive side effects from using the PBL model?
5. Were there any negative side effects to using the PBL model?
6. What was the impact or effect of not including timelines within assignments, opting to negotiate timelines as students progressed through the assignment

While the conversation(s) proved to be a very useful source of data, I wished that I’d electronically recorded the discussion because it was difficult to keep accurate and detailed
notes, making it difficult to attribute specific comments to specific students in my written notes. I found that students generally agreed with each other and therefore some comments tended to be quite generalized. Once the gathered data was collated and organized into a document that I hoped accurately represented each student’s experience, I emailed the specific document to each student for “member-checking” (Creswell, 2007, p. 208). This provided the opportunity for them to review and comment on the research text relating to their individual story. I am confident that the collaboration with each participant has resulted in an accurate and valid representation of their collective experience.

The Results: Our Stories

Student Experiences

Jay

Jay, who considers herself an intermediate computer user, seemed to enjoy and appreciate the group dynamic. In her first feedback, she said, “I enjoyed the first two weeks of class, I think it is a fun class! I found that working in groups right off the bat really helped to break the ice with everyone!” (personal communication, September 24, 2010). This early comment from Jay summarizes her upbeat and social nature. She quickly emerged as a person who flourished in the social environment of the PBL classroom. Sitting beside Joe, these two could always be counted on to discuss something; sometimes related to the course content and sometimes not! After completing an online multiple intelligence test, Jay revealed “…my lower scores did surprise me my lowest score was Interpersonal, I thought I was pretty people smart, I’m not sure if the test was right of that!” (personal communication, September 15, 2010). Jay missed a couple of days during the course; one day for her Grandma’s funeral and one day due
to illness. She used her support system to catch up on the work she missed, displaying commitment to her group and the course.

Jay indicated that she “learned lots” (personal communication, October 4, 2010) and suggested that the group environment was a good way to get to know and work with students who she might not otherwise have taken the opportunity to get to know. “I worked with [student name] on that first project and I realized he was a really cool guy!” (personal communication, November 9, 2010). Jay made the effort to relate to her group members and realize the strengths and weaknesses that each group member brought to the group. Getting to know other group members is a critical step in establishing communication in the group; something that Jay identified as a key ingredient of a well-functioning group. “My first group this week was really great, we shared information really well and I think we had good communication” (personal communication, October 4, 2010). Referencing her experience with one of the later problems in the course, the Food Costing problem, she identified a second component of a properly-functioning group: task-orientation. “Things went well in my group we worked well together. I think we stayed on task most of the time! We also understood the concept of the assignment and got it done properly and on time” (personal communication, October 14, 2010). However, Jay didn’t always experience groups that worked well, as she indicated:

... my second group in the week was awful, I had to do all the research and put the document together and then we had to do revisions and I had to [do] them all. That group was not helpful at all. (personal communication, October 4, 2010)

Group work isn’t always easy, even for a social person like Jay, because the group is only as strong as its members. She notes that “....working in groups can be frustrating because people
don’t always work well together so when you get a lazy group member it’s (sic) really annoying” (personal communication, October 14, 2010).

Jay’s commitment to her group members and to working through each problem resulted in authentic learning. “I enjoy PBL because you really have to know what you are doing you can’t fake your way through it, you really learn” (personal communication, September 24, 2010). She appreciated the responsibility associated with explaining topics or skills to other students because it forced her to know the concepts. However, she found it frustrating when other people either didn’t research their learning issues, or didn’t properly explain what they’d discovered about the learning issues that they had researched. As a result, she sometimes felt that she didn’t learn anything significant from some of her classmates. This was most evident in the last assignment, the Skills Booklet (personal communication, November 9, 2010). An additional struggle was that she didn’t always know what was expected in an assignment or what the final product should look like. However, she admitted that “it’s not always clear but sometimes I like that challenge” (personal communication, October 14, 2010). With no example of what the final product might look like, it allowed students the opportunity to be creative; an element that Jay seemed to appreciate. Reflecting on the Food Costing assignment, she commented, “I really liked how... we got to be really creative with designing everything” (personal communication, October 14, 2010).

Jay readily accepted the sense of community in the PBL classroom and contributes to its well-being. She cared not only about her standing in the class, but she demonstrated concern regarding the progress of other students, noting the advances that others made. For example, in discussing the difficulties that sometimes arose in the group work because some students struggled with social contact, Jay observed that “[Student Name]’s getting better. I was teasing
him the other day and he told me to shut up! I told him I was proud of him for that” (personal communication, November 9, 2010).

Despite a few bumps along the road, Jay enjoyed the PBL curriculum and found it to be a challenging way to learn. Jay’s upbeat nature combined with her ability to focus on not only on her group but also the task at hand certainly contributed to her success.

Joe

Joe, a self-described ‘intermediate’ computer user had a strong basis in Mac applications, but was not as familiar in a Microsoft environment. Joe has a big, boisterous laugh and has a positive outlook. He knows who he is and he radiates a ‘take me or leave me’ attitude, yet he is friendly and approachable. He had perfect attendance in Word Processing Skills class that demonstrated a strong commitment to his school work.

Joe’s multiple intelligences score rated his first and second learning preferences as Social and Intrapersonal respectively. True to his preferred learning style, Joe is a very social person and likes being able to bounce ideas off other people. For the most part, he enjoyed the group experiences in the PBL classroom when all group members did their part. “Things in my group went well when we worked together. We all split up the tasks that were assigned and everyone brought there (sic) stuff to the table” (personal communication, October 14, 2010). Midway through the course however, he did experience working in a group in which he describes himself as doing all of the work for the group:

In Friday’s group that I was in I did all the work, I researched the information, I typed all the information. I know that is a lot of I’s but my group didn’t really make it possible to put a ‘we’ in it! But overall my experiences in my groups have been good. (personal communication, October 4, 2010)
At times, Joe felt that being in a group slowed him down, suggesting that the group’s progress on the problem got a bit “draggy” (personal communication, November 9, 2010). He specifically noted feeling this way when completing the last problem, the Skills Booklet. The group’s slowed progress could be attributed to the fact that their work on this problem occurred during an event called the Dessert Festival when his mind was distracted from his work on the booklet. Or, it could also have been because he didn’t really grasp the purpose of the assignment and how this document could be useful. “I didn’t understand why I was doing the Skills Booklet project” (personal communication, November 9, 2010).

At times, Joe found it frustrating to work with people who would communicate with group members using email, rather than walking over to them in the classroom and having a quick chat. In certain situations, it’s useful to communicate by email, especially when a link is embedded in the email message or if the message contains steps on how to do something. However, he indicated that some students overused email, and attributed that to the reality of the classroom situation: in a computer lab the computers were right there and it was just easier to send an email than get up and talk to someone (personal communication, November 9, 2010).

Joe enjoyed working on the larger problems that tended to last five or six days as opposed to the shorter exercises that were completed within a couple of days because he found that the small exercises were easy to forget (personal communication, November 9, 2010). He enjoyed the opportunity to be creative and design his work without having to format in the exact same way as his group members. “I liked...that we learned different ways to make the food costing spreadsheet. And that we could make our own spreadsheet and make it our own not as on (sic) group sheet” (personal communication, October 14, 2010). Although he
suggested that his preference wasn’t shared by all students, he liked how the problems were presented to the students. “You didn’t tell us exactly how it would look or what to do exactly” (personal communication, November 9, 2010). This way of presenting a problem fit well with the program because the primary instructor doesn’t always tell students exactly what to do. He simply asks each student to make a specific meat, vegetable, and starch and it’s interesting how everyone creates different items (personal communication, November 9, 2010). By experiencing the learning in this way, Joe became more adept at determining what to do and how to do it. It’s not always comfortable and “at first it is a little fuzzy, but once I get into the assignment I get what’s (sic) going on” (personal communication, October 14, 2010).

Overall, Joe enjoyed the PBL curriculum and felt it was a beneficial way to work through the material. Even though he already had the skills to complete some of the objectives, he generally enjoyed working with his classmates to share his skills and to learn the deficient skills in a problem-based learning environment.

**Kira**

**Kira** entered the course a little uncertain of herself and her computer skills. She sat in the back row of the classroom where she felt inconspicuous and safe. Not one to overestimate her abilities, Kira described her computer skills at the onset of the course as ‘beginner’ when realistically she could hold her own with students who considered themselves intermediate users. A quiet, but pleasant and very respectful student, Kira always referred to her instructor by title and last name, rather than by first name as other students did. She displayed commitment to the course, missing only one day of class over the six weeks.

Her top multiple intelligences category was Interpersonal. She agreed with the online test’s evaluation, reporting that “I acknowledge that I like to work in groups and learn from
other people rather than text. I like to talk out loud to work out problems. I learned that I will have to try and incorporate this while learning” (personal communication, September 15, 2010).

As one would expect, based on her multiple intelligences preference, Kira enjoyed the opportunity to work in groups during the course. “I have really enjoyed working in groups because it has enabled me to meet and get to know people quiet (sic) quickly...I have enjoyed the team work aspect a lot” (personal communication, September 27, 2010). However, her group did have difficulty communication on the first big problem- the Menu problem. They would meet and no one would say anything, make suggestions, or ask questions and it was difficult, almost painful, to get everyone in the group to participate. “I had trouble in my group with communication and it was hard to get everyone to participate” (personal communication, October 4, 2010). As a result, students took individual directions in terms of formatting the document and then found they spent a lot of time afterward to get the formatting of each document to look identical, as requested in the assignment. In Kira’s estimation, “The menu assignment was good overall, just a little hard to get everyone in the groups to work together” (personal communication, October 4, 2010).

Perhaps the difficulty they experienced was a result of learning how to work in a group, the composition of the group itself, or the requirements of the assignment. In any case, Kira reported that her other groups functioned better than this initial one. Referencing the Food Costing problem, Kira said:

...I would say my group worked fairly well together. We shared ingredient costs and layout ideas for our spreadsheets. After sharing this information we did not do much work together, as we all knew how to insert formulas and edit our spreadsheets. (personal communication, October 14, 210)

Kira “enjoyed the team work aspect a lot as well as the freedom it presents” (personal communication, September 27, 2010). Groups determined where and how to work, what
needed to be done and how to do it. Along with this freedom, assignments encouraged
students to be creative in their solutions. “Last week’s group menu assignment was fun in the
way that we were free to be creative. Although I think that it all depended on the willingness of
other group members to make great menus” (personal communication, October 4, 2010).

In the PBL classroom, students experienced working as part of a group and contributing
to their group by individually researching specific learning issues. In terms of researching and
finding resources using the web, Kira indicated that, “it has been informative to me to find help
links” although “it is sometimes hard to find viable resources to use” (personal communication,
September 27, 2010). Having to complete the research meant improved learning for Kira and a
feeling of success.

So far I have found this way of learning to be a great way to learn because when
you have to do the steps yourself you are forced to learn the material and I tend
to remember how to do what I learned more easily. (personal communication,
September 27, 2010).

Kira is a learner who appreciates real life, relevant problems to work on and she
indicated that at times, problem solving was missing from the curriculum. Comparing two
different Word assignments, she commented, “I have found the procedures assignment to be
something I would actually use and is a helpful skill to know, I found it more helpful than the
menu assignment” (personal communication, October 4, 2010). In terms of the Food Costing
problem, she commented:

I liked getting some more practice on excel, I didn’t like how it wasn’t very
realistic. I would have liked to look at some actual spreadsheets, maybe the
ones [an instructor] uses or that a restaurant uses. (personal communication,
October 14, 2010).

Generally, Kira appreciated the PBL classroom. She enjoyed working in groups to
achieve the curriculum goals, even though communication was difficult with some groups,
especially those that formed early in the course. A suggestion for improvement would be to ensure that problems presented to students are relevant and meaningful to the students.

Facilitator Experiences

Week One

Anticipation...Excitement...Hope
Like a new relationship
Investing your time, energy, and self into something new
Putting your best foot forward
And hoping that it is all worth your while
Hoping for acceptance
Hoping you won’t be disappointed
Hoping for life changing
Visualizing a new you,
A better you
A better result
In this new relationship

Penned by Colleen Bootsman, January 2011

I’ve not been able to work on something until it was imminent and converting the Word Processing Skills course was no different. Prior to the course start up, I planned the first week and had a general idea of the rest of the course, although I hadn’t hammered it out or written it down. I wasn’t really worried and I was confident that I would pull it all together. After all, I do my best work when I’m in the thick of things, in the moment, and when the pressure is on. Or, so I rationalize it. I expected a light bulb moment when everything would be clear and I would know exactly what I should do and how I should do it. While I don’t believe that moment ever came, I do think that through trial and error I learned how to structure a course based in PBL curriculum. In retrospect, if I had redesigned the entire course prior to delivery, I would have made some key mistakes and would have had to make changes as I went anyway.
Making the decision to pilot PBL really was akin to beginning a new relationship as it presented experiences much the same that beginning a new relationship poses. At first, there was curiosity about what it was, followed by attraction, especially to the hope that this learning method would result in improved problem-solving and critical thinking skills among students. The difficulty was learning about this potential partner, the specifics related to the PBL cycle that are dynamic and fluid, and understanding how its potential could vary, depending on the problem at hand. Just like any relationship, I discovered what worked and what didn’t and I ultimately learned how to approach PBL in order to maintain a strong, long-lasting relationship.

I began by structuring the course in a way that was very different from any other course I’d ever delivered. Based on an idea that I’d read in Amador, Miles, and Peters’ (2006) *The Practice of Problem-Based Learning: A Guide to Implementing PBL in the College Classroom*, the first class was not dedicated to reviewing the course outline and explaining what the course would be like, as I would traditionally do during the first period of a course. Instead, in an attempt to demonstrate what students could expect to experience in the course, they completed a mini-PBL type exercise where they worked in groups of four or five to investigate what computer skills were required of a chef (see Assignment 1 in Appendix C for the assignment and marking rubric). I had students brainstorm ideas for where they might go to find the information, then review their lists as a large group and turned them loose to complete the research, share it with their group, and organize their findings in order to present it to the rest of the class. This exercise was completed within the first two days of class. While there were flaws in the marking rubric, I was impressed overall with the work the students had done and the information they presented. This initial exercise forced students outside their comfort zone in terms of having to work with others. Additionally, it required students to present
information to the entire class and encouraged them to take responsibility for their own learning. I would certainly use this as a purposeful ice breaker exercise again.

Learning styles, or multiple intelligences, as it was referred to in the professional development course I had taken seemed to play a major role in the problem-based learning model. I assume this is because a properly-implemented problem-based learning model should meet many different learning styles. Therefore, I had students research and complete a multiple intelligences inventory using the web. This not only required them to use some web research skills as identified on the course outline, but it also created an awareness of multiple intelligences so that students could be more involved in their own learning. Once the inventories were complete, students paired up to discuss their inventories and then we debriefed as a whole class. I also had students practice basic email skills by having email their top two multiple intelligences preferences and what they learned about themselves to me. Although this information was useful to me for understanding their preferences, I sensed from the student emails that they didn’t necessarily see value. Comments like “This was nothing new”, or “I knew this already” were common. I also asked students to send me an email message outlining their previous computer experience and a general statement about whether they felt they were a beginner, intermediate, or advanced computer user. This email proved to be useful in structuring heterogeneous groups in terms of computer skills for their next problem. Additionally, both of these email exercises required students to use various features of the electronic mail program to send a basic message to me which met a couple of learning objectives for the course.

Rounding out the first week of the course, students experienced another mini-PBL exercise (see Assignment 2 in Appendix C for the assignment and the marking rubric). Using
each student’s self-evaluation of their computer skills, I developed groups of three or four students who were asked to find print or video resources on the web for a series of course objectives. Once the resources were found, each group was required to prepare one electronic resource containing clearly-labelled links to various web pages that would offer the user assistance on any given topic. Again, my marking rubric contained a few flaws, but I was able to use it despite the difficulties. I had asked the students to create a distribution list that included the group members and me so that I could be aware of what they were communicating about resources as they emailed back and forth among group members. As this was a software applications course in which some of the learning outcomes related to being able to use electronic mail, I felt that this would be appropriate and would allow the students to practice sending a variety of messages. Many students gravitated toward using email to communicate, however the student participants indicated that they wished group members would be more open to just talking in person.

Looking back on the course, I feel that the first week when I introduced problem based learning was a success. Even though they were not yet comfortable with each other and sporadic attendance was an issue, the early results were encouraging. I recall feeling afraid of making a mistake and desperate to make the right decisions. As I seemed to overanalyze everything, I was reminded about the similarity between introducing problem based learning and being in a new relationship.

**Week Two**

A constant reminder,
That knotted ball of doubt and insecurity
It lives in the pit of my stomach
And awakens me each morning
During the second week of the course, I was uncertain of what the students would be doing each day. As we finished off Assignment 2 from the previous week, I asked each group to post their file in the shared area so that others could access it and I could mark it. In addition to the marking guide or rubric used to evaluate the product, I also asked students to complete a peer evaluation of their group members in terms of the process side of this assignment. As a result, students received feedback both on their product as well as their contribution to their group. If the peer evaluations netted a score of 80% or greater, the student received 100% of their product score. If the student received a score lower than 80% from their group’s peer evaluations, they received that percentage of their product score. Evaluation of both product and group process was important in that it encouraged both the development of technical skills and employability skills.

In addition, I asked students to get together with their group members and discuss what they liked and disliked about the assignment. I also asked them to generate a list of what they thought makes a successful group. Although I sensed that some students disliked having to get together with classmates to talk, students who participated in this research project suggested that including more icebreakers would give students opportunities to get to know one another. Perhaps I needed to check my own insecurities and hypersensitivity to student reactions, and
Perhaps I’m projecting my own thoughts onto the students. Now that I understand the importance of student dialogue, I will structure in time for this in the process.

After the student groups had a chance to discuss their likes and dislikes related to the assignment and generate their list of key components of a successful group, we debriefed as a large group. While it was somewhat uncomfortable to facilitate the debriefing, it was an opportunity to learn what students liked and disliked about the assignment. When we debriefed the components of a strong group, I was very impressed with the list that the class had collectively generated and remember thinking that it was a far more inclusive list of characteristics than I would have ever put together on my own! This was a small but encouraging victory on the PBL journey! And, although I should have done more with that list and used it in some of the assessment throughout the course, I was encouraged by being able to bring student ideas together.

In preparation for what I would consider the first true PBL problem, I did struggle with a key component of problem-based learning; how to have students work in groups and still individually create a file for marking. I was convinced that because this was a computer software course, I needed to have a file from each student in order to mark the product. Therefore, I structured the problem so that students worked together through the PBL process and at the same time had each student created a file that demonstrated their computer skills. During the second week, I presented the students with their first real ill-structured problem (see Assignment 3 in Appendix C for the assignment and marking guide). In order to prepare them for the process of working through the problem, I spent time explaining the PBL process: generating ideas, known facts, learning issues, action plan, and evaluating product and process. As I explained the process, it became apparent to me that they didn’t really understand it, but I
thought that it might be easier to understand the process by doing it. Therefore, I asked the
groups to get together to talk about the problem I had presented in the assignment and to
generate ideas related to that problem. I also attempted to guide them in terms of what step in
the process their group should be at, but struggled with keeping them at the ideas phase as they
rushed quickly to generating ideas, skipping known facts, and moving on to research and the
action plan. Perhaps I should have spent more time clarifying exactly what they would be doing
at each phase. For example, in one group, a student started creating a file while the others
worked at the ideas phase. “Some groups didn’t just talk ideas but instead started making
decisions about the restaurant theme and what food they might serve. I suggested they start
thinking about how their menu would look” (C. Bootsman, September 21, 2010). I was
uncertain about whether groups actually came back together to share information about their
learning issues. For future problems, “I have to make it so they have to teach each other” (C.
Bootsman, September 23, 2010). “Overall, I was disappointed as I’d hoped my unveiling of PBL
would go better and I worried about whether the students would think that I was ‘teaching’
them anything at all” (C. Bootsman, September 21, 2010).

Many groups struggled to communicate:

As I circulated among groups I found some groups really talking and some
groups not discussing anything at all, but rather sitting in uncomfortable silence.
I tried to get them more engaged by asking them questions – it worked for some
groups and not others. (C. Bootsman, September 21, 2010)

While I knew it was my role to probe and question the groups in an effort to encourage
discussion, I was not at all prepared for the students’ inability to discuss the problem at hand.

I continue to be frustrated as some groups just aren’t acting like groups – they
don’t talk. I’m not sure if the sitting in rows makes that difficult or if it is just the
students. Some groups are talking and working well though. (C. Bootsman,
September 23, 2010)
But what a difference a couple of days can make! Groups that a few days earlier had been painfully quiet were now starting to function.

Kira’s group is working really well together – sharing and showing each other things....I watched one group closely today - more talking – [an anonymous student] was certainly leading that otherwise quiet group, but he spent some time showing his group some skills and asking how they wanted to do things. (C. Bootsman, September 24, 2010)

I considered this to be a small victory because as I watched them move from sitting together and not engaging in conversation to working together, I realized that groups can progress through the problem at different speeds and in different ways. I needed to get comfortable with groups going through struggles.

What I put together for the first problem ended up being too complicated and unstructured for their first PBL exercise. However, despite the issues we experienced in this real ill-structured problem, I wanted to try again. Armed with more knowledge about what worked and what didn’t, I structured the next problem differently in order to help the students work through the PBL process and accomplish the remaining learning outcomes. Simultaneously, I began to question the PBL cycle and its seemingly regimented application in my classroom. Was it a fit?

I’m also questioning the process – I don’t think it makes sense for [computer] applications because students aren’t necessarily going to know what they want to use until they start producing their documents. I’m not sure, I’d like them to start producing it because I think they’re sick of talking about it! (C. Bootsman, September 22, 2010)

At times, I wanted to give up. However, there were flickers of brilliance in the method and that was enough to keep me going.
Week Three

There is no manual...only suggestions or ideas
There are no absolutes...only maybes
And constant analysis
Of myself, of the process, of the class
By myself, by the process, by the class
Or so I think

What they think matters to me,
Probably more than it should
I need to feel they respect me
For what I know
And who I am
What do they think?

Penned by Colleen Bootsman, January 2011

As the course progressed, we worked toward finishing the menu assignment and posting their files into the shared folder for marking. I pondered different ways of wrapping up the project; from having the students present their completed group menu, to having them ‘place’ their menu along a continuum with everyone else’s or compared against some from industry. This would allow them to evaluate their menus as well as other’s menus and at the same time reinforce their critical thinking. In the end, I opted out of offering these different ways of completing the project. My uncertainty and insecurity, along with desire to just finish the assignment and move on overwhelmed me and dictated my actions.

I wondered about having each group show what they’d done for a menu, but I hadn’t prepared them for that and I didn’t know if I really wanted to devote more time to this menu project. I was also a bit scared to put them in their groups to discuss the project because I was worried they were just sick of talking and they would see it only as filler. I was trying to determine the cost benefit ratio of more work with this exercise. So, instead I asked as a large group about the project..... Students didn’t want to talk – I’d ask them for input and they just sat. So, I moved on to introducing templates. (C. Bootsman, September 30, 2010)
I’m certain that with some planning and more skills in facilitation I could have encouraged more reflection from the students, transitioning them into the last component in the PBL cycle: evaluating the product and process. But, my insecurity led to frustration and got the better of me, so I soldiered on.

As I initiated the templates problem (see Assignment 4 in Appendix C), I pulled back on the magnitude of the problem-based curriculum. I fell into a comfort zone by showing the students examples of different templates and explaining how to use a template for their procedures manual, which was a requirement of their culinary courses. The timing of this problem coincided with their first procedures assignment from another instructor, which was great because they saw it as a real and relevant problem. However, my execution was flawed. Instead of clarifying the timeline of the assignment with the instructor, I thought they were required to submit their first procedure sooner than what was required. As a result, I over-structured the assignment and unnecessarily sped up the process, minimizing the investigation and problem-solving. In fact, I did too much of the work for them by identifying the known facts and learning issues. Students were placed in groups that were tasked with investigating a learning issue or topic that I had identified as necessary to understand in order to complete the template and required to create instructions for that particular topic and place these instructions in the shared area for all students to access. Some groups did not work well because they relied on one member to do the work for the entire group. Joe noted that this was an issue in his group (personal communication, October 4, 2010). I observed some groups who didn’t seem to be communicating in a visible way, and also other groups who appeared to work well together. “One group did appear to be working together – noticeable because [an anonymous student] was standing behind where they were working. Involved, not sure how much he contributed, but certainly [he] was present” (C. Bootsman, October 1, 2010). Many
groups just copied and pasted the information they found without really understanding the learning issue. As a result, I found myself in front of the class with the each group’s instructions projected on the board, checking the information for accuracy. I hadn’t intended to do this but couldn’t think of an alternative.

In retrospect, I wish I had followed through with my original idea to incorporate the jigsaw method into this problem, as suggested in Allen, Duch, and Groh (2001). This method has students investigate a learning issue as a group, develop instructions for that topic, and then re-shuffle the students into new groups where each student becomes a content expert in a different aspect of the problem. In these multi-topic groups, students share their information with their peers and in effect, teach them about each topic. This would have resulted in students taking more responsibility for their learning.

Despite its flaws, there were a couple of bright moments in this particular problem, particularly during the class in which the students worked on preparing their templates and creating their first document from that template. While putting the pieces into place had been flawed, students did experience the learning when they started working on their actual template. This was evident in the questions they had and the problems they encountered. However, “I did end up falling into my old troubleshooting role and making suggestions and answering questions” (C. Bootsman, October 1, 2010). Therefore, I need to continue to develop my facilitative skills. Rather than answering the questions and solving the problem for them, I need to respond with questions that encourage their learning and problem-solving skills. Additionally, structuring the classroom differently may encourage student willingness to work together to answer questions.
Students at this point were working individually – I think partly (maybe largely?) because of the seating in rows. I’d like to figure out if we can restructure that into groups! So if they were in groups they could support each other – the way it is now, it is individual, or perhaps their neighbour. (C. Bootsman, October 10, 2010)

Some students appreciated knowing what their end product should look like, as opposed to previous problems in which they had no idea of what the solution would look like. This is an interesting window into the thoughts of students and the entrenched notion of ‘right’ and ‘wrong’ solutions. Within the final moments of the class, a particularly shy student called me over to ask a question about a specific problem he was having with his template. He explained the problem and showed me the document he had accessed from the resources that the students had posted in shared area. “He was trying to problem solve!” (C. Bootsman, October 1, 2010). It was a perfect way to end the class and the week.

“I felt pretty good at the end of this class (which ran almost 1 ½ hours) because it was challenging students. It was upper level stuff and selfishly I felt that they saw that I knew what I was teaching them – I felt some sense of credibility. I also have to say that [an anonymous instructor] has added to that because he has been coming in prior to my class; we chat and students see that we are a team and that helps me. I also felt a sense of credibility when [student name] asked me a few questions about his menu that he couldn’t get working and I was able to help him. I felt I gained a bit of his respect. I realize that isn’t what PBL is about, but that seems to matter to me” (C. Bootsman, October 1, 2010).

Some of the best experiences this week flowed from spontaneous situations; however, some of the worst also came from situations that I hadn’t planned well enough. Although I have not yet achieved it, there seems to be a balance between letting things happen and planning the problem and the learning activities properly.

It was also during this week that I started to realize how difficult it was going to be to mark the menu assignment with so many different solutions and each group incorporating
different skills into their solution files. For the menu assignment, I moved away from the rubric that I’d used in the previous mini-problems because I didn’t see how something that broad would allow me to mark for specific Word skills. Instead, I created a marking rubric that contained a listing of many different Word skills and students were instructed to check off which skills they believed they had executed so that I would know what to look for in their documents. Having the students check off which skills they believed they had demonstrated was a positive requirement because it meant that students needed to think about skills they had demonstrated and to name those concepts or skills. For each Word skill that was checked, I marked on a continuum of one to three marks, from unacceptable to superior. As soon as I started marking, I realized that the rubric needed to change from scoring either 1, 2, or 3 for each criteria to 0, 1, or 2 or even 0, 1, 2, or 3 because some students were able to earn 1 mark, even if the skill they attempted to demonstrate was grossly unacceptable. Without the change, some student’s marks were higher than they should have been. I also questioned whether I had made the right decision to use a more structured marking rubric from what I’d used in the first two mini-problems.

In addition, the component of the assignment in which students were required to combine everyone’s section of the menu into one comprehensive and complete menu was extremely challenging to mark. It was impossible to tell whether each student had taken sections of their own work and combined them into one document, which is what I had expected they would do; or whether one student combined the sections and then shared their combined file with their group members to submit for marking. It seemed that I may have sent mixed messages about when and when not to collaborate. However, I felt comfortable enough at this point that the students would be supportive of determining a fair solution to this grading dilemma, so I decided to approach the students to ask them for their input toward generating a solution. Ultimately, I think it was misunderstanding of the assignment requirements, which
may be an indication that it is not clear or too complicated, or just contradictory to the collaborative work they had been doing up to that point in time. The group decided to treat that component of the assignment as a bonus if it was done correctly rather than penalize those who hadn’t completed it correctly. While it was frustrating to me that I hadn’t thought through this situation well enough to anticipate this issue, I did feel that I had demonstrated that problem-solving requires input from various people and sources to generate enough ideas from which to determine the best solution. I felt I had acted as a positive role model, despite the less than ideal situation.

Through reflection, I realize that the Menu problem was perhaps where I wanted the students to get to by the end of the course, but it was not the right choice for their first ill-structured problem. Even though they enjoyed the creative component of the assignment, the students really weren’t ready for such a large task. Next time I would start with a more directive Word project by asking students to reproduce a menu and structure the elements of the assignment as to step them through the various stages of the PBL process. Additionally, I recognize that I should have included a peer evaluation component to this assignment to assess the process and ensure that appropriate significance was attributed to the PBL process.

*Week Four*

“Bump!” I felt, hitting the top.
“Bump!” I felt, hitting the bottom.
Constant teeter tottering between the highs of celebration and the lows of doubt.

Teeter tottering isn’t fun anymore.
As a grown up I sought balance and stability, and there was none.

*Penned by Colleen Bootsman, January 2011*
Students finished up their procedures template and prepared their first document based on that template. I also asked them to prepare a list of instructions for how to go about preparing this type of template. In previous years, I would have provided the instructions for them but now see merit in having them prepare their own set of instructions. Hopefully this activity will reinforce the steps and provide a reference for them in the future. The following morning, I showed a couple of short YouTube videos about Excel in the hope that this would cover the basics of Excel for those who hadn’t seen or used the program, and also remind students to access the various resources when they needed some assistance. I felt that some of the students who had used Excel before were a bit bored by this, but it didn’t take up much time and I felt that it was a necessary introduction, especially since we were switching gears from Word into Excel. In addition to the Excel videos, we reviewed the key characteristics of proper spreadsheet design as a large group.

As I began to create the problem for this part of the course curriculum, I consulted with a colleague to find out what culinary knowledge the students has previously been exposed to in his course. I decided that a food costing problem might be appropriate for the Excel skills that I wanted the students to learn and because they were working with soups, he suggested a food costing exercise for a soup. Out of those discussions, the Food Costing problem was formed.

At this point in time, I stopped talking about the PBL process of ideas, known facts, learning issues, action plan, and evaluation to students. I wasn’t sure if the students needed that framework because they didn’t seem to respond to these ideas during the last problem solving session. Even though I think that they progressed through the stages in a natural way, I decided to structure the assignment so that they had to work through those stages without realizing it. At that point, I asked the students to form into groups of four.
I was having a hard time trying to make good groups. So, I let the student choose their own groups. It was interesting – some were as I expected and some were not. Not all students were there, so it will be interesting to see how the remainder of the groups form. (C. Bootsman, October 6, 2010)

Once groups were formed, I emailed the Food Costing problem to the students (see Assignment 5 in Appendix C) which asked the students with finding a soup recipe to cost out, prepare a sketch of their food costing spreadsheet, and create a spreadsheet to cost out their chosen recipe. This meant that they would determine what information was necessary in order to complete the task and how it should be set up. As groups dispersed and started discussing the problem, I walked around visiting the various groups in an attempt to work on strengthening my facilitation skills. I had made a conscious effort to stop answering questions, responding instead to their questions with questions that would encourage problem solving.

Students again struggled with sketching and planning. This was quite messy. Although there were a couple of moments where I saw the light go on when I asked them a question about their sketch. Most groups didn’t put near enough columns on their sketch! [Student name] said ‘Do we seriously have to sketch this out?’ Their group’s sketch was probably the weakest. (C. Bootsman, October 6, 2010)

Unfortunately, attendance in the course became an issue and caused issues for group members.

[Student name] was at a loss today because his other two group members weren’t there. He has said he is weak in computers and even asked if industry ever just used pen and paper for this! I told him to sketch out what he would have to do with pen and paper, so he did start on that. (C. Bootsman, October 7, 2010)

This student never did submit a file for marking on this particular problem. Perhaps it was because he had never used Excel before and seemed to have a block when it came to putting in the effort to learn how to complete this problem. This student, along with some other students
who were not attending class, caused me to question whether problem-based learning was working for students who have no prior experience with the software. I was not able to find out what had caused particular students to leave the class and consequently not able to include this information in the research.

I was also concerned how the groups were actually functioning as a group. “I don’t know how groups are working because they don’t seem to be talking much... Some groups seem to be getting it done – although I question how much collaboration they are doing” (C. Bootsman, October 7, 2010). And again the next day I wrote, “Still concerned about the amount of discussion that is happening (or not happening!). Groups don’t sit together sometimes. Perhaps I should encourage them to move the laptops to where their group is” (C. Bootsman, October 8, 2010). I wonder whether a simple instruction on my part to indicate that it is alright to pick up their laptop and move to where their group could all sit together would have solved the problem. I assumed that students would work together to help their group members with Excel concepts, based on the instruction I had written into their assignment. To a certain extent, I believe that some groups did share their information. However, it was possible to complete the product portion of the assignment without sharing information. In fact, Jay commented that, “... this project you really could do on your own” (email, October 14, 2010). While the peer evaluation would reveal any one who wasn’t contributing to their group, the product or the file was being evaluated individually. This causes me to question whether this particular assignment was a good fit in the problem-based curriculum; a curriculum which relies heavily on tackling problems as a group.
Week Five

Tired and thirsty
Why did I journey to this foreign land?
Trudging across the desert in search of water
Only to realize it was a mirage
All that effort, and for what?
No water
No satisfaction

Ready to give up
But I plod on
Over the hill to find
A pool of water
It’s small
But invigorating
Enough to carry on

Penned by Colleen Bootsman, January 2011

A couple of spontaneous problems presented themselves at the beginning of the week:

1. A student asked how to use the remote desktop at home so that he could access his network account from home in order to do homework. In response, I showed the students where to access the instructions for that and demonstrated the process for them.

2. The students could no longer access their procedures template because when they saved their template the previous week, they had saved the file into the default templates folder which we later discovered to be on the hard drive. The laptops had been reorganized in the room, so students no longer had the same laptop that they had used last week which meant they no longer had access to the template they had created. Therefore, each student had to open one of their procedures documents that had been created based on their template, strip out the information and resave it as a template on their network account. Although I did walk the students through this process, perhaps if I had felt more skilled in facilitating the problem solving process, I would have had them work in groups to problem solve this issue.
Once we addressed these two situations, the students got together in their groups to continue working on the Food Costing problem. Some groups seemed to work well in a cohesive way, while others did not.

This really isn’t going the way I’d envisioned.... most students aren’t working together – at least not by sharing ideas on how to create something.... Somehow I have to build in checkpoints so that students are forced to teach and learn the concepts to each other because right now I’m not sure if they are. (C. Bootsman, October 12, 2010)

Students continued to express some confusion about the problem and I was seeing them struggle with two specific Excel concepts that were built into the problem. In response, I asked each group to research those two concepts and contribute their findings to the larger group. Still needing reminders about how to be problem-solvers, I felt somewhat repetitive in my advice. “I feel like I’m constantly reminding them to use Help or Google to find answers, or ask other students” (C. Bootsman, October 13, 2010). I felt good about asking the students to do the research but I ended up demonstrating the two concepts, perhaps without adequately connecting my demonstration to the information that the groups had contributed. I need to work on that facilitating skill, as it’s something I’m just not comfortable with or competent in yet.

As part of the marking for this problem, I emailed a link to a survey instrument (see Assignment 5 Peer Evaluation in Appendix C) so that students could evaluate the contributions of their group members. In a previous assignment, I’d distributed the peer evaluation in hard copy form but that made it labour-intensive to prepare the scores and comments so that they were in a format that I could email out to students. Therefore, I thought this online survey might be easier to use, and it was! Not only was it easy for the students to access and use, it
made tabulating the results from my end much less time-consuming than the previous instrument.

One student, the student who seemed to have a block when it came to using Excel, procrastinated doing the assignment on Food Costing. Showing some frustration, he asked why we were doing this assignment in groups. In response, I explained that the groups are designed to help students learn many different concepts required to complete the task which improves not only software skills, but also problem-solving, communication, teamwork, critical thinking, and self-directed learning skills. Afterward, I pondered his question.

This as a bit frustrating for me because it seems he has missed the whole point of the group work and PBL....I left class today feeling like it was all a big mess. They weren’t learning anything and it had all been a waste of time – PBL and computer applications. Is it just me and my inability, lack of planning, etc or would anyone experience this? (C. Bootsman, October 13, 2010)

Leaving class that morning I felt a bit hopeless and so decided to meet with specific students at the end of the day, once they had finished their other course work. In casual conversation, I asked them what they thought of learning in groups. One student surprised me a bit because she said some of her other groups actually shared more information than this one. Another student reported that he’d learned so much from a classmate in this project and that I was right that if I were to demonstrate, nobody would listen. The third student indicated that he didn’t share much, but others did in his group. All of this feedback causes me to wonder if things maybe aren’t as bad as I thought. Maybe some of them really are learning! (C. Bootsman, October 13, 2010). A glimmer of hope - and just when I needed it.

Although I wanted to do more with the Food Costing problem, most of the students had finished the original problem I’d given them and submitted their file for marking. Once I had a
chance to look at their files, I planned to come back to revisit some the flaws I anticipated would be there. Therefore, to finish off the week, I opted to change things up a bit. As I looked through the course outline to see what material we had not yet covered, I found a common thread that connected web research and appropriate use of information or files from the web. This topic was critical to much of the work that students had already been doing and should have been covered much earlier in the course! It was apparent to me after marking the Menu assignments that some students certainly had the skills to copy and paste information or save various graphics files, but they were unaware of issues relating to copyright, plagiarism, and issues of reliable websites. In the past I would have lectured or provided a demonstration to cover this topic, but my attempt at incorporating PBL curriculum dictated that I approach the topic differently. Therefore, I decided to have students complete the research and submit their answers in a Word document (see Assignment 6 in Appendix C). As I structured the assignment, I was concerned that students were frustrated with the constant group work and I wanted to give them some flexibility in how they approached this assignment. Therefore:

I gave them the assignment and said they could work with others or individually, whatever they preferred. It was really amazing to see them working quite individually. Very little talking during class on Friday! Why is that?....The silence in the room today nearly killed me! (C. Bootsman, October 14 and 15, 2010)

Although the marking guide (see Assignment 6 in Appendix C) I used reflected a traditional curriculum, I felt it was appropriate for this type of product-focused assignment.

Week Six

Does it measure up
to Barrows’ standards?
To anyone’s standards?
Is it authentic PBL?
I’m still not sure
But the end is near
and I’m happy.
I’ve finally found something that works
Something broader
Something deeper
Something better
than what had been before
It’s not perfect, and it may never be
But it’s better
And better is good.

Penned by Colleen Bootsman, January 2011

I began the last full week of classes by handing back each student’s marking guide for the Food Costing problem. I reviewed a few common errors that I’d discovered while marking and then I carried on with some additional Excel concepts related to the Food Costing problem. For a number of different reasons, I decided not to frame the learning as a PBL exercise. Time was becoming a factor and a PBL exercise would have taken longer than I wanted to allocate to this topic. In addition, I didn’t know if students had enough background or understanding in Excel to research and solve this advanced problem. Given the fact that I knew of other ways to teach the material, I changed the approach by posing two questions and asking them to discuss the problems as a large group:

1. Are there any issues that you can think of that would cause the method we used to prepare food cost worksheets problematic?

2. How could we create a worksheet to address the issues identified above?

Students immediately identified changing prices as a critical flaw in our food costing worksheets. Any time the price of a particular ingredient changed, they would need to reflect that price change in every food costing worksheet that contained that item. This could be done manually, but it would be a labour-intensive process. Was there another way? Some students knew that it was possible to link worksheets and they suggested that. After a quick
demonstration, students practiced linking two worksheets together that contained inventory values and corresponding prices with their food costing worksheet. At that point, another issue emerged. What happens when you add items into your inventory sheet? This would surely be a reality in industry. After some experimentation, students found that changing an inventory listing created havoc in their food costing worksheet. We needed to find a solution. When I asked if anyone had an idea for how to deal with the situation, no one responded. I then made the suggestion to name the cells associated with the prices of each item. Again, after a quick demonstration, students tried it for themselves and found that it solved the dilemma. For the rest of the class, students worked to name the appropriate cells on their inventory worksheet, link them to their food costing worksheet, and submit their file for marking. Although I was certainly in control during this class, students had lots of time for input, experimentation, and discovery. They truly seemed engaged in the process. From my perspective, it was a great class.

I think the student were impressed. Wow, that makes it sound all about me. But I have to say that with PBL I don’t think you earn their respect as quickly or easily because they don’t see you dazzling them with your content knowledge or skills. (C. Bootsman, October 18, 2010).

Was this PBL? No. But it felt “comfortable, I have to say. I felt good about it – not because I was in charge, but I think because it was a chance to show them some ‘impressive’ stuff” (C. Bootsman, October 18, 2010). Did I do too much for them? I don’t know. But I didn’t think that students would be able to get to this point through research and discussion on their own. After we had finished, I asked the class if they thought they would have been able to come to this solution on their own and one student replied that he didn’t believe he would have. The other students didn’t respond, but I got the impression that they agreed with their classmate.
A new day, a new ill-structured problem; the last ill-structured problem of the course! “Embarking on a new problem always makes me nervous” (C. Bootsman, October 19, 2010). I am always uncertain how the problem will be received. Will it be engaging? Will it work out? I distributed the problem (see Assignment 8 in Appendix C), showing the students the file they would start with and a hard copy example of the booklet they were expected to produce. While it didn’t need to be identical, I wanted the students to see what they were aiming for. Students would be preparing a booklet that listed the technical culinary skills that they would develop throughout the two years of the Culinary Arts program. The idea was that they could carry their booklet with them and as they mastered each skill, they could have their instructor check off that skill, initial and date it in the student’s booklet. Students would then be able to easily track the skills they had learned and it would encourage them to take responsibility for their own learning. At that point, I should have had students prepare the listing of skills they would need to transform that original file into the completed document. However, once again I did that for them. At the time, I didn’t think anything of it, but I recognize now that I was enabling their dependence on me rather than encouraging their critical thinking and problem solving skills. This was a recurring lesson throughout this project and one that I have aptly noted in moving forward.

Carrying on with the assignment, I threw all of the skills in a hat and asked students to pair up. Each then chose two topics from the hat. They were required to research their chosen topic(s), prepare notes or instructions and place them in the shared directory for everyone to access, and then teach the class about their topic in a manner that was useful, complete, and clear. The downside of this arrangement was that in some cases the responsibility for two topics in a team of two students became individuals responsible for one topic. Therefore, some teams lost the synergy that can occur when people work together. Students spent the
remainder of the class researching their topics as I floated around to see how they were doing.

“Students for the first time seemed to be engaged in what they were doing. Maybe having to present it to the class does that?” (C. Bootsman, October 19, 2010). Perhaps I did a better job by questioning students about their topics and causing them to think, rather than directly answering their questions or showing them where to find the answers. “I think the students are getting there in terms of developing skills to make them more self-sufficient in learning new software. I feel good about that” (C. Bootsman, October 19, 2010).

The student presentations or teachings were about five minutes long and revealed a range of how useful, complete, and clear they were. At the end of each presentation, I asked the student audience three questions:

1. Was the information useful?
2. Was the information complete?
3. Was the information clear?

By show of hands, the students voted on how well their classmates had presented their topics. I then incorporated this feedback into the marking of the assignment. “That was a nice way to mark – although another time it would be nice to use... software and ‘poll’ the student so they maybe didn’t feel so ‘on the spot’” (C. Bootsman, October 20, 2010). What I struggled with was “how much I should add, clarify, put into context for them” when the student pairs were presenting their information (C. Bootsman, October 20, 2010). On the first day of presentations I did less of this than on the second day, perhaps because I found that the student audience found the presentations on the first day more useful, complete and clear than on the second day.
When students presented today, I think I jumped in more than yesterday – clarified, gave extra information, etc. I don’t know if I should have or not. I guess what started that trend was when I asked after [one of the groups] presented if it was clear and complete I got some very mixed responses from other students. So, I just kind of took over and went through that information again and demo’d again. They said it was clear then; but should I have done that? Or should I have turned it back to [the student group]? (C. Bootsman, October 21, 2010).

When I reflect on that situation now, I do feel that I should have turned it back to the students because they were expected to own their topic and prepare themselves to present useful information and materials. Perhaps by ‘saving’ them from having to further explain their topic, it diminished their role in the classroom and elevated my role, and this certainly wasn’t the message I wanted to send. Therefore, given the opportunity again, I would handle things differently, especially given the fact that I want to establish the classroom as a community of learners, each offering something valuable to the experience.

Knowing that I was nearing the end of this course, I noticed the ball of anxiety disappearing from within. “Today was probably the first day that I didn’t feel nervous before class! I knew students had lots to keep them busy – the rest of the presentations and then they could start on their projects”(Colleen Bootsman, October 21, 2010). As students spent the next couple of days preparing their Skills Booklet, I noticed that students worked quite individually on their file and as usual, they didn’t talk much in the class. This part of the project coincided with another public event that the students were preparing for in their other course work, and so students were somewhat distracted by that event. Attendance continued to be an issue throughout this assignment, most noticeably on the day after the event. Student participants indicated that they were not motivated by this particular assignment, suggesting that they were unclear about why they were completing this booklet and additionally suggesting that they were
distracted by the event. The reality is that in this program, evening events will at times coincide with classes. One way to resolve this issue, or improve the situation was to present ill-structured problems that tie into the event. For those students who did come to class, I noticed a common difficulty:

Some students had trouble with page numbering. They just seemed to still want to just ask me – although I had an interesting interaction with [an anonymous student] who had trouble with his numbering. I was working with him and [another anonymous student] came over and showed him what to do. Although a bit of a temporary fix, or a fix that doesn’t really solve the problem, it did work. I got out of the way and let them work on it together. (C. Bootsman, October 22, 2010)

It certainly is a process to break students of the habit of asking the ‘teacher’ and the ‘teacher’ answering. But, when you do, amazing things do happen. As the community of learners and learning starts to take shape, students begin to help themselves and each other; that is a lifelong skill that I think is worthy of facilitating.

[An anonymous student] was interesting today. He had hardly started on his booklet. He wanted me to help him but I didn’t enable this behaviour (like I normally do). I said “OK, what do you remember from [student name]’s presentation?” “Nothing,” he replied. So, I responded “OK, what does the resource that [student name] put in our Resources folder say?”. We looked at it together and [the anonymous student] followed the steps. Yay! He can do it, he just would rather I tell him. I’m not sure that he’s made progress on self-directed learning... (C. Bootsman, October 25, 2010)

Perhaps this student hadn’t become a self-directed learner but I did take steps toward becoming a better facilitator. Finally! They were baby steps, but steps nonetheless, and in the right direction! At this point in the course, I also realized that what I had done during this last ill-structured problem was the framework I should have created for the very first ill-structured problem. “I wish now that I’d used this model for the first real [ill-structured] problem in this
course. I think it would have taught the students what they needed to do when I didn’t lead them through a problem” (C. Bootsman, October 19, 2010). Structuring a few early ill-structured problems using this type of format would have better equipped students with the skills to work through the PBL process. Later in the course, I could have then presented some ill-structured problems that required the student groups to work through the PBL process on their own. In that respect, students would have understood the process and expectations of the process more readily. I now realize that I approached the course almost entirely backward!

As we approached the last day of class, I knew there were a few objectives that remained outstanding. Therefore, at the beginning of that last day of class, we took a look at the course outline and as a group identified objectives that hadn’t been covered. I wish that I had broken the class into groups and had them identify those objectives because it felt very authoritative on my part. Once identified, we completed a few small exercises as a large group. Although this approach was a throwback to my previous teaching style, but having only one class day left I felt that my options were limited.

As I began to tally the course marks, I became concerned about the number of students who had zeros recorded for various assignments. Therefore, “I gave students the opportunity to re-submit any exercise they got a zero in. I received one assignment” (C. Bootsman, October 26, 2010). This is indicative of the overall dedication of this particular group of students. However, as I reflect on the situation now, I’m somewhat relieved that those students didn’t accept my offer. If they had, it would have negated all of the process skills that the other students had worked to develop. It would have emphasized the importance of the product or file at the expense of the process or employability skills component of the course.
Post Course

Letting go of the fear of failing.
Letting go of the fear of looking silly, or stupid, or insignificant is something we all have to learn.

Being confident in yourself and myself.
In our instinct, our skills, and our abilities, and believing that the process will result in something better for all of us.

Penned by Colleen Bootsman, January 2011

In answer to the second research question, “What can be learned from this lived experience?” I believe there is much to be gleaned from our collective experiences in this course. Based on both my experience and the feedback from students, I learned that problem-based learning can be used in computer applications courses, and with proper planning and facilitation, I believe it can be a very effective learning model. All student participants agreed that the problem-based learning model was a worthwhile strategy for structuring the curriculum. It allowed students with varying computer skills to work together, to apply and share their knowledge and skills, to learn new skills together, and to problem-solve a situation that applied to their industry. They suggested that the PBL model was a more interesting and challenging way to learn what might be an otherwise mundane course (personal communication, November 9, 2010). It was an especially useful model to use when students had no textbook or learning resource for the course.
In addition, I believe there were strategies that facilitated a successful implementation; strategies which I didn’t necessarily incorporate intuitively but rather learned as I went along. Specifically, this learning can be categorized into three different areas:

1. The PBL components and process
2. Facilitation skills and confidence
3. Group work and communication

**The PBL Components and Process**

I learned very early in this research project that ill-structured problems are critical to the quality of learning in a PBL curriculum. Barrett (2005b) concurs:

One of the key roles for academics in PBL is writing high quality problems. Research has shown that the quality of the problems affects the interest in the subject matter, the time spent in independent study and the functioning of the tutorial group (Schmidt and Moust 2000). Problem-writing and tutor facilitation are two important roles for academics in PBL curricula. (p. 60)

Some of my ill-structured problems were certainly better than others. The first true PBL exercise, the Menu problem, turned out to be too large and unstructured for the students’ first experience with this kind of learning. Although I appreciated the creativity it allowed and how groups really thrived in that situation, it was problematic for two reasons. First, it was difficult to tell who had done the work in the combined file and second, the variability of design made it difficult to mark, although having the students check off what components they had completed made them process what they had done.

Another time, I would structure questions or activities to lead groups through their first PBL cycle rather than talk about the components of the PBL cycle and toss them into it. Perhaps the way I structured the later problems, having the students work in teams to research and then
share the information, would have worked well to introduce the students to the PBL process. Next time, I would start with this kind of model to help students learn how to share their resources. The Menu problem may also have been more successful near the end of the course when students were more accustomed to the PBL process and the expectations of a PBL curriculum. Mauffette, Kandlibinder and Soucisse (2004 as cited in Barrett (2005a)) suggest that “variety and challenge are very important in designing PBL problems” (p. 17). Restructuring the problems to offer more guidance early in the course and then working toward more open and advanced problems in the latter stages of the course would in part address this suggestion.

In advance of presenting each problem to the students, they received an emailed copy of the assignment. This accomplished two goals: it eliminated unnecessary printing in that students could use either the file electronically or print them, and it also allowed students to practice using email to receive messages and files. Joe liked assignments that were distributed via email and then reviewed with the class by highlighting key points and summarizing the assignment, rather than reading the assignment word-for-word (personal communication, November 9, 2010). While it seemed that emailing the problems was useful, I wondered if the students would have appreciated more variation in terms of the format of the ill-structured problem. Barrett (2005a) lists a variety of creative formats that can be used to present the problems, including video clips, e-mails, photographs, audio-recordings, letters, physical objects, diagrams, newspaper articles, requests, and others (p. 17).

At the beginning of the course, I thought about seeking input from chefs who work in the industry to have them provide problems they encounter. Although I didn’t follow through with this idea, I do think it would have been worthwhile in that it may have added some
credibility. Students may have viewed the problem as having more relevance if it had come from a working chef. This is certainly an area that requires further exploration.

I found it challenging to find problems for first year, first term students to work through. To address this issue, I would need to collaborate with other faculty in the program and with those in industry in order to develop appropriate and challenging problems. Comments from students indicated that they found some assignments better than others, relating primarily to whether they saw the assignment as relevant or not. Kira reported this as an issue and helped me to understand the need to incorporate problems that are relevant and realistic for students. Moving forward, I believe that it is important to work with the other program instructors and people in industry to create integrated, useful problems; perhaps even problems that link into events that students encounter in other course work. Hmelo-Silver (2004) offers that “[g]ood problems often require multidisciplinary solutions...Multidisciplinary problems should help build extensive and flexible knowledge because information is not learned in isolation” (p. 244).

While I did try to create problems that reflected documents or files the students would need to create in industry, their feedback indicated that I was not always successful. In fact, they indicated that the problems they enjoyed least were the ones they couldn’t easily see the reason for creating, such as the Skills Booklet.

Aside from content, a recurring thought I had throughout this course was whether or not the idea of an ill-structured problem is the same in a computer applications course as it is in other subject areas (C. Bootsman, October 19, 2010). I thought I had structured the first problem, the Menu problem, according to all the guiding principles I had read and learned about. In reality, it did not work as well as I had hoped it would. Was it the problem? Was it how I implemented it? Or are ill-structured problems just different depending on the content
area? Based on what I had learned from the previous problem, I proceeded by restructuring each new problem in a different way. Barrett (2005a) seems to support this, suggesting:

When beginning a PBL initiative it is important to have a starting point definition of PBL. However it would be a contradiction in terms not to treat PBL itself as a problem (Barrett, 2001) and I would encourage people to redefine what PBL means in their specific contexts. (Barrett, 2005a, p. 15).

I struggled with covering the required software skills within the ill-structured problem without being overly-directive. Perhaps this struggle stemmed from the fact that I was assessing the product or outcome of the students’ PBL work, rather than using PBL for the sole purpose of learning. “The problem does not test skills, but assists in the development of the skills themselves” (Uden & Beaumont, 2006, p. 33-34). I believe that with some adjustment, including a varied assessment strategy that incorporates self, peer, and instructor evaluation, any problem can serve both as an impetus for learning and a way to assess what was learned.

I have also questioned how important it is to monitor students’ progress throughout the PBL process in terms of their understanding of the process and the distinct components of the process. Quite honestly, it didn’t seem to matter to them if they knew the components of the process or not.

The other thing I know about PBL in computer applications courses is that the movement between ideas – known facts – learning issues – action plan is very different than what we did in the professional development PBL class that I took. I think more so, it is a constant shuffle around the ideas/known facts/learning issues/action plan wheel. (C. Bootsman, October 19, 2010)

Perhaps this relates back to the marking rubric that emphasized product over process. When I asked the student participants about whether their various groups followed the PBL process, all three students suggested that their groups loosely followed the process, but perhaps were not keenly aware of the process or what component of the process they were in at any
particular time. While this wasn’t a surprise, it was interesting to hear. All of the research and training I had done focused on those particular PBL components, and yet my students didn’t seem acutely aware of them. I felt this ambivalence fairly early in the course; students were not concerned with the PBL process but rather getting the work done. Despite this, I thought that they did follow the PBL process loosely and the student participants confirmed that. While I didn’t recognize it at the time, I believe it is important for students to understand the stages of the PBL cycle. One of the goals of a PBL curriculum is that students will be better equipped problem-solvers if they are able to identify the process.

Something that I was very concerned about was whether or not students actually shared what they had researched with their group members, even when I provided time for that sharing. Students reported that not all group members shared information unless they were pursued by group members to do so (personal communication, November 9, 2010). Therefore, I will need to ensure that I build in required elements that ensure students share information, especially early in the course so that this element becomes a habit for students. Additionally, consequences for not sharing must be enforced.

As I consider the evaluation phase of the PBL process, I recognize that I focused more strongly on facilitator evaluation of the product, to the detriment of self and peer evaluation of the process. Early in the course, I incorporated some self-reflection, but I failed to continue it. Letting my insecurities get the best of me, I was fearful that students would not see value in it. Another time I must ensure that I build in more opportunities for reflection. Reflection is critical to the PBL process. Hmelo-Silver (2004) posits:

Reflection helps students (a) relate their new knowledge to their prior understanding, (b) mindfully abstract knowledge, and (c) understand how their learning and problem-solving strategies might be reapplied. PBL incorporates
reflection several times throughout the tutorial process and when completing a problem. (p. 247)

In this particular course, an electronic journaling component would fit nicely into the curriculum. Peer evaluations were incorporated into two of the assignments. Based on student feedback however, I would provide opportunities to increase this important feedback. Joe commented that the instructor can’t know everything that is happening in the groups and therefore peer evaluation is necessary (personal communication, November 9, 2010). All three students indicated that they didn’t find the peer evaluation intrusive and could have done more of it. Additional peer evaluations would reinforce the process or employability skills side of the PBL equation as well.

**Facilitation Skills and Confidence**

Along with well-designed problems, I believe that strong facilitator skills are also critical to implementing a successful PBL curriculum.

The facilitator role is critical to making PBL function well. ...In PBL, the teacher/facilitator is an expert learner, able to model good strategies for learning and thinking, rather than an expert in the content itself. The facilitator scaffolds student learning through modeling and coaching, primarily through the use of questioning strategies (Hmelo-Silver and Barrows, 2003). (Hmelo-Silver, 2004, p. 245).

Although I may not instinctively be a strong facilitator, I knew what the goal was and used what skills and attributes I had to work toward accomplishing that goal. I knew that a good PBL facilitator redirects student questions back to the student group instead of volunteering the solution. This was difficult for me because I would normally act as a trouble-shooter for students in software classes. In fact, it took most of the course for me to adapt to the facilitatory role as opposed to solving the students’ problems for them.
Additionally, issues of self-confidence factored into my ability to facilitate learning. Knowing the content seemed to validate me but when I couldn’t show them that I knew the answer, I felt that some students viewed me as incompetent. “I feel I’m getting better at giving feedback (marks) but I’m still not good at facilitating PBL – I still want to give them the answers – partly because I still think that is my job and partly because it validates me” (C. Bootsman, October 19, 2010). However, there were times when I was proud of my ability to turn a student’s question around and ask them what they thought. Or when responding to a student’s query about how to complete a particular task, I was able to ask the student where he/she thought he/she could find the answer to his/her own question. Even though I started off in the course answering their questions and enabling their dependence on me, I was able to move toward redirecting their questions, thereby facilitating an improvement in student problem-solving skills and encouraging self-directed learning habits.

I also realize that I walked into the PBL classroom each day with enthusiasm and a sincere interest in helping students learn to learn; two qualities that various PBL proponents consider to be fundamental for a successful PBL facilitator or tutor (Barrett, 2005a; Uden & Beaumont, 2006). With enthusiasm and a love of learning, I am confident that I can continue to improve my facilitatory skills.

Group Work and Communication

A predominant issue in the classroom was the variation in group functionality. Group dysfunction came primarily from two sources; first, from members with questionable commitment and second, from communication issues among group members. I believe that issues of commitment can partially be attributed to emotional intelligence that includes both self-awareness and social awareness. My PBL training included a component on emotional
intelligence that caused me to feel uncomfortable and although I was personally curious about the topic, I didn’t see myself adjusting the curriculum to include this particular topic. However, throughout the research project, I realized that emotional intelligence did play a significant role in the classroom, whether I wanted it to or not.

Students subconsciously self-selected into two main groups. One group included students who were always late or absent. Another group consisted of students who were always there, chatting before class, getting themselves organized, catching up on homework, or going out for a cigarette together. Students who felt part of the community were easy to spot, as were the outsiders. The outsiders were usually late, absent or non-contributors. Perhaps these students became outsiders because they lacked emotional intelligence, an intelligence that I didn’t specifically include as content in my course but a topic that naturally became important.

I’m realizing more and more that Emotional Intelligence is such a huge component of PBL. I didn’t include any topics about EI, but I really see the difference between the good students and the poor student as being primarily EI issues” (C. Bootsman, October 19, 2010).

Perhaps some discussion or exercises that encourage student awareness of emotional intelligence and an intention to establish and implement a set of ground rules for the PBL classroom, similar to those suggested by Allen, Duch, and Groh (2001) would have been helpful. Allen et al., (2001) suggest establishing expectations that include coming to class on time and being prepared, notifying group members if you are going to be late or absent, and lastly, respecting the views, values, and ideas of group members (p. 62 & 63).

It was interesting to me how there was a silence and unwillingness to physically move within the class when I asked students to meet in groups. Even toward the end of the six weeks,
my journal entry stated: “The silence in the room today nearly killed me!” (C. Bootsman, October 15, 2010). Some communication issues may have originated from the fact that the students didn’t know one another and were somewhat shy. However, as the course continued, I still found students very reserved and not keen to talk with others in their group. The three students who participated in the research experienced similar difficulties associated with communication issues within their groups as well. They explained how it was common for specific members of the group to rely on email in order to communicate with other group members. Joe thought that was because the computers were right there and it was just easier to send an email rather than get up and talk to someone (personal communication, November 9, 2010). Kira wondered if students relied on email simply because they were shy and didn’t know each other very well (personal communication, November 9, 2010). All three students suggested that the apparent unwillingness of some students to move around the classroom and sit with their group members could be attributed to not feeling comfortable with each other (personal communication, November 9, 2010). Two students in particular struggled with in-person communication but with different results. One student left the program after three weeks, while the other student remained in the program and made significant progress in his social skills and his ability to relate to his classmates.

To address the communication and group interaction issues, there are a number of strategies that can be implemented. Students suggested working with other program instructors to ensure that within the first week of the program, students would participate in many ice breaker exercises and other group-based project work (personal communication, November 9, 2010). This is critical to their success not only in a PBL curriculum, but for overall success in their program. By reinforcing the early group work with more team assignments, it sends a clear message to students that group work is a significant component of the program.
and they need to be strong group members in order to be successful. Additionally, incorporating an awareness of emotional intelligence and establishing ground rules for the classroom with input from students is important for reinforcing appropriate behaviours within work groups. Ensuring each group member has a specific role in the group would also assist groups in communicating and working together. Allen, Duch, and Groh (2001) suggest roles such as leader, recorder, reporter, and accuracy coach (p. 63), although these could be adjusted depending on the group size and the requirements of the problem. Finally, revisiting the physical layout of the classroom could potentially facilitate more effective group interaction. To a certain extent, the classroom setup did impede group work. However, toward the end of the course, I did encourage students to pick up their laptops and move to where their group was working. Some students eventually did that, while others still seemed to be uncomfortable moving from their spot in the room.

Throughout my teaching career I have employed group work with varying success. Generally, it was not a component of the computer applications courses. I tended to avoid incorporating group work in my classes because issues sometimes come with group work and so I felt it was just easier to do individual assignments with individual responsibility. In other words, I was both sceptical and scared to try the group structure. Surprisingly, all three student participants indicated that they liked that aspect of the course and agreed that they were glad to have had the opportunity to work in groups because it helped them meet other people in the class and get to know them a bit better. It forced them to talk and it forced them to meet people that they never may have otherwise talked to (personal communication, November 9, 2010). This supports Norman & Schmidt’s (1992) finding that students report learning in a PBL format more stimulating than traditional learning formats.
Group work is a crucial element of PBL curriculum and I believe it significantly aids in building a sense of community in the classroom. This type of learning environment made the course work become more than just about individual students, their files, and the software they use to create those files. It became more about a community of learning and creating together. This sense of community is worthy of fostering.

**Conclusion**

For me, the experience of implementing a problem-based learning curriculum was a process of designing a problem and associated marking rubric, trying it with a class, and then reflecting on what did and did not work. The process was organic because I created the problems as we went along and as I learned from the students’ responses to previous problems. This organic process required a certain amount of comfort with designing the course on the fly as well as a willingness to take risks as a facilitator. This was a class in which I was truly present. I was always thinking about what was working and what wasn’t working; I was always trying to figure out how to make it better. At times, this method of creating on the fly was problematic: I didn’t prepare as well as I should have, or I didn’t think things through well enough. Certainly there were many things that I tried that were flawed, and at times I was pulled back into my old habits of ‘teaching’. It would have been so much easier to do what I’d always done; but there would have been no reward in that, no opportunity to become a better facilitator, and no opportunity for improved learning. White (2001) aptly summarizes what I struggle to succinctly express:

For anyone getting started with PBL, the learning curve is steep. It may seem a bit overwhelming to have to deal with issues of group dynamics, educational psychology, and student learning skills in addition to the subject matter. However, practitioners need not be experts and one need not implement
everything at once. The change in perspective that accompanies the adoption of a few PBL exercises in one course usually leads to more and to the transformation of other courses. It also leads to a revitalized interest in education. Once started, it is easy to keep going. (White, 2001, p. 77)

Despite my anxiety, this was a truly meaningful experience to introduce more meaningful learning. What I have gained from the experience has already changed the way in which I will now approach other courses.

I recall coming to the realization during the course that PBL didn’t really mean changing my assignments necessarily, but rather it changed the way I facilitated the course and the way students approached the assignments. Specifically, it changed where the problem was presented, how the learning occurred, and what counted as learning; learning that grew from simply content-specific skills to more encompassing employability skills. I sometimes question whether my curriculum represented true, or authentic PBL (aPBL) as outlined by Barrows and Wee Keng Neo (2007). Whether it was or wasn’t, I do recognize that it worked. Problem-based learning really did reflect a paradigm shift from teaching to learning as Barrett (2005b) suggests.

While I have many changes and improvements to make, both in terms of the structure of the curriculum and my facilitation skills, I am confident that PBL is a learning method that is worthy of the effort. The students agree. I recall feeling surprised after sitting down with the student participants at the end of the course. The student comments were much more positive than I expected and it became evident that this was much more than just a software class; it was a class that helped to build a sense of community in the classroom.

Our individual stories are varied, but the collective experience is one of commonality. We shared a common experience of victories and frustrations as we learned about ourselves and each other, and together we developed a variety of skills. The students developed not only
computer skills, but also skills in problem solving, communication, working in a group, and directing their own learning. I developed skills in PBL curriculum design and facilitation. I share our collective story with the hope that others recognize as we have, the value in problem-based learning.
References


Appendix A: Student Data

Notes from Focus Group Discussion
I reviewed the projects we did in the course (the 3 big projects: menu, food costing, and skills booklet) and then I also mentioned the little 2-day projects (computer skills of a chef, finding online resources, procedures template, linking worksheets, web resources).

Tell me about your experience in the class (ie What did you like and not like).

- Joe: I liked the big projects, I’m not a fan of the little ones because I forgot about them (Joe almost forgot to complete the linking exercise).
- Kira: I liked the procedures assignment the best because it seemed the most useful. I didn’t like the Food Costing assignment – it didn’t seem as practical because the food costs (prices) will change. **Kira wasn’t in class the day we did the linking assignment to address this issue.
- Jay: I really liked working in teams because it forced us to talk – if it weren’t for that we still wouldn’t be talking!

Overall comment from all 3 was that they were glad that they had the opportunity to work in groups because it helped them meet other people in the class and get to know them a bit better. It forced them to talk and it forced them to meet people that they never may have otherwise talked to.

Overall comment from all 3 was that they didn’t like some group members because they didn’t contribute to the team. For example, Joe mentioned that he worked in a group for a 2 day project and he ended up doing all the research and putting it together because the rest of his group just talked about their weekend.

All 3 mentioned that some of the resources created by others were hard to follow.

** All 3 mentioned that they finally spent a day doing ice breakers in about week 2 with [an anonymous instructor]. They felt more connected to their classmates after that. This needs to be done earlier!!

Peer evaluation: all three said that they didn’t mind doing the peer evaluations and felt it was necessary for me to know what was happening in the groups. They said that a couple more opportunities for peer evaluation would be OK.

Did we follow the PBL process?
All 3 said that their groups loosely followed the PBL process, maybe not exactly or distinctly, but subconsciously they basically did all those steps. *I think this is interesting because Greg & Gerry focus a lot on going through the steps, but my students weren’t that interested in knowing the process. I felt this fairly early in the process that they could care less about the PBL process (ideas, learning issues, research, action plan), but yet I think they did follow it loosely, as
the students indicated. I did ask about whether students shared what they researched with their group members, because I was uncertain about that — I didn’t see it really formally anyway. Students reported that not all group members shared their information unless they were pursued by group members to do so. For example, Jay commented that [anonymous student] would email information instead of just coming in person to tell them something.

I also asked about the willingness (or unwillingness) of students to move around the classroom and sit with group members and Jay, Kira, or Joe attributed that to just not feeling comfortable with each other. Students mentioned that their groups never moved out of the classroom to work on things or discuss things, although some groups did.

I asked students why they thought students overused email (vs just talking to each other). Joe said he thought that computers were right there and that’s why. Kira said that she attributed it to just being shy and not knowing each other.

Joe mentioned that some people overused email to communicate with other members. Sometimes it’s useful to communicate by email, especially when they embed a link in the email or the email message contains steps on how to do something. But, some students certainly overused it. Jay went on to say though that “[Student name]’s getting better. I was teasing him the other day and he told me to shut up! I told him I was proud of him for that”.

**How could we resolve not sharing resources (ie student research something but don’t share it with their team members)?**

- Jay: We need to have a project that you can’t use computers for so that you are forced to talk to group members. Like tell us to close our computers and talk!!
- Kira: Get people to do ice breakers to that they are comfortable talking with each other. (Then we talked about the fact that students didn’t do any ice breakers until the 2nd week of classes with [an anonymous instructor]. We need to do that earlier).

Did you learn software skills using PBL?

- Kira: group work was good for me.
- Joe: I like being able to bounce ideas off other people. I liked how you presented the problems to us, some people didn’t though. You didn’t tell us exactly how it would look or what to do exactly. This model of not telling us exactly what to do fit well with the program because [an anonymous instructor] doesn’t tell us exactly what to do. Everyone talked about the fact that [an anonymous instructor] tells them to make a specific meat, a veg, and a starch, so everyone gets that same instruction, but it’s interesting how everyone interprets it or creates it differently. They also mentioned that they liked how I emailed the assignment and then didn’t read it to them, but would kind of highlight it/paraphrase it.
- Jay: I liked being able to ask someone else in my group if I didn’t know how to do something, or I missed a day. I found this way of learning was more challenging.
Negative Side Effects?

- Kira: It very much depends on your group as to your experience.
- Joe: being in a group slowed us down. Sometimes it got a bit draggy.
- Jay: I liked having to explain it (teach) it to other people because it forced us to know it. But at the same time it was frustrating when other people didn't present their topic well (referring to the last assignment Skills Booklet).

Positive Side Effects?

- Kira: I wouldn't say I improved on those 5 things (self-directed learning, problem solving, critical thinking, teamwork, intrinsic motivation), maybe if I’d never used the computer before.
- Jay: Skills Booklet – I was so unmotivated by it, but I don’t know why. The group then had a conversation about the timing of it (coinciding with the Dessert Festival) and commented that their minds were elsewhere. Therefore, watch the timing of projects and avoid events.
- Joe: I didn’t understand why I was doing the Skills Booklet project. Jay agreed and then said when it was done it was kind of cool, but remembered feeling unmotivated. *I see how this all links into creating a problem that is relevant for the students. Maybe this one wasn’t as relevant as I’d hoped.

I asked students about the impact/effect of not putting timelines on assignments and just playing it by ear. There was some discussion about this and no definitive outcome. Some said they like the looseness of it and just being able to handle it as we went, but then they also commented that having a timeline might address Joe’s earlier point about projects sometimes dragging on.

I also asked about the time frame for the course – thinking that perhaps a 2 hour block would be better and all 3 said that they preferred one hour because they just want to get into the kitchen. They overwhelming advised to leave as a one hour class.

**Jay**

**Computer Skills email, September 15, 2010**

My computer skills I am familiar with word, excel, publisher, access, and power point.

I took beginner computer classes with these programs to I am very familiar with all of them. I would have complex assignments with them all.

I also have use three different recording computer programs what can be very complicated and a gong show, there is a lot of responsibility with this to if you are working with other peoples music.
I have a simple background with MYOB accounting, just helping out with accounting in the family business.

I would say I have intermediate computer skills.

**Multiple Intelligences Preferences September 15, 2010**

My top two preferences are Musical and Word smart. I didn’t learn much about my top preferences I was aware of that. But my lower scores did surprise me my lowest score was Interpersonal, I thought I was pretty people smart, I’m not too sure if this test was right of that! I found it interesting to compare and see how everyone learns differently.

**September 24, 2010**

1. I really enjoyed the first two weeks of class, I think it is a fun class! I found that working in groups right off the bat really helped to break the ice with everyone!
2. I enjoy PBL because you really have to know what you are doing you can’t fake your way through it, you really learn.
3. I find it challenging at times but research clears everything up!
4. I love it! Lots of fun!

Thanks!

**October 4, 2010**

My first group this week was really great, we shared information really well and I think we had good communication, my second group in the week was awful, I had to do all the research and put the document together and then we had to do revisions and I had to them all. That group was not helpful at all.

I found it very easy to figure out what needed to be done this past week!

I learned lots about templates I didn’t really know much about them so it was helpful!

Thanks!

**Food Costing Reflection October 14, 2010**

1. Things went well in my group we worked well together. I think we stayed on task most of the time! We also understood the concept of the assignment and got it done properly and on time.
2. I really liked how the assignment was easy and we got to be really creative with designing everything.
3. I really liked this assignment!
4. I think I got the point, I took lots of computer classes in high school.

5. A clear statement of what the assignment is and what you want the outcome to be, it’s not always clear but sometimes I like that challenge.

6. I just need a comfy chair and I got that, working in groups can be frustrating because people don’t always work well together so when you get a lazy group member it’s really annoying.

Joe

Computer Skills Email, September 15, 2010

My computer skills:

- What software programs have you used
  - Microsoft Office
    - Word to type out assignments/ essays
    - Publisher to make brochures and menus/ posters
    - Excel for applied math in high school so like formatting and putting complex formulas in
  - I also have a Mac computer so I have the same software as Microsoft office but Word is pages, excel is Numbers and publisher...well I can't remember what that one is called
  - I also know how to use Internet Explorer and Safari and I have mostly used these to look up information on the internet.
- Overall I would say that I am an intermediate with my computer skills.

Multiple Intelligences Preferences September 15, 2010

Here are my top two preferences:

- Social
- Intrapersonal

I learned from this experience different things about myself, which I always find interesting. And my top preferences about who I am.

Request for your Experience – Colleen’s Research Project October 4, 2010

In Friday’s group that I was in I did all the work, I researched the information, I typed all the information. I know that is a lot of I’s but my group didn’t really make it possible to put a we in it! But overall my experiences in my groups have been good.

I find it farely easy to look up the information that we need for the assignments.
Through the assignments I have learned many things about windows 7 since I have a mac computer. Also, some assignments have helped me learn new things about word, for example watermark, content controls, etc.

**Food Costing Reflection October 14, 2010**

1. Things in my group went well when we worked together. We all split up the tasks that were a assigned and everyone brought there stuff to the table.
2. The things I liked about the assignment was that we learnt different ways to make the food costing spreadsheet. And that we could make our own spreadsheet and make it our own not as on group sheet.
3. I don’t think there was anything that I didn’t like about the assignment.
4. One concept that I am still unsure about is the conditional formatting with the high and low values. Cuz I could only figure out the bars one.
5. I don’t think there is anything that I need from you at the moment.
6. Something that I need from you to learn is maybe some clear instruction on assignments. I think that I am getting that, at first it is a little fuzzy but once I get into the assignment I get what’s going on.

**Kira**

**Computer Skills Email September 15, 2010**

What software programs I have used:

- Excel: a basic understanding of spreadsheets, used for math and physics courses, inserting formulas, recording data
- Word: took a basic computer course on word in high school, used to format MLA papers, make tables
- PowerPoint: little knowledge, I can make very simplistic presentations

Beginner: I am not good at using computers and avoid their use most of the time, I only use it for school to type papers and do research.

**Multiple Intelligences Preferences, September 15, 2010**

1. Interpersonal
2. Logical/Mathematical

I acknowledge that I like to work in groups and learn from other people rather than text. I like to talk out loud to work out problems. I learned that I will have to try and incorporate this while learning.
Problem-Based Learning: Narrating Our Experiences

September 27, 2010

Mrs. Bootsman, here are the replies to the questions you asked:

1. The first two weeks in class have been great. I have really enjoyed working in groups because it has enabled me to meet and get to know people quickly. It has been informative to me to find help links for the various windows 2007 programs.
2. I have enjoyed the teamwork aspect a lot as well as the freedom it presents.
3. It is sometimes hard to find viable resources to use.
4. So far I have found this way of learning to be a great way to learn because when you have to do the steps yourself you are forced to learn the material and I tend to remember how to do what I learned more easily.

October 4, 2010

Mrs. Bootsman,

Last week’s group menu assignment was fun in the way that we were free to be creative. Although I think that it all depended on the willingness of other group members to make great menus. I had trouble in my group with communication and it was hard to get everyone to participate. Everyone made the menu in their own way and then we had to retype them all for the final product. It was hard to figure out how to make everyone’s document to look identical. We had to figure out how to adjust spacing and I am still uncertain we accomplished that. I learned how to insert and edit photos, changed the shading and make the sizes match up. The menu assignment was good overall, just a little hard to get everyone in the groups to work together. I have found the procedures assignment to be something I would actually use and is a helpful skill to know, I found it more helpful than the menu assignment.

October 14, 2010

Mrs. Bootsman,

On the last assignment I would say my group worked fairly well together. We shared ingredient costs and layout ideas for our spreadsheets. After sharing this information we did not do much work together, as we all knew how to insert formulas and edit our spreadsheets. I liked getting some more practice on excel, I didn’t like how it wasn’t very realistic. I would have liked to look at some actual spreadsheets, maybe the ones [an anonymous instructor] uses or that a restaurant uses. No concepts are still unclear to me at this point, because we went over the two I didn’t understand yesterday. I need real life examples, for example the actual food costing spreadsheets, I don’t feel like I have seen very much of this. I need to be focused and organized in order to learn, most of the time I am able to accomplish this.
Appendix B: Instructor Experiences

September 13, 2010

The first day of PBL. It was odd, I felt out of sorts and worried that I hadn’t gotten off on the right foot. Had I been clear in my instructions? I questioned whether I had brainstormed enough – I really should have had them have another go - or was reviewing what all the groups had come up with enough? I felt like I was hovering but not really helping them. Questions like ‘How are you doing?’ don’t really do the job probably.

September 14, 2010

The groups presented their findings this morning and it was good. They all contributed and worked together. Two groups experienced group member who were late. Discussed 5 goals of PBL and reviewed outline and did multiple intelligences inventory. I’m panicking though because I don’t have tomorrow figured out yet. What will we cover? When I panic I find that I’m drawn back to ‘Well, I can demo some things in Outlook’ rather than figure out something for them to be engaged in. Maybe in groups of 4 they could research: creating & sharing contacts, creating and sharing distribution lists, message options, tasks, and calendar.

September 15, 2010

I stewed about not what, but how I was going to approach basic email today. I woke up at 4:30 this morning because I didn’t know what to do in class. I had some ideas but hadn’t worked out the details. When I got to work I decided to have them do more individual work. I wanted to change it up a bit. First we discussed the multiple intelligences test in groups (I reviewed what they all meant). Then I had them send me a message (front loaded with email basics) about their MI results. Then I had them email me with their computer skills background. Lastly I asked them to research 5 email etiquette/tips, paraphrase and put into an email to a partner chosen by cards. Also asked them to add websites to Favourites. The class felt flat. I felt that I was asking too much of some of the students and boring some of the others.

I felt like I wasn’t PBLing today and that I’d fallen a bit back into old habits. I just wanted to demo something! I have to figure out a way to energize the class tomorrow. I have to finish the week strong! Tonight I will plan a better lesson for tomorrow. There also was one non-working computer which was problematic.

September 16, 2010

Today was much better. I was more organized/prepared and I felt like I had a better understanding of the students’ skill levels after having read their ‘My Computer Skills’ email. I front-loaded with some things they’d need for the assignment – that still felt good to me because it was comfortable. Students broke into their groups and I was almost immediately worried because I had a few students who said they were confused about what they were supposed to be doing. So I clarified with them and I think it was alright.
Students seemed to be engaged in what they were doing – however it seemed like very little ‘group work’ – more individual work. I think they briefly met as a group, split up tasks, and then went to research. I think my plan will continue to be front loading during first 10 minutes of class and then the remainder they can work on something.

After chatting with [a program graduate] today, it reconfirmed that I should do something with menu planning and food costing for the larger project. I also think I haven’t given them enough web basics – perhaps I’ll put the instructional document on the shared for them.

September 17, 2010

I noticed groups so quiet! How can I get them to interact?? I should have done the front loading of the web searching on Wednesday.

September 20, 2010

Students posted their Assignment 2 results in shared. Students did peer evaluations after we reviewed the guidelines for completing. In groups, students discussed what they liked about the project, what they didn’t like about the project, what they learned/skills used in the project, and what they are still uncertain about. Groups talked about what makes a good group and came up with a fantastic list!

I’m sensing the pace is not fast enough for some and too fast for others.... Somebody mentioned the importance of positive attitude in group members and I really tried to reinforce that.

September 21, 2010

A bit of a slow start this morning – I wasn’t quite ready with the next assignment. I reviewed search engine link I’d emailed out and showed them the document – Internet that I’d put in the shared area. Reviewed exporting Favorites and had them do it with their Email Tips. Discussed using Help in Word and showed them how to use videos etc in Help.

Discussed PBL process of:

1. Generate ideas
2. Known facts
3. Learning issues
4. Action plan

Presented them with Assignment #3 – Part 1 (Menu Planning). I gave them 20 minutes to meet with group and start generating ideas. The groups spread out throughout the classroom and into the study hall. I built the groups according to computer skills and who I thought would work well together.

As I circulated among groups I found some groups really talking and some groups not. I tried to get them more engaged by asking them questions – it worked for some groups and not others. I
found myself getting a bit confused myself in terms of what I was asking them to do! Some groups, I know, didn’t just talk ideas, they started making decisions about the restaurant theme and what food they might serve. I also suggested they start thinking about how their menu would look. One group asked whether they could choose a name for their restaurant. I should have said, ‘that’s up to you; do you think you should choose a name?’ Instead, I gave them direction and said ‘Yes, you would want to include that in your menu, wouldn’t you?’

A few negative things happened today....

1. [An anonymous student] was sitting with his head on the table while I spoke. When he did put his head up, I made direct eye contact with him.
2. I recall having to ask two students to stop clicking their mouse while I spoke.
3. One group was painfully quiet. I tried a number of times to probe them and I wasn’t very successful. This is a skill I’ll have to work on.
4. I had to take the newspaper away from [an anonymous student] when I visited that group.
5. I spoke with [an anonymous student] after class and asked him what was going on. He said ‘nothing’ and I told him that his body language was very negative and he seemed surprised. He indicated that he worked Monday and Tuesday nights and was tired. He seemed sincere, yet I question how honest he was with me. I told him he seemed bored. I think we left on a positive note - I guess time will tell.

Overall, I was disappointed as I’d hoped my unveiling of PBL would be better. I worry about whether students think I’m ‘teaching’ them anything at all. What if this ends up being disastrous?

**September 22, 2010**

Today I decided to lead the students as a whole through Known Facts. We did OK – I don’t know if it helped clarify anything or not. We also reviewed the marking guide (product) because I thought that might help them think about what Word features they might incorporate.

Off they went to work. That one group is still struggling – not really talking – [an anonymous student] leads, [an anonymous student] asks questions to get discussion. Another group also identified that as an issue. I also brought text resources in for them to borrow (which nobody ever did during the whole course!).

I’m questioning now the two documents I’ve asked them to submit and not sure if that was the best way to do it. Could I have just had them each submit a compiled document?

I’m also questioning the process – I don’t think it makes sense for applications because students aren’t necessarily going to know what they want to use until they start producing their documents. I’m not sure, I’d like them to start producing it because I think they’re sick of talking about it!
Next time, I would have them submit their sketch so that I could see what they were thinking of doing.

Talked with [a supervisor] today about PBL for Culinary & Hospitality. During that conversation he said, 'We don’t promise to teach, we promise to provide opportunities for learning – it’s up to them to take advantage of that.'

**September 23, 2010**

I drew a sketch like what I was expecting on the board today. I clarified the 2 documents as Known Facts. I continue to be frustrated as some groups just aren’t acting like groups – they don’t talk. I’m not sure if the sitting in rows makes that difficult or if it is just the students. Some groups are talking and working well though.

I fear that many groups are just doing the bare minimum – font changes, centre align, page border. I also worry that they are working as individuals. On the drive down to main campus, I was thinking about how this project is not working, what I’d do differently another time, and I just want to move on. I’ve made it too open and they’ve not done much teaching to group members. I just want to cut my losses and move on. I talked with [a colleague] and he gave me some good ideas: Do a continuum of 3 menus – poor, average, excellent. What makes them that way and were does yours fit? Maybe next time I give them a completed menu and they have to figure out how to make it look that way.

I have to make it so they have to teach each other. I have to provide a schedule of where they should be each day – this is so hard for me as I’m never sure how long it’s going to take them!

At the end of class I also discussed my research project. Lots of people tuned me out, and I’m a bit worried about half the class returned their consent forms and I have enough to proceed. That’s a relief! Interesting – the girls agreed – I think all of them!

**September 24, 2010**

Continued working on menus today. Again reviewed that they would have 2 documents to put in shared are - showed them where that was. I watched one group closely today - more talking – [an anonymous student] was certainly leading that otherwise quiet group, but he spent some time showing his group some skills and asking how they wanted to do things.

Kira’s group is working really well together – sharing and showing each other things.

[Student name]’s group is I think having difficulty with [an anonymous student] – he hasn’t even really gotten a start on his section. I provided him with a text resource, but I fear that this is so far beyond him. This task perhaps would have been better at the end as a culminating problem. I should have given them a menu to produce – make it look like this and identify all the components.
[Two anonymous students] were there today, no [group members]. Discussion with [these two anonymous students] about their menus looking entirely different than each other and how were they going to resolve that? I feel a bit better today because I think students are doing more Word work than I initially gave them credit for. It might be OK!

No classes September 27 & 28

September 29, 2010

I showed students how to compile all sections into one document. I reminded them where they should be and what files go into S: for marking. I provided the marking guides for them to identify what skills they demonstrated.

I buzzed around and spoke to students. I did more troubleshooting today than I was probably supposed to. Helped Jay and [two anonymous students] with formatting, moving title page, etc.

Again had a conversation with [two anonymous students] about their missing group members and also about [one anonymous student] not doing all the work for [another anonymous student]. Reminds me that I need to structure learning activities as a group, but not necessarily product (outcome) as a group.

Also, for next PBL, give them a structured timeline.

September 30, 2010

I wondered about having each group show what they’d done for a menu, but I hadn’t prepared them for that and I didn’t know if I really wanted to devote more time to this menu project. I was also a bit scared to put them in their groups to discuss the project because I was worried they were just sick of talking and they would see it only as filler. I was trying to determine the cost benefit ratio of more work with this exercise. So, instead I asked as a large group about the project (I don’t remember what I asked). Students didn’t want to talk – I’d ask them for input and they just sat. So, I moved on to introducing templates. As a group, we discussed what a template was, why you’d use it, and I showed them some examples of templates. I also showed them my procedures templates from other years. I broke down the template into 5 skills that they need to know and then I made groups and assigned each topic to a group. They were responsible for researching the topic and putting information into the shared area for their classmates. The problem with this was that sometimes that stuff they came up with was just copied and pasted and they didn’t necessarily understand it. Another time I think they should have to teach the class. Another time I would also have students figure out what they needed to know (instead of giving that to them – which I did because I was in a bit of a rush to get them started with their templates).
October 1, 2010

I rushed this one. I started out OK – each person I’d assigned a research topic to got together and prepared notes on that topic. There wasn’t as much discussion as I thought should have been. One group did appear to be working together – noticeable because [an anonymous student] was standing behind where they were working. Involved, not sure how much he contributed, but certainly was present. One other group commented that another member had emailed what they’d found - I guess still working together, but very techy way of working together that I don’t see!

Each group was given 15 minutes to get together, compare notes, and put together some instructions for their topic on the shared. A couple of groups just scooped from the Help menu (copy and paste). I realized that I had to review those notes in the shared to determine if they were accurate. I did this in front of the class - I’m not sure if that was good because it was like I was in part demoing it for them. So, another time, I’ll have to work around that. Another time, I would like to try my original plan of them doing the jigsaw and having them teach each other. I rushed through this one because I thought [an anonymous instructor] wanted their procedures in possibly that day - turned out not til next week, so I could have slowed down the process and down more of a true PBL.

I’m realizing that PBL in my course didn’t really mean changing my assignments – it just meant changing the approach to them. For this group that menu assignment was too big, too fast. I should have just continued with assignments maybe from other years, and just come at them differently!

Anyway, student then had the tools to go ahead and create their procedures template. They knew what it would look like – [an anonymous student] has commented that she likes knowing what it should look like. However, I don’t want to always do that because you won’t always know what your solution looks like.

Then students had to do the work! That was interesting - I did end up falling into my old troubleshooting role and making suggestions, and answering questions. Students at his point were working individually – I think partly (maybe largely?) because of the seating in rows. I’d like to figure out if we can restructure that into groups! So if they were in groups they could support each other – the way it is now, it is individual, or perhaps their neighbour.

I felt pretty good at the end of this class (which ran almost 1 ½ hours) because it was challenging students. It was upper level stuff and selfishly I felt that they saw that I knew what I was teaching them – I felt some sense of credibility. I also have to say that [an anonymous culinary instructor] has added to that because he has been coming in prior to my class – we chat and students see that we are a team and that helps me. I also felt a sense of credibility when [an anonymous student] asked me a few questions about his menu that he couldn’t get working and I was able to help him. I felt I gained a bit of his respect. I realized that isn’t what PBL is about, but that seems to matter to me.
So some student completed their templates, some didn’t but I think are close. I had a great moment with [an anonymous student] – he looked up something from the resources in the shared – he was trying to problem solve!

My only problem right now is trying to get student in my research project to respond – only 4 out of 9 last week, only 1 out of 9 so far for this week. I need more!

October 4, 2010

- Reviewed the Procedures marking guide
- Revising a template instructions
- Asked to prepare instructions

Everyone worked individually on whatever they needed to do. I floated around to see what people were working on. Joe said his group for this project did nothing – he did all the work researching and recording notes of the group. When I try the next PBL, I have to make them accountable.

October 5, 2010 – CAPNE Dessert Festival no classes

October 6, 2010 – no computers today!

Excel – showed an overview video from YouTube. I verbally presented the problem and we reviewed the proper design of a spreadsheet and things the students should consider. I had the students split into their own groups. I think this was the right time to do that. Tasked the students with preparing a sketch of their food costing spreadsheet.

For me, this was interesting because I was having a hard time trying to make good groups. So, I let the student choose their own groups. It was interesting – some were as I expected and some were not. Not all students were there, so it will be interesting to see how the remainder of the groups form.

Students again struggled with sketching and planning. This was quite messy. Although there were a couple of moments where I saw the light go on when I asked them a question about their sketch. Most groups didn’t put near enough columns on their sketch!

[An anonymous student] said ‘Do we seriously have to sketch this out?’ Their group’s sketch was probably the weakest.

October 7, 2010

Provided the hardcopy assignment – about 12 students there. I don’t know how groups are working because they don’t seem to be talking much. [An anonymous student] was at a loss today because his other 2 group members weren’t there. He has said he is weak in computers and even asked if industry ever just used pen and paper for this! I told him to sketch out what he would have to do with pen and paper, so he did start on that. Some groups seem to be
getting it done – although I question how much collaboration they are doing. Toward the end of class I started wondering about what happens when prices change. You wouldn’t want to have to go in and manually change all of your recipes. So, perhaps the next step is either creating a button for price changes or maybe linking all recipes to your inventory sheet. I also asked [an anonymous instructor] about whether we should incorporate yield factor and he said not to.

October 8, 2010

Frustration as about 12 students there again today. [An anonymous student] appeared after being away 2 days. So we had a chat and he will do the assignment on his own. [An anonymous student] is also doing that as neither [two student names] have been there.

Clarified with [two anonymous students] that they each submit a file for this exercise.

Still concerned about the amount of discussion that is happening (or not happening!). Groups don’t sit together sometimes. Perhaps I should encourages them to move the laptops to where their group is.

October 12, 2010

The menu marking guide needs to change from 1, 2, 3 to 0, 1, 2 or 0, 1, 2, 3.

I showed them how to access RDS today – partly because of the templates (so they could complete them at home). I also demo’d how to change their templates to default to w:\templates and then we resaved a document (based on the template) as a template.

Groups got together to see where they were at. Again, some groups are really cohesive and some aren’t. Some students come late every day and I need to address that with them.

This really isn’t going the way I’d envisioned…. most students aren’t working together – at least not by sharing ideas on how to create something. There just seems to be lots of confusion about the task – maybe that’s because I just finished marking those menu assignments and very few groups put all the information together properly ie. 1 member did it and other members just submitted their work. I’m not at all sure what to do with that.

Somehow I have to build in checkpoints so that students are forced to teach and lean the concepts to each other because right now I’m not sure if they are.

Last 2 projects I have used ‘marking guides’ instead of rubrics. Probably a comfort thing, but I felt that a rubric wasn’t working. Is that a mistake?

October 13, 2010

I feel like I’m constantly reminding them to use Help or Google to find answers, or other students. Today I discussed my marking problem with the menu and the class decided to treat the completed menu as a bonus.
I worked with some students to get their templates stored properly.

Each group researched relative referencing and conditional formatting, so we discussed that together.

I sent out the survey link for the peer evaluation. It will be interesting to see if that works well.

Class time to finish up food costing. [An anonymous student] has struggled with Excel – procrastinated to the point of finally having to start Excel and now is behind. [This student] asked me why we are doing this in groups anyway. This as a bit frustrating for me because it seems he has missed the whole point of the group work and PBL. I’m always late leaving the class – so many students I want to just down with and go through their files with them.

I left class today feeling like it was all a big mess. They weren’t learning anything and it had all been a waste of time – PBL and computer applications. Is it just me and my inability, lack of planning, etc or would anyone experience this?

I came back at 4 pm to MICA to catch some students and try to get marking completed. I spoke with [three anonymous students] and asked them what they thought of learning in groups. [One student] surprised me a bit because she said some of her other groups actually shared more information than this one. [Another student] reported that he’d learned so much from [student name] in this project and that I was right that if I were to demo, nobody would listen. [The third student] indicated that he didn’t share much, but others did in his group. All of this feedback causes me to wonder if things maybe aren’t as bad as I thought. Maybe some of them really are learning! I’ll request feedback from everyone tomorrow and maybe that will clarify some things.

October 14 & 15, 2010

I looked through the course outline to see what we hadn’t covered yet. Also, having marked the menu assignments, I realized we needed to cover appropriate use of pictures, or rather when you can take one off the web! Also, it was a bit late, but I wanted to ensure we covered reliable websites. I wanted students to feel like they had options, so I gave them the assignment and said they could work with others or individually, whatever they preferred. It was really amazing to see them working quite individually. Very little talking during class on Friday! Why is that?

On Friday when I handed back the menu assignments I felt so badly for Kira and [an anonymous student]. They didn’t get the bonus marks for their menu because all group members had exactly the same file and I couldn’t tell who had done the work (although [the anonymous student] told me it was both him and Kira). Overall marks for that assignment were high because I ended up treating the completed menu as a bonus. Next time I’ll start with a more directive Word project – here is a menu, try and reproduce it.

The silence in the room today nearly killed me!
October 18, 2010

This morning I handed back food costing marks and reviewed a few common errors – naming worksheets, spell check, removing extra conditional formatting, etc.

I wanted to cover more advanced Excel stuff, but I was uncertain about whether the students would be able to figure out how to accomplish a linked workbook. So, I decided to just lead a discussion and show them how to do it. This isn’t really problem-based learning but I honestly didn’t think that they would get to this point without my input. After all, how could they know what was even possible? The questions I asked are:

1. What are the issues – price changes?
2. Is the method sustainable? Do you always want to have to change prices?

So, I provided the inventory sheet with prices and they saved a copy to their account. Then we copied their food costing worksheet so we didn’t mess up their original. Then I showed them how to link the worksheets. Then they practiced a couple of those. Then I asked them what would happen if they ever had to add or remove items from the inventory sheet – that would mess up the linked cells! So then I showed them how to name the cells on the spreadsheet so that it didn’t ever matter if that cell moved.

I think the student were impressed. Wow, that makes it sound all about me. But I have to say that with PBL I don’t think you earn their respect as quickly or easily because they don’t see you dazzling them with your content knowledge or skills. I asked them if they would have been able to come up with this solution and I got the feeling that they wouldn’t have. [A student] said that they wouldn’t have – other students didn’t comment.

Working with students was comfortable, I have to say. I felt good about it – not because I was in charge, but I think because it was a chance to show them some ‘impressive’ stuff.

October 19, 2010

A brand new problem today! Embarking on a new problem always makes me nervous. Have I got it right, covered the bases, etc.? I don’t think ill-structured problems are necessarily the same thing in computer applications courses as they are maybe in other courses. In some cases, making a problem ill-structured is a problem in itself! My menu redesign Word question ended up being way too broad. However, my food costing one worked out well. I’m hopeful that showing them their outcome in the Skills Listing assignment will work better (than the Menu Redesign).

Students paired up and chose a topic out of the hat to research and present to the class. Once all those have been presented, students should have the information to create their skills booklet.
I felt really good after this class. Students for the first time seemed to be engaged in what they were doing. Maybe having to present it to the class does that?? [An anonymous student] was so late again – I gave him his 2 topics and he worked by himself – which is maybe what he wants to do. I wish now that I’d used this model for the first real problem in this course. I think it would have taught the students what they needed to do when I didn’t lead them through a problem.

The other thing I know about PBL in computer applications courses is that the movement between ideas – known facts – learning issues – action plan is very different than what we did in the professional development PBL class that I took. I think more so, it is a constant shuffle around the ideas/known facts/learning issues/action plan wheel. Students don’t want to design/sketch, they want to do. In the future if I don’t give them the final document, I must insist on a sketch.

I think the students are getting there in terms of developing skills to make them self-sufficient in learning new software. I feel good about that.

Students still aren’t excited in my class. But I do feel like I have a good relationship with them. That is important to me – probably more than it should be! I feel I’m getting better at giving feedback (marks) but I’m still not good at facilitating PBL – I still want to give them the answers – partly because I still think that is my job and partly because it validates me.

I’m realizing more and more that Emotional Intelligence is such a huge component of PBL. I didn’t include any topics about EI, but I really see the difference between the good students and the poor student as being primarily EI issues.

October 20, 2010

I gave the students from 8:30 to 9:00 to get themselves organized, finalize the resource for the shared area, and prepare their presentation. A number of them wasted a fair bit of time I think because they were working on something for [an anonymous instructor]. The presentations were OK – I recognize that many don’t have those kinds of skills, but it’s good to get them used to it. It was hard for me to know how much I should add, clarify, put into context for them. I asked the audience 3 questions because I said their stuff must be useful, complete, and clear. That was a nice way to mark – although another time it would be nice to use Insight software and ‘poll’ the student so they maybe didn’t feel so ‘on the spot’. Most students presented for less than 5 minutes. I wrote the order of go on the board, similar to how it was written on their assignment (or probably how I thought they would need the information). [An anonymous student] was to go third and when his turn arrived, he said he wasn’t quite ready, so we carried on (I skipped that one). I’m not sure if I handled it correctly or whether I should have made him present anyway. I intend to reduce his mark because he wasn’t ready to go.

October 21, 2010
Today was probably the first day that I didn’t feel nervous before class! I knew students had lots to keep them busy – the rest of the presentations and then they could start on their projects. When students presented today, I think I jumped in more than yesterday – clarified, gave extra information, etc. I don’t know if I should have or not. I guess what started that trend was when I asked after [one of the groups] presented if it was clear and complete I got some very mixed responses from other students. So, I just kind of took over and went through that information again and demo’d again. They said it was clear then; but should I have done that? Or should I have turned it back to [the student group]?

[An anonymous student] wasn’t there today, so I covered his section. I guess he will get 0 for that component. [Another anonymous student] was there, but because she wasn’t there at the beginning of yesterday’s class, she didn’t have a topic to present.

October 22, 2010

Today was the day after Dessert festival so attendance was a bit sketchy. I wrote down who was there and might give a bonus mark for that. Students spend the time working on their booklets. Some students had trouble with page numbering. They just seemed to still want to just ask me – although I had an interesting interaction with [an anonymous student] who had trouble with his numbering. I was working with him and [another anonymous student] came over and showed him what to do. Although a bit of a temporary fix, or a fix that doesn’t really solve the problem, it did work. I got out of the way and let them work on it together.

Students worked on their own a lot. It was a good day.

October 25, 2010

It took a bit of time to get things organized this morning – computers were not connected to the network, etc.

[An anonymous student] was interesting today. He had hardly started on his booklet. He wanted me to help him but I didn’t enable this behaviour (like I normally do). I said “OK, what do you remember from [an classmate’s] presentation?” “Nothing,” he replied. So, I responded “OK, what does the resource that [student name] put in our Resources folder say?”. We looked at it together and [the anonymous student] followed the steps. Yay! He can do it, he just would rather I tell him. I’m not sure that he’s made progress on self-directed learning...

Today Joe asked if there was a marking rubric available for the assignment. Wow – I didn’t realize that was something that they were actually referring to! I had to finish preparing it and emailed it out to them just at the end of class. Somebody made a comment like, “Well it’s too late now, I’m done.” I told them they could still check their work against the marking guide.
October 26, 2010

I gave students the opportunity to re-submit any exercise they got a zero in. I received one assignment.
Appendix C: Assignments

Assignment 1: Computer Skills

This course is designed to practice the computer skills that are necessary for a chef to exhibit while working in the industry. Your task in this assignment is to determine what kinds of tasks chefs use computers for, and specifically what computer skills are necessary to successfully complete these tasks?

How can you find out this information? Record your ideas on paper and choose which you methods will utilize.

Using the resources you identified, determine how chefs use computers in the industry and what skills are required to complete the tasks. Please note where you have found specific bits of information as you complete the research. In this class period, you will:

- Brainstorm ideas - research & topic (5 min)
- Make a plan (5 min)
- Complete research (25 min)
- Share/Compile information with group members (10 min)
- Prepare for presenting to larger class (5 min)

As a group, be prepared to present the information you find at the start of tomorrow’s class. Each group will be expected to present their findings to the class, no less than 2 minutes and no longer than 5 minutes. You will be evaluated as a group according to the rubric on the following page:
Group Members: ____________________________________________________________
                                                                                   ____________________________________________________________
                                                                                   ____________________________________________________________
                                                                                   ____________________________________________________________

<table>
<thead>
<tr>
<th>The Group:</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generate ideas</td>
<td>Generated NO ideas for how to research the topic</td>
<td>Generated ONE or TWO ideas for how to research the topic</td>
<td>Generated THREE or FOUR ideas for how to research the topic</td>
<td>Generated FIVE OR MORE ideas for how to research the topic</td>
</tr>
<tr>
<td>Research &amp; Gather Information</td>
<td>Collected NO information relating to the topic</td>
<td>Collected LITTLE information relating to the topic from FEW types of sources</td>
<td>Collected SUBSTANTIAL information relating to the topic from FEW types of sources Or LITTLE information from MANY sources</td>
<td>Collected SUBSTANTIAL information relating to the topic from MANY types of sources</td>
</tr>
<tr>
<td>Participation: Contributing</td>
<td>Little participation by ALL group members. Observed FEW contributions, questions, discussion, and listening by group members</td>
<td>Some group members active while others are not. Some group members make NO attempt to be involved or include group members</td>
<td>Generally all group members participated. All group members attempt to be involved or include group members</td>
<td>Exemplary participation by all group members: contributed, questioned, discussed, listened</td>
</tr>
<tr>
<td>Questioning</td>
<td>Listening</td>
<td>Discussing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presentation</td>
<td>No one presented the material</td>
<td>ONE group member presented the material OR the presentation wasn’t within the timeframe</td>
<td>TWO/THREE group members presented the material within the timeframe</td>
<td>ALL group members presented the material within time frame</td>
</tr>
</tbody>
</table>

Overall Score /12
Assignment 2: Software Resources

Resources are needed in order to navigate the software requirements throughout this course. Working as a team, develop a listing of instructional resources (include web links so that clicking the link takes you to the web resource) that will help you complete specific activities in Outlook 2007, Word 2007, and Excel 2007. The course outline provides specific details about the types of activities you will need to be able to complete (see s:\shared\student information\mica\word processing skills).

Each member of the group will complete some research to find helpful instructional resources. The goal here is to find a number of quality resources. You will need to review the resources that you find to determine their suitability. Your group’s task is to prepare a Word document that lists a variety of helpful instructional resources. Ensure that there is no duplication in the resources listed and that it is easy for you and your fellow students to use and understand.

Each member of the group will need to prepare a distribution list that includes your group members and your instructor. Email the resources that you find to this distribution list for consideration. That will get you practicing your emailing etiquette!

Save your group’s work as a Word document and store it in s:\shared\student information\mica\word processing skills. Files placed here will be accessible to all students in this class for future reference.

This assignment will be subject to group and peer evaluation.

Groups & Topics

<table>
<thead>
<tr>
<th>Outlook Print &amp; Video Resources</th>
<th>3 student names</th>
<th>Word Video Resources</th>
<th>4 student names</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows 7 Print &amp; Video Resources</td>
<td>4 student names</td>
<td>Excel Print Resources</td>
<td>3 student names</td>
</tr>
<tr>
<td>Word Print Resources</td>
<td>4 student names</td>
<td>Excel Video Resources</td>
<td>4 student names</td>
</tr>
</tbody>
</table>
### Problem-Based Learning: Narrating Our Experiences

**Group Members:**

<table>
<thead>
<tr>
<th>The Group:</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Research &amp; Gather Information</strong></td>
<td>Collected NO information relating to the topic</td>
<td>Collected LITTLE information relating</td>
<td>Collected ADEQUATE information relating to the topic from FEW sources</td>
<td>Collected SUBSTANTIAL, QUALITY information relating to the topic from MANY sources</td>
</tr>
<tr>
<td><strong>Participation: Contributing &amp; Communicating with Group Members</strong></td>
<td>Little participation by ALL group members. Observed FEW communications (including email) among group members</td>
<td>Some group members active while others are not. Some group members make NO attempt to contribute and communicate with group members</td>
<td>Generally all group members participated. All group members attempt to contribute and communicate with group members</td>
<td>Exemplary participation by all group members: contributed and communicated well (including email) among all members</td>
</tr>
<tr>
<td><strong>Document Production</strong></td>
<td>No document in shared folder</td>
<td>Document is in the shared folder. Document is difficult to use (ie. Links don’t work, difficult to determine what the link is helpful for)</td>
<td>Document is in the shared folder and is adequate. Useable links.</td>
<td>Very user-friendly document: no duplication of resources &amp; easy to use. Placed in shared area.</td>
</tr>
<tr>
<td><strong>Overall Score</strong></td>
<td></td>
<td></td>
<td></td>
<td>/12</td>
</tr>
</tbody>
</table>
Assignment 3: Expanding the Menu

You and your group members are partners in a local restaurant that seats approximately 60 patrons. To date, you have been serving only breakfast and lunch, but you are committed to broadening your offering to include a dinner menu. You are located in downtown Brandon and are hoping to entice the local business community to your establishment not only during the work day, but now also in the evening. One of your group members mentioned that the trend toward Manitoba-grown food is hot right now and that maybe you should consider that as you determine the new dinner menu. The ownership group has not fully discussed this or any other ‘themes’ for the menu, but one partner who is known for superior financial management, has reminded the group that all new menu items will need to be broken down and accurately costed.

1. As a group, determine a theme for the dinner menu.
2. Using Word 2007, each group member will be responsible for preparing one section of the menu:
   - Appetizers (5) and/or
   - Soups/salads (5)
   - Main dishes (4)
   - Desserts (5)

Each section of the menu should include 4 or 5 choices as indicated in parenthesis above. Ensure that each individual contribution fits with the overall dinner menu; the guest should never know that it was created and formatted by multiple people! Therefore, as a group you will need to make decisions about how the documents will look and also share information and resources about how to complete each Word task. As you work on your individual file, save it in your Documents folder that is on your own account.

3. Each group member will also be responsible for combining all group members’ work into one cohesive document.

Your instructor will provide further information for submitting the files for marking. Each individual’s work will be subject to evaluation by instructor based on the criteria listed on the following page. Additionally, each group member will be evaluated by their peers in terms of their contribution to the group.

Groups

<table>
<thead>
<tr>
<th>3 student names</th>
<th>3 student names</th>
<th>4 student names</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 student names</td>
<td>4 student names</td>
<td>4 student names</td>
</tr>
<tr>
<td>Criteria for Section of Menu</td>
<td>Unacceptable (1)</td>
<td>Achieved (2)</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------------------------</td>
<td>------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Includes appropriate number of menu items</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spelling &amp; grammar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Document is professional and visually pleasing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☑ Word Criteria: only the criteria attempted (identified by ☑) will be marked</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Create, edit, and save a document.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Change font styles and effects (color, size, emphasis).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Change line spacing</td>
<td></td>
<td></td>
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<tr>
<td>☐ Change paragraph spacing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Align paragraphs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Work with tabs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Use indents.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Add bullets and numbering.</td>
<td></td>
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<tr>
<td>☐ Add borders.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Add shading.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Set document margins.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Insert and format graphics.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Insert and format tables.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Insert page numbers.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Add and edit headers and/or footers.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Word Extras</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Total Value                                                                                 | 48               |              |              |

**Unacceptable:** criteria either not completed, or attempted but with numerous errors making it unacceptable.

**Achieved:** criteria has been executed in an acceptable manner; has the general idea but may have made minor errors.

**Superior:** criteria has been executed in a highly professional manner; indicating exemplary skills.
### Criteria for Complete Menu

<table>
<thead>
<tr>
<th>Criteria for Complete Menu</th>
<th>Unacceptable (1)</th>
<th>Achieved (2)</th>
<th>Superior (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consistent look to entire menu</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spelling &amp; grammar</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Document is professional and visually pleasing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>✔ Word Criteria: only the criteria attempted (identified by ✔) and new to this document will be marked</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>☐ Change line spacing</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>☐ Change paragraph spacing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Align paragraphs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Work with tabs</td>
<td></td>
<td></td>
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<tr>
<td>☐ Use indents</td>
<td></td>
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<tr>
<td>☐ Add bullets and numbering</td>
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<td>☐ Add borders</td>
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<tr>
<td>☐ Add shading</td>
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</tr>
<tr>
<td>☐ Set document margins</td>
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<tr>
<td>☐ Insert and format graphics</td>
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<tr>
<td>☐ Insert and format tables</td>
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<tr>
<td>☐ Insert page numbers</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>☐ Add and edit headers and/or footers</td>
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</tr>
<tr>
<td>☐ Divide a document into sections</td>
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<tr>
<td>☐ Word Extras</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Total

**Value** /12

**Unacceptable:** criteria either not completed, or attempted but with numerous errors making it unacceptable.

**Achieved:** criteria has been executed in an acceptable manner; has the general idea but may have made minor errors.

**Superior:** criteria has been executed in a highly professional manner; indicating exemplary skills.
PROJECT PEER EVALUATION

Your Name: ____________________________________________________________

Please evaluate (circle the appropriate number - 1 is low; 5 is high) your group members on each of the criteria listed below. Ensure to include comments, especially if you have indicated a score of 3 or below on any item.

Name of Group Member: ________________________________________________
Willingness to work in a group situation  1  2  3  4  5
Contribution to the project  1  2  3  4  5
Communication with group members  1  2  3  4  5
Attendance & Reliability  1  2  3  4  5
Comments: ___________________________________________________________
__________________________________________________________________

Name of Group Member: ________________________________________________
Willingness to work in a group situation  1  2  3  4  5
Contribution to the project  1  2  3  4  5
Communication with group members  1  2  3  4  5
Attendance & Reliability  1  2  3  4  5
Comments: ___________________________________________________________
__________________________________________________________________

Name of Group Member: ________________________________________________
Willingness to work in a group situation  1  2  3  4  5
Contribution to the project  1  2  3  4  5
Communication with group members  1  2  3  4  5
Attendance & Reliability  1  2  3  4  5
Comments: ___________________________________________________________
__________________________________________________________________

Name of Group Member: ________________________________________________
Willingness to work in a group situation  1  2  3  4  5
Contribution to the project  1  2  3  4  5
Communication with group members  1  2  3  4  5
Attendance & Reliability  1  2  3  4  5
Comments: ___________________________________________________________
__________________________________________________________________
Assignment 4: Procedures Template and Document

You have been asked by [an anonymous instructor] to prepare a Procedures manual during your studies. How could we automate that process so that each of your procedures look uniform?

- What is a template?
- How do you use a template in Word?
- How do you create a template in Word?
- Investigate and be prepared to share information about:
  a. Creating a table: including splitting cells, merging cells, adding rows and/or columns, removing or modifying table borders.
  b. What is the difference between line spacing and paragraph spacing?
  c. How can I insert bullets and customize bullets if I want? How would I insert a date field that would automatically add the current date to the procedure?
  d. What are content controls: specifically the text form field found in the legacy controls group? How do you add them? How do you change the properties of them?
  e. How do you protect a template so that users of it can only fill it in? Why would you want to/need to protect this template?

Create a Procedures template, stored in W:\Templates.

Using your template, create a procedure for Chicken Stock.

Prepare a set of instructions for creating a procedures template. Use the numbering feature in Word to number the steps.
## Assignment 4 Marking Guide

### Assignment 4

**Procedure template:**

- Inserted & formatted table
- Demonstrated line and/or paragraph spacing
- Bullets / custom bullets
- CreateDate field code inserted
- Appropriately formatted content controls (4): Procedure Name, Mise en Place, Procedure, Options
- Protected
- A useable template

<table>
<thead>
<tr>
<th>Procedures document based on the procedures template (place a copy in shared folder)</th>
<th>/2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procedures template instructions (place a copy in shared folder)</td>
<td>/4</td>
</tr>
<tr>
<td>- Auto numbered</td>
<td></td>
</tr>
<tr>
<td>- Accurate</td>
<td></td>
</tr>
</tbody>
</table>

**Total** /16
Assignment 5: Food Costing

The Problem:

In the food industry, you will commonly be required to cost out your recipes in order to budget and establish pricing appropriately. **As a group**, determine the appropriate information to include in your spreadsheet and appropriate set-up of the spreadsheet. As a group, you will be responsible for researching the skills necessary for completing the spreadsheet and sharing that information with your group members. **Each group member is responsible for:**

- Contributing to their group through contributing ideas, researching, and sharing information with other group members.
- Preparing a worksheet that costs out the chosen soup recipe, both as a whole and a cost per serving.

Your participation in the group learning process will be evaluated through peer evaluation. Your instructor will grade your final product, so ensure that your spreadsheet includes all of the criteria listed on the following page:
### Assignment 5 Marking Guide

<table>
<thead>
<tr>
<th>Criteria for Food Costing Spreadsheet</th>
<th>Unacceptable (1)</th>
<th>Achieved (2)</th>
<th>Superior (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use fundamental spreadsheeting skills to create basic spreadsheets.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Plan and design a worksheet.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Open, edit, and save a workbook.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Enter values in a worksheet.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Enter labels in a worksheet.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Enter formulas in a worksheet.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Name the worksheet.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Use Excel functions to create formulas.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Use relative cell references appropriately in formulas.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Add and change formatting to improve the readability of the worksheet.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Format values.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Use fonts and font sizes.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Change attributes and alignment.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Adjust column widths.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Insert and/or delete rows and/or columns.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Apply colors, patterns, and borders.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Use conditional formatting.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Check spelling.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td>48/48</td>
</tr>
</tbody>
</table>

**Unacceptable**: criteria either not completed, or attempted but with numerous errors making it unacceptable.

**Achieved**: criteria has been executed in an acceptable manner; has the general idea but may have made minor errors.

**Superior**: criteria has been executed in a highly professional manner; indicating exemplary skills.
### Peer Evaluation

**1. Your Name:**

- Please enter your name here.

**2. Group Member:**

- Please select your group member.

**3. Please rate this group member's performance:**

<table>
<thead>
<tr>
<th>Positive attitude toward project &amp; group members</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contribution to the project: researched and shared information</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication with group members: speaking &amp; listening</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attendance &amp; reliability</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**4. Provide comments to substantiate ratings above:**

- Please enter your comments here.
Assignment 6: Web Research

You are a chef in a restaurant and are looking to redesign your menu. You know that the web is a great resource in terms of menu ideas, new food products as well as resources to help you put together a new menu in which you would like to include pictures of menu items. Before you begin this process, you need to clarify some concepts so that you don’t get yourself into trouble!

1. What are some ways that you can try to ensure that information on a website is accurate or reliable? (identify at least three!)

2. You can save information found on web pages in a variety of formats. Provide instructions (clear enough for a novice computer user to follow) for:
   a. Saving a web page (single file format)
   b. Making a shortcut to the web page
   c. Copying and pasting text from the web page into another document
   d. Saving a picture from a webpage

3. If you are looking to include images on your menu, what types of images can you legally use? What steps do you need to take to use the types of images noted above?

Feel free to chat with others in order to answer these questions. Create a new Word document and answer these questions, including using the multi-level numbers to identify your answers. Email your final document to your instructor.
### Assignment 6: Marking Guide

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Mark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emailed with file attachment</td>
<td>/1</td>
</tr>
<tr>
<td>Word doc with multi-level bullets</td>
<td>/1</td>
</tr>
<tr>
<td>3 ways to ensure that information on a website is accurate or reliable author, date, list sources, do others link to it, other:</td>
<td>/3</td>
</tr>
<tr>
<td>Saving a web page (single file format) (2)</td>
<td></td>
</tr>
<tr>
<td>• File – Save As</td>
<td></td>
</tr>
<tr>
<td>• Save in location</td>
<td></td>
</tr>
<tr>
<td>• Filename</td>
<td></td>
</tr>
<tr>
<td>• Ensure Save as type is single file (.mht)</td>
<td></td>
</tr>
<tr>
<td>Making a shortcut to the web page (1)</td>
<td></td>
</tr>
<tr>
<td>• Right click web page</td>
<td></td>
</tr>
<tr>
<td>• Create shortcut</td>
<td></td>
</tr>
<tr>
<td>• Yes to create on desktop (can then move to another location if desired)</td>
<td></td>
</tr>
<tr>
<td>Copying and pasting text from the web page into another document (2)</td>
<td></td>
</tr>
<tr>
<td>• Select the text</td>
<td></td>
</tr>
<tr>
<td>• Right click and choose Copy (or Ctrl X)</td>
<td></td>
</tr>
<tr>
<td>• Open the other document</td>
<td></td>
</tr>
<tr>
<td>• Right click and choose Paste (or Ctrl V)</td>
<td></td>
</tr>
<tr>
<td>Saving a picture from a webpage (2)</td>
<td>/7</td>
</tr>
<tr>
<td>• Right-click the image</td>
<td></td>
</tr>
<tr>
<td>• Save Picture As</td>
<td></td>
</tr>
<tr>
<td>• Enter filename</td>
<td></td>
</tr>
<tr>
<td>• Enter location</td>
<td></td>
</tr>
<tr>
<td>What types of images can you legally use?</td>
<td></td>
</tr>
<tr>
<td>• Ones that are yours</td>
<td></td>
</tr>
<tr>
<td>• Ones you have permission to use: web,</td>
<td></td>
</tr>
<tr>
<td>• Ones you have permission to use through license agreement (eg. Clipart images)</td>
<td></td>
</tr>
<tr>
<td>What steps do you need to take to use the types of images noted?</td>
<td>/3</td>
</tr>
<tr>
<td>• Cite/credit the source</td>
<td></td>
</tr>
<tr>
<td>Late (-)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>/15</td>
</tr>
</tbody>
</table>
**Assignment 7: Improved Food Costing**

Can you identify any potential issues with your Food Costing worksheet?

How could we improve it in order to address the identified issues?

A total of 10 marks were attributed to this exercise. Students received marks for contributing to the class and incorporating the solutions identified in class into their Food Costing worksheet.
Assignment 8: Skills Booklet

Using Word 2007 and the file provided by your instructor, prepare the skills listing so that it is similar to the sample. It includes:

- Booklet layout
- Narrow margins
- Custom bullets
- Indents
- 1.5 line spacing
- Adjusted paragraph or line spacing if necessary
- Format the Block headings and Task headings using styles
- Use themes to customize the look of the document
- Page numbering (notice the alignment of the numbers is different depending on what page you are on)
- No task listing breaks across a page
- The line to the right of each bulleted point is created using a right tab with a line leader dot
- The design of the cover page can be of your choice, but it must include your name
- Print, fold, and staple!

How will we accomplish this?

With a partner, you will be assigned a topic(s) to research and develop a set of instructions to provide for your classmates (put those in our Resources folder in the shared Word Processing Skills folder), as well as present your topic to the class.

Timeline (tentative)

Tuesday – pick partners, pick topic(s), research, and prepare

Wednesday – share information with class

Thursday – work on preparing your Skills Listing

Friday – work on preparing your Skills Listing

Monday – work on preparing your Skills Listing and submit

Evaluation

The instructions/tips you provide and present will be evaluated for usefulness, completeness, and clarity. Your final document will be evaluated in terms of proper execution of Word skills.
### Assignment 8: Marking Rubric

<table>
<thead>
<tr>
<th>Team/Group Presentation for Skills Listing Booklet</th>
<th>Not Attempted (0)</th>
<th>Unacceptable (2)</th>
<th>Achieved (4)</th>
<th>Superior (6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Useful, Complete &amp; Clear</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resource placed in shared area</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SubTotal</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>/12</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Skills Listing Booklet</th>
<th>Not Attempted (0)</th>
<th>Unacceptable (1)</th>
<th>Achieved (2)</th>
<th>Superior (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Booklet layout</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Narrow margins</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Custom bullets</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.5 (or 2) line spacing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Format the Block headings and Task headings using styles</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use themes to customize the document</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Page numbering (notice the alignment of the numbers is different depending on page)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tab with a line leader dot</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cover page – design of choice, includes name, removed unnecessary placeholders</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No task listing breaks across a page</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Print, fold, and staple</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall appearance: includes appropriate indents &amp; para spacing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SubTotal</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>/36</strong></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>/48</strong></td>
</tr>
</tbody>
</table>

**Not Attempted:** criteria not completed  

**Unacceptable:** criteria attempted but with numerous errors making it unacceptable.  

**Achieved:** criteria has been executed in an acceptable manner; has the general idea but may have made minor errors.  

**Superior:** criteria has been executed in a highly professional manner; indicating exemplary skills.
Appendix D: Informed Consent Documentation

Letter of Information

Project Title: Problem-Based Learning: Narrating Our Experiences

Researcher: Colleen Bootsman

Sponsoring Institution: Assiniboine Community College

You are invited to participate in a research study which is designed to document the experiences of you, the student, and me, the facilitator/researcher, as we navigate the Word Processing Skills course using a problem-based learning (PBL) methodology. This project will tell the stories of our experiences during our PBL journey.

Your participation in this research project will involve reflecting on your experience in the class and/or observing what is happening in the class and reporting that information to me by email each week over the seven-week course. It is estimated that this reporting will take 15 – 30 minutes of your time each week. Spontaneous reporting on your part is also encouraged; if you experience something in the class that you would like to share with me, please feel free to do that. Photographs will be taken periodically to capture the classroom activities, and conversations, interactions, classroom discussions or electronic communications between you and I may be documented and included in the research data. No recording devices will be used in this study. Anyone agreeing to participate in the study will have the opportunity to review and comment on the research document prior to submission to ensure that it accurately reflects their experience in the class. If you are at all uncomfortable with the information in the research document, we will work together to ensure that it accurately reflects your experience and is something with which you are comfortable.

Everyone participating in this study must at all times be respectful of each other and honour the honesty of reflection and observation that each brings to this research project. Any information that you share with me will be held in strict confidence, appearing only in the research report which you will have had the opportunity to edit. This is a unique research situation in which the researcher is also the classroom facilitator. You can be assured that your comments about the learning experience in no way affect your grades. Grades are objectively achieved by means of a marking rubric which is provided to you at the beginning of each graded assignment. It is important to note that your observations and reflections about the learning experience will not be anonymous. This is necessary in order for me to accurately understand your individual experience and potentially clarify your comments or ask questions. However, you will not be identified by name in the final report, but will be known only by a pseudonym of your choosing. You may choose to be identified in a listing of participants who took part in the study. Furthermore, if you would like specific comments made by you to be attributed to you in the
final report, you may request that you be identified by placing your pseudonym beside your real name on this participant listing.

All electronic documents will be housed in a password-protected network account accessible only by me. Care and caution will be taken to ensure that the computer account is never left unattended and accessible. Any hard-copy documents will be locked in my locked file cabinet. When transporting hard copy documents, I will ensure that the documents are never out of my care and control.

I will be using the information gained in this research project for scholarly purposes in the fulfillment of the final requirement toward completion of a master’s degree. Therefore, the existence of the research will be listed as an abstract, available online through the Athabasca University Digital Thesis and Project Room (DTPR), and the final research paper will be publicly available. Additionally, I will present the final report to interested parties within Assiniboine Community College, including management and faculty.

There are three main benefits of this study:

1. This study allows me to make decisions about incorporating PBL into other course curriculum.
2. Management and other faculty at Assiniboine Community College will be able to use this study as they consider implementing PBL into other curriculum throughout the college.
3. Most importantly, you as a student can benefit from this study. Through reflecting on your experience in this class, you hopefully will have learned much about yourself and how you learn. This will be useful to you as you continue your studies.

I do not foresee any potential harmful aspects of this study. I value your participation in this project, but I respect and understand that anyone can at any time and for any reason withdraw from the research project if they wish by notifying me. Choosing not to participate or choosing to withdraw from the study at any time will no way affect your grades, your standing in the Culinary Arts program, or your relationship with me.

If you have any further questions or want clarification regarding this research or your participation, please contact:

Researcher: Colleen Bootsman
bootsmac@assiniboine.net
(204) 725-8700 x. 6358

Research Supervisor: Dr. Judith Nielsen
NielsenJ@fsd38.ab.ca
(403) 652-7698
The Athabasca University Research Ethics Board has reviewed this research study and may be reached by e-mailing rebsec@athabascau.ca or calling 1-780-675-6718 if you have questions or comments about your treatment as a participant.

This study also has been approved under the research policies of Assiniboine Community College—contact Research Coordinator Karen Banuga (banugak@assiniboine.net 204-725-8700 ext 6199) if you have questions about ACC’s research policies.

Should you wish to participate in this study, please read, complete, and sign the consent form on the next page. Submit one copy to me in the envelope provided and keep the other copy of the completed form for your future reference.

Should you wish to decline to participate in this study, simply return both copies of the consent form in the envelope provided.
CONSENT:

I have read this Letter of Information and have had any questions answered to my satisfaction, and I will keep a copy of this letter for my records. My signature below is meant to confirm that:

- I understand the expectations and requirements of my participation in the research;
- I understand the provisions around confidentiality and anonymity;
- I understand that my participation is voluntary, and that I am free to withdraw at any time with no negative consequences;
- I am aware that I may contact someone in addition to the researcher if I have any questions, concerns or complaints about the research procedures.

Print Participant Name: ________________________________________________________________

Participant Signature: _______________________________________________________________

Print Preferred Pseudonym (first name): _________________________________________________

Date: ______________________________________________________________________________

By initialling the statement below,

____ I am granting permission for the researcher to include my name in listing of participants to be included in the final report.

____ I am granting permission for the researcher to include my pseudonym beside my name in the participant listing. I understand that this will reveal my identity in the final report.
Letter of Information

Project Title: Problem-Based Learning: Narrating Our Experiences

Researcher: Colleen Bootsman

Sponsoring Institutions: Assiniboine Community College and Athabasca University

Thank you for your participation in this research project to date. Your input is valuable! You are invited to participate in an end-of-course discussion that will assist the researcher in more accurately understanding your experience in the Word Processing Skills course. This informal group discussion will include some of your classmates and me. As with the original part of the study, you will have the opportunity to review and comment on the research document prior to submission to ensure that it accurately reflects your comments to date and your comments in the group discussion. It is important to me that this document accurately reflects your experience in this class. If you are at all uncomfortable with the information in the research document, we will work together to ensure that it accurately reflects your experience and is something with which you are comfortable.

Everyone participating in this group discussion must at all times be respectful of each other and honour the honesty of reflection and observation that each brings to this research project. Your observations and reflections about the learning experience will not be anonymous in this group discussion environment. Therefore, it is important that all participants respect the need for confidentiality among participants. Any information that you share during this group discussion will be held in strict confidence, appearing only in the research report which you will have had the opportunity to edit. As you indicated in your previously-signed consent form, any information you provide will be attributed to your chosen pseudonym and you will only be identified if you indicated that you would like your name to appear in a participant listing, with a further option to have your pseudonym recorded beside your name. As you have already received your final grade in this course, you can be assured that your comments about the learning experience in no way affect your grades.

As the researcher, I will be taking notes of our informal group discussion. These hard copy notes will not leave my care and control during our conversation, and immediately following will be locked in a locked file cabinet. These notes will then be typed and housed in a password-protected network account that is accessible only by me.

I will be using the information gained in this research project for scholarly purposes in fulfillment of the final requirement toward completion of a master’s degree issued by Athabasca University. Therefore, the existence of the research will be listed as an abstract, available online through the Athabasca University Digital Thesis and Project Room (DTPR), and the final research paper will be publicly available. Additionally, I will present the final report to interested parties within Assiniboine Community College, including management and faculty, and may also
disseminate the research results through future papers and presentations in academic and professional venues such as journals and conferences.

I value your participation in this project, but I respect and understand that a student may decline to participate in this additional informal discussion. Choosing not to participate or choosing to withdraw from the study at any time will no way affect your grades, your standing in the Culinary Arts program, or your relationship with me.

If you have any further questions or want clarification regarding this research or your participation, please contact:

Researcher: Colleen Bootsman

bootsmac@assiniboine.net
(204) 725-8700 x. 6358

Research Supervisor: Dr. Judith Nielsen

NielsenJ@fsd38.ab.ca
(403) 652-7698

The Athabasca University Research Ethics Board has reviewed this research study and may be reached by e-mailing rebsec@athabascau.ca or calling 1-780-675-6718 if you have questions or comments about your treatment as a participant.

This study also has been approved under the research policies of Assiniboine Community College—contact Research Coordinator Karen Banuga (banugak@assiniboine.net 204-725-8700 ext 6199) if you have questions about ACC’s research policies.

Should you wish to participate in this additional method of data collection, please read, complete, and sign the consent form on the next page. Submit one copy to me in the envelope provided and keep the other copy of the completed form for your future reference.

Should you wish to decline to participate in this study, simply return both copies of the consent form in the envelope provided.
CONSENT:

I have read this Letter of Information and have had any questions answered to my satisfaction, and I will keep a copy of this letter for my records. My signature below is meant to confirm that:

- I understand the expectations and requirements of my participation in this research;
- I understand the provisions around confidentiality and anonymity and agree to protect the confidentiality of other participants;
- I understand that my participation is voluntary, and that I am free to withdraw at any time with no negative consequences;
- I understand that my participation in this research project will in no way affect my grades in this course, my standing in the Culinary Arts program, or my relationship with the facilitator/researcher.
- I am aware that I may contact someone in addition to the researcher if I have any questions, concerns or complaints about the research procedures.
- I confirm that my preferences of pseudonym and anonymity as indicated in the previously-signed consent form signed have not changed.

I, ________________________________________________________________, agree to participate in this study. (Print Student Participant Name)

Participant Signature: ________________________________________________________________

Date: ______________________________________________________________________________
Appendix E: Listing of Participants

My thanks to the following students who so willingly participated in this research project:

- Arin Hiebert
- Kara Smith
- Krystin Cantelo
Bibliography


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