Análisis del impacto del Aprendizaje Basado en el Problema: Una Innovación en el Proceso de Enseñanza-Aprendizaje para Mejorar el Desarrollo de las Habilidades de Escritura en el Idioma Inglés

Tesis que para obtener el grado de:

Maestría en Educación con acentuación en Procesos de Enseñanza-Aprendizaje

presenta:

Andrea Sue Richardson

Asesor tutor:
Mtra. Carmen Medina Almeida

Asesor titular:
Dra. Martina Catalina Del Angel Castillo

Atizapán, Estado de México  
Abril 2011
Analysis of the Impact of Problem Based Learning: An Innovation in the Teaching-Learning Process to Enhance the Development of Writing Abilities in the English Language

Tesis que para obtener el grado de:
Maestría en Educación con acentuación en Procesos de Enseñanza-Aprendizaje

presenta:

Andrea Sue Richardson

Asesor tutor:

Mtra. Carmen Medina Almeida

Asesor titular:

Dra. Martha Catalina Del Ángel Castillo

Atizapán, Estado de México       Abril 2011
Acknowledgements

- The author would like to thank her husband, Oliver, for his constant support during the writing of this thesis.
- She would also like to thank her students who participated in the activity for the research.
- The author acknowledges and appreciates the great support and guidance of her Thesis Advisor, Professor Carmen Medina Almeida, throughout the process of the research and the writing of this thesis.
- She also wants to extend her appreciation to the Tecnológico de Monterrey, Mexico State Campus for bestowing her the opportunity to study her Master's degree with the scholarship for her professional development and the benefit of the Languages Department at the institution.
Analysis of the Impact of Problem Based Learning: An Innovation in the Teaching-Learning Process to Enhance the Development of Writing Abilities in the English Language

Abstract

The focus of this study was to analyse the impact of Problem Based Learning in the innovation of the teaching-learning process in the English language, in order to enhance the development of writing skills in a high level English as a foreign language class of high school students in Mexico. The study used the qualitative research approach with action research methodology. The PBL activity involved 4 class sessions which were observed for data collection. Other data was collected using semistructured interviews and participant observation of the students’ written work. The study revealed that the implementation of PBL in the participating class contributed positively to the teaching-learning process in the development of writing skills, collaborative work, interactions among the students and the instructor and formal written work. The researcher makes a number of proposals to improve the strategies of implementing PBL in English language classes and possible teacher training courses at the Tecnológico de Monterrey high school, Mexico State Campus.
# Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signature Page</td>
<td>ii</td>
</tr>
<tr>
<td>Acknowledgements</td>
<td>iv</td>
</tr>
<tr>
<td>Abstract</td>
<td>v</td>
</tr>
<tr>
<td>Contents</td>
<td>vi</td>
</tr>
<tr>
<td>Index of Tables</td>
<td>ix</td>
</tr>
<tr>
<td>Index of Figures</td>
<td>x</td>
</tr>
<tr>
<td><strong>Introduction</strong></td>
<td>11</td>
</tr>
<tr>
<td><strong>Problem statement</strong></td>
<td>15</td>
</tr>
<tr>
<td>Conceptual background</td>
<td>16</td>
</tr>
<tr>
<td>Socio-demographic context</td>
<td>21</td>
</tr>
<tr>
<td>Prior diagnosis of the problematic situation</td>
<td>25</td>
</tr>
<tr>
<td>Definition of the problem</td>
<td>25</td>
</tr>
<tr>
<td>Objectives of the research</td>
<td>29</td>
</tr>
<tr>
<td>Rational and feasibility</td>
<td>31</td>
</tr>
<tr>
<td>Study limitations and delimitations</td>
<td>32</td>
</tr>
<tr>
<td>Glossary</td>
<td>34</td>
</tr>
<tr>
<td><strong>Theoretical framework</strong></td>
<td>36</td>
</tr>
<tr>
<td>The teaching-learning process of English as a foreign language</td>
<td>37</td>
</tr>
<tr>
<td>English language skills</td>
<td>39</td>
</tr>
<tr>
<td>The writing process</td>
<td>39</td>
</tr>
<tr>
<td>Writing to learn</td>
<td>42</td>
</tr>
<tr>
<td>Strategies in English language: teaching and learning</td>
<td>43</td>
</tr>
<tr>
<td>Teaching strategies</td>
<td>43</td>
</tr>
<tr>
<td>Learning strategies</td>
<td>44</td>
</tr>
<tr>
<td>Importance of collaborative learning</td>
<td>46</td>
</tr>
<tr>
<td>Problem Based Learning</td>
<td>49</td>
</tr>
<tr>
<td>Task Based Learning</td>
<td>51</td>
</tr>
<tr>
<td>Other approaches to teaching writing abilities</td>
<td>52</td>
</tr>
<tr>
<td>Related research</td>
<td>58</td>
</tr>
<tr>
<td><strong>Methodology</strong></td>
<td>68</td>
</tr>
<tr>
<td>Methodological focus</td>
<td>69</td>
</tr>
<tr>
<td>Population and sample</td>
<td>71</td>
</tr>
<tr>
<td>Participants</td>
<td>73</td>
</tr>
<tr>
<td>Instruments</td>
<td>74</td>
</tr>
<tr>
<td>Procedures</td>
<td>76</td>
</tr>
<tr>
<td>Data analysis strategies</td>
<td>80</td>
</tr>
<tr>
<td>Validity, Credibility and Dependability</td>
<td>82</td>
</tr>
<tr>
<td>Strategy to solve the problem</td>
<td>84</td>
</tr>
<tr>
<td>Results</td>
<td>Page</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Presentation of the results</td>
<td>86</td>
</tr>
<tr>
<td>Results of the participant observation of interaction among students</td>
<td>88</td>
</tr>
<tr>
<td>Results of the semistructured interviews to the students</td>
<td>99</td>
</tr>
<tr>
<td>Analysis and interpretation</td>
<td>110</td>
</tr>
<tr>
<td>Conclusions</td>
<td>123</td>
</tr>
<tr>
<td>Discoveries</td>
<td>125</td>
</tr>
<tr>
<td>Conclusions with regard to the objectives of the investigation</td>
<td>125</td>
</tr>
<tr>
<td>Future research projects</td>
<td>142</td>
</tr>
<tr>
<td>References</td>
<td>214</td>
</tr>
<tr>
<td>Appendixes</td>
<td>148</td>
</tr>
<tr>
<td>Appendix A: Permission from the institution to conduct the action research</td>
<td>148</td>
</tr>
<tr>
<td>Appendix B: Syllabus for International Baccalaureate English Course</td>
<td>150</td>
</tr>
<tr>
<td>Appendix C: Semi-structured interview with the director of the Languages Department (transcription)</td>
<td>153</td>
</tr>
<tr>
<td>Appendix D: Problem based learning activity for the English B, 4th semester course Tecnológico de Monterrey, Mexico State campus</td>
<td>155</td>
</tr>
<tr>
<td>Appendix E: Rubric for evaluating the collaborative work</td>
<td>157</td>
</tr>
<tr>
<td>Appendix F: Rubric to evaluate the Students' Written Report</td>
<td>159</td>
</tr>
<tr>
<td>Appendix G: Participant observation guide of the interaction among the students during the completion of collaborative work using PBL</td>
<td>161</td>
</tr>
<tr>
<td>Appendix H: Participant observation of the interaction among the students during the completion of collaborative work using PBL (transcription - session 1)</td>
<td>164</td>
</tr>
<tr>
<td>Appendix I: Participant observation of the interaction among the students during the completion of collaborative work using PBL (transcription - session 2)</td>
<td>168</td>
</tr>
<tr>
<td>Appendix J: Participant observation of the interaction among the students during the completion of collaborative work using PBL (transcription - session 3)</td>
<td>172</td>
</tr>
<tr>
<td>Appendix K: Participant observation of the interaction among the students during the completion of collaborative work using PBL (transcription - session 4)</td>
<td>176</td>
</tr>
</tbody>
</table>
Appendix L: Semi-structured interview guide for the students about the PBL activity .................................................................180

Appendix M: Semi-structured interview for the students about the PBL activity: Transcription student 1 ...........................................182

Appendix N: Semi-structured interview for the students about the PBL activity: Transcription student 2 ...........................................186

Appendix O: Semi-structured interview for the students about the PBL activity: Transcription student 3 ...........................................189

Appendix P: Table of frequencies for the final grades of the written work ..........................................................................................192

Appendix Q: Proposal for peer-assessment survey in future PBL activities.....................................................................................193

Appendix R: Assignment B from the written work of the PBL activity...194

Appendix S: Assignment C from the written work of the PBL activity...201

Curriculum Vitae .................................................................................................................................................. 221
Table Index

Table 1: Categories attained from the participant observation of the students’ interaction..................................................89
Table 2: Grades of each group according to the categories in the writing rubric ..................................................................................................97
Table 3: The results of the evaluation of the students’ written report.................97
Table 4: Categories attained from the semistructured interviews to the student ........................................................................................................99
Table 5: Responses about the category of collaborative interaction..................100
Table 6: Responses about the category of the chosen problem..........................102
Table 7: Responses about the category of writing abilities.................................105
Table 8: Responses about the category of students’ satisfaction.........................107
Table 9: Responses about the category of future experiences with PBL..............109
Table 10: Proposal for a possible training course for the language teachers of the Tecnológico de Monterrey, Mexico State campus about Problem Based Learning in foreign language classes...............................141
Figure Index

Figure 1: Strategy scheme of action research (step by step process to solve the problem) ......................................................... 84
Introduction

This research project intended to embark upon the issue of using problem-based learning in higher level English language classes for improving the students’ writing abilities. More specifically, the research question is: What is the impact of the implementation of PBL in innovating the teaching learning process in the English language to strengthen the development of writing abilities in the language for the upper intermediate to advanced students in the English B course in the International Baccalaureate program at the Tecnológico de Monterrey, Mexico State Campus? In order to do this analysis, the researcher established the following study goals:

- To describe how the teaching-learning process develops through implementing PBL with regard to a possible innovation in the development of writing skills in English.
- To know the interactive strategies that develop in the classroom during the PBL activity.
- To describe the students’ participation in the collaborative activities belonging to the PBL stages of the written work.
- To determine if PBL favours the correct use of grammatical structures, new vocabulary and correct spelling in formal writing.
- To give proposals for improving the teaching practices, by using PBL as a meaningful learning practice involving collaborative learning and writing in English in the International Baccalaureate program in the high school at the Tecnológico de Monterrey, Mexico State campus and in other high-level English courses at the institution.

The topic came about as the teacher-researcher was interested in developing new ways to help her students improve their writing and incorporate a writing activity with
the other English language skills and meaningful collaborative work. As a teacher of higher level English classes, the researcher noticed how there was a lack of these types of integrative activities and felt the need to begin to develop strategies to improve this aspect of the teaching practice at the institution (i.e., there was a problem to be solved). By involving problem solving skills with writing and collaborative work, the students enjoy the benefits of a holistic learning experience with the English language which allows them to apply all the previously learned skills in one encompassing activity.

The report contains 5 chapters: the Problem Statement, Theoretical Framework, Methodology, Results and Conclusions. The problem statement includes a conceptual background outlining key background information about the study: issues in foreign language writing, problem based learning, interaction, collaborative learning and student needs. It also gives the socio-demographic context of the institution where the study took place, the prior diagnostic of the problem and the definition of the problem. The objectives are detailed in this chapter along with the rational and the study’s limitations and delimitations.

The theoretical framework presents the definitions of the research constructs and covers a number of important theories about the teaching-learning process of a foreign language, writing skills in English, teaching and learning strategies, collaborative learning and they types of interaction, problem based learning, task based learning and other approaches to teaching writing. Additionally, there is a section including a summary of 5 studies in the fields of problem based learning, task based learning in English language classes, academic writing needs and the collaborative writing process in a cross-cultural web-based project. This section provided the researcher with vital information about theories for comparison with the
outcomes of this study about using PBL to promote interaction and the collaborative writing process. The methodology chapter includes information about the methodological focus, qualitative research with action research methodology. It details the information about the participants and the context of the study. The instruments and procedures employed are described as well as the data analysis strategies. The author also gives the readers assurance about the validity and dependability of the investigation. Furthermore, a figure outlining the problem solving strategy is proportioned to give a visual about the procedure (i.e., the action plan).

The results are presented according to the instruments used, the participant observations and the semi-structured interviews are analysed and interpreted in congruence with the objectives of the study. The data collected was categorized according the problem and they focused on the interaction that took place during the activity, writing abilities, how the students reacted to the chosen problem and the learning experience with problem based learning. Additionally, in this chapter, the author relates the results of this study to the theories presented in chapter 2 (triangulation strategy).

Finally, the conclusions consider the results further and describe them according to the research questions. These conclusions wrap-up the study’s findings by giving a final review of the results and inferences about the effects of the problem based learning activity on the interaction and writing abilities of the participating students. To supplement the analysis of the results, the author proposes ways to enhance the teaching-learning process with the use of PBL through a training course proposal for language teachers at the institution where she teaches, as well as a number of future research projects that would be able to make more discoveries about the issue of using PBL to improve teaching practices.
This project was the researcher’s first time to conduct an investigation and the first time implementing problem-based learning with writing. She hopes that she can encourage other teachers to try this type of activity and offer the students a chance to experiment with their collaborative problem solving skills in English and formulate written tasks based on the research, discussions and debates. This innovative technique can be very motivating for English language students and it gives them a break from the traditional writing activities, encourages them to participate and interact on a number of levels and gives them real-life experience with the language. The systematic inquiry conducted by the researcher in her own classroom focused on the enhancement of the teaching and learning process.
1. Problem Statement

In this chapter, the problem statement for the research is given including the conceptual background which outlines student needs, problems in writing in a foreign language, and an introduction to Problem Based Learning (PBL), including the importance of social interaction in collaborative learning. The socio-demographic context is described in detail displaying the environment, student profiles, program and objectives upon graduation from the high school where the study takes place. The definition of the problem depicts the issue of using PBL in a high-intermediate to advanced EFL class in finding the benefits of the use of this activity in group writing projects while being conscious of student needs. The general objective is to analyze the impact that the implementation of PBL has on the innovation of the teaching-learning process and on the strengthening of the development of writing skills for upper-intermediate to advanced level English language students in the International Baccalaureate program at the Tecnológico de Monterrey high school, Mexico State Campus. For this study, action research is used. The rational justifies the need for the study in that it will enable other teachers to know about these types of activities and give the students an opportunity to work with the language in a different way than traditional writing activities. Additionally, the need for the study comes from the importance of resolving a problem and contributing to the innovation of the teaching-learning process strategies at the Tecnológico de Monterrey, Mexico State campus in the area of English teaching and from the periodic lacking performance of the students with a final goal of propitiating meaningful learning in the development of writing abilities. The limitations and delimitations outline the possible problems encountered during the process of the investigation and the study’s context. The study takes on a
qualitative action research approach where the teacher-researcher conducts the investigation with her own group of students. As Hernández et al. (2010) state, qualitative research is done in the natural environment of the participants; thus, their everyday classroom and time is used. Finally, there is a glossary to facilitate the reading of the thesis.

**Conceptual Background**

Writing in a second language is not an easy task. As Zen (2005, p.11) says:

> Although every normal human being can speak, not everyone is able to write well even in his native language. This fact implies that learning to write is a deliberate effort that must be taught and nurtured. This is even more so when writing in a second / foreign language is considered.

This very true statement is vital to ponder as the topic of writing in English as a second language is considered. As it is such a huge undertaking, where students often fear looking at that blank page in front of them, teachers need to be prepared to face this mission by being equipped with knowledge, methodology, and more importantly the willingness to be a part of this learning process. Teachers can help students through the obstacles and prepare them to do it on their own.

Students of all levels should be taught writing skills. In the lower levels they can be writing simple sentences, to paragraphs in intermediate levels and in the advanced levels they can be writing more sophisticated works that incorporate a writing process and cognitive abilities. In the writing topics, teachers can be more demanding and expect that the students do research and follow a writing process, which can be demonstrated by the teacher then adapted by the students to fit their individual styles. By giving students abundant guidance, examples, feedback and support, teachers can ensure that the teaching and nurturing that Zen exemplifies is carried out. However, it is not always as simple as that. Collaborative writing can also
benefit students in that discussion and interaction can help stimulate ideas. As well, collaborative writing can aid the revision and editing process, as there is more possibility of writing with correct grammar and wording with the variety of experience that each group member brings. A teacher’s interaction is also important in that constant feedback and monitoring can facilitate greater confidence and ease in the process.

Interaction among students can be part of the learning process. Dillenbourg, Baker, Blaye & O’Malley (1996) comment on Piaget’s socio-constructivist theory and say, “it is above all through interacting with others, coordinating his/her approaches to reality with those of others, that the individual masters new approaches” (p. 3). They further report that during the problem solving process, differentiating opinions and knowledge can promote the need for reasoning and assist the learning process. Thus, it can be inferred that collaborative work and interaction can enhance the learning process, not only among students but also between student and teacher. Teachers can aid the critical thinking process by not directly answering questions, rather giving guidance and guiding the student in such a way that he or she will answer it for themselves. This is one of the key points in the learning process of PBL.

A topic that must be addressed is the student needs. Teachers have to be aware that students will not only need to speak English with a certain degree of fluency, but also be able to use it for academic purposes, be efficient writers and be able to use it in collaborative work. Several researchers have tackled this issue in studies with foreign university students attending English speaking universities. Tait (1999) did a study at the University of Melbourne in Australia that revealed a number of student needs. She lists: expectations and guidelines, knowledge of plagiarism, grammatical accuracy, congruency between ESL classes and content courses, and academic
vocabulary and discipline specific words. Carson & Leki (1994) discovered similar needs and added that students wanted more instruction in specialized forms of writing, such as lab reports and business letters. In this study, it was noted that a requirement to achieve a high grade in the course, along with the English language, was a demonstration of critical thinking skills. A study done by James (2006) took a different focus and analyzed the transfer of skills from an ESL class to content-based courses. He notes that the highest transferred skills were reading and writing, and also notes that students commented on the group work and problem-solving abilities were useful.

Other important skills that students require are the ability to think critically, research properly, and work in teams. Although the context of the present study is different than that of the previously mentioned, there is relevance in reviewing these needs and required skills, as a large number of the students who will take part in the study have a keen interest in studying abroad in English-speaking universities. In high schools, teachers have to be aware of the skills and abilities that will be required of the students in university and later in their careers; teachers can be a part of that preparation process. Teachers of higher level English classes can also become instructors of these skills by using the problem-based learning method.

Wee (2004) defines PBL as “an authentic education that requires students to go through during learning the same activities as those valued in the real world” (p. 14). PBL uses implicit learning where the students are in charge of the outcome and what they gain from the process. The teacher is responsible for presenting the case and giving necessary background information, then steps back and acts as a guide or facilitator. In an EFL class, the teacher will be there to answer vocabulary questions and give guidance with language structures necessary, but the majority of the learning
will be done by the students through their discussions and research. Amador, Miles & Peters (2006) allocate the following steps to PBL:

1. *Present students with a problem.* Students assess the problem and identify what they know in relation to the problem.

2. *Determine what aspects of the problem they do not understand.* These learning issues serve to focus group discussion.

3. *Rank learning issues in order of importance.* The group decides which issues will be considered by the whole group or by individuals. In the case of individual follow-up, that student is responsible for informing the rest of the group about his or her findings.

4. *Explore previous learning issues and integrate new knowledge in the context of the problem.* Students summarize their progress, make connections between previous and newly acquired knowledge, and develop new learning issues (Miles & Peters).

As seen in these steps, the students have to apply critical thinking and be responsible for their own learning through the process of solving the problem. These are fundamental skills that students must obtain for future success in the age of information. Clark & Clark (2009) assert that education in the society of knowledge requires that teachers implement activities that promote the use of highly cognitive abilities, decision making competence and collaborative learning skills. Burbules (2000) coincides with Clark & Clark and adds that the abilities to work efficiently, creatively and analytically are also vital in education for a globalized world.

In PBL, students are presented with an actual current problem which has not only one solution. In this aspect, the solution that the students come up with cannot be wrong, as long as it is logical and they can support their decision with adequate
research and give fundamental reasons why their solution would work. The problems themselves depend on the field of study. In an EFL class the teacher has the freedom to choose the topic and complexity of the problem based on the level of the students, topics they have seen in class, student interest, student background knowledge, level of research skills, and time allowed in class for the project. Another consideration in choosing a problem is what current issues in the world, or in the realm of the students’ interest and knowledge are there that they can possibly tackle in a PBL activity.

Another advantage to PBL is that it follows descriptive language teaching and independent learning by the students. Freeman & Freeman (2004) state that descriptive language learning, as opposed to prescriptive, allow students to acquire the language by noticing patterns, comprehending their meaning and later being able to produce these patterns. They assert that this type of language learning is what teachers should be implementing. Thus, during reading and research for the problem, students encounter complex sentence patterns and internalize them, and this is reflected in their writing. In addition, they confront new vocabulary that they can add to their existing lexicon. With respect to independent learning, PBL enables students to discover and acquire new knowledge in a field and apply it to coming up with a solution. Teachers do not give a list of options that the students can choose from; they have to be conscientious, inquisitive and critical thinkers. Considering the previous analysis, this study, by using PBL, wishes to improve teaching practices in relation to language learning by giving students hands-on practice with complex sentence structures and new vocabulary in their reading and research that will be transferred to their writing.

Gocer (2010) advocates that teachers must strive to evoke interest in their students and relay the importance of learning a second language. They also must be taught useful language that will aid them in everyday life and be able to practice what
they learn. Furthermore, the students should be informed of the objectives of each learning session so they understand the purpose of what they are learning and practicing. This author also asserts the use of a variety of approaches, methods and techniques in order to adapt to the students’ different learning styles. The promotion of metacognitive skills is also vital in language teaching so that the students become more aware of their own learning and can monitor their own progress. These ideas bolster meaningful learning in the classroom.

**Socio-demographic Context**

The study takes place in the Tecnológico de Monterrey, Mexico State Campus in the high school division. This is a private educational institution which caters to the middle to upper economic class citizens of the area. The school is equipped with all the modern facilities for learning, such as up-to-date computer labs, science labs, high-speed internet and all classrooms have projectors and speakers. Along with these educational tools, the school has an array of facilities for sports and extra-curricular activities, including art and dance studios; football, volleyball, basketball and tennis courts; and photography and music classes. The high school division has over 2000 students and has three distinct programs: Bilingual, Multicultural and International Baccalaureate. The school’s mission consists of the following:

- Promote the international competitiveness of business enterprises based on knowledge, innovation, technological development, and sustainable development.
- Develop business management models to compete in a global economy.
- Create, implement and transfer business incubator models and networks in order to contribute to the creation of enterprises.
• Collaborate in professionalizing public administration; and analyze and propose public policies for Mexico's development.

• Contribute to the sustainable development of the community with innovative models and systems for its educational, social, economic and political improvement

(Tecnológico de Monterrey, 2009, section: Misión, 2015).

Moreover, the high school has an extended list of objectives for graduates. Some of these are:

• Use current academic knowledge that facilitates the making of successful decisions in university and personal life.

• Strengthen self-esteem and value family and social environments.

• Act in a congruent manner with respect to universal values to strengthen the ethical commitment.

• Develop, from a multicultural perspective, the ability to have interpersonal and positive relationships without social, gender, racial, political or religious biases.

• Responsibly participate in and direct activities that seek creative solutions that benefit your community.

• Have the ability to work collaboratively which permits the development of social interaction.

• Learn self-learning strategies that constantly develop the practice of critical thinking.

• Communicate effectively, written and orally, in Spanish and English.

• Have the ability to research effectively and analyze critically sources of
information.

- Practice work ethics, responsibility, respect, discipline and effort.
- Critically analyze social reality, economics, politics and the environment of the country with a humanistic vision in order to act as a committed citizen (Tecnológico de Monterrey, 2009, section: Misión, 2015).

More specifically, in this qualitative research the classes are from the International Baccalaureate Program (IBP). The learner profile of this program dictates that the students should be: inquirers, knowledgeable, thinkers, communicators, principled, open-minded, caring, risk-takers, balanced and reflective.

This is a highly demanding program which requires a very high average from secondary school to enter, 90 or over, and a very high score on the entrance exam, 1200 points or more on the Academic Aptitude Test from College Board. In addition, the students have to have a high level of English to enter, 500 points or more on the TOEFL exam. The students of this program form a small subgroup within the high school. Currently, there are 108 in the program and each generation consists of 35-40 students. To complement their studies of the regular 6 classes per semester in a 6 semester program, they take 3 additional courses: Theory of Knowledge (TOK), investigation which requires a final product of an extended research essay that they do independently, and community service which obliges the students to complete 150 hours of service.

The class in which the study takes place is in English B, which is a practical approach to language study that incorporates interactive and individual oral practice, reading comprehension with analysis of text type and language, and different types of writing (see Appendix Q). There are 2 English classes in the International Baccalaureate program, English A2 and English B. As stated, English B is a practical
approach to the language whereas English A2 includes in-depth literary analysis and studies of topics such as social issues and media and culture. The class is presentia without the use of online tools such as Blackboard. The students in this class have a high-intermediate to advanced level of the language. The participating class is in their 4th semester of study in the International Baccalaureate program. The class has 20 students which will facilitate the observation of the activity. The student population is majority Mexican; however, there is one student of Korean nationality, thus making English her third language.

The team of teachers for the International Baccalaureate Program, as well as their studies in education and their specific studies in their respective fields, are trained in special courses for the program. These courses consist of a 4 day workshop given by specialized and experienced IB teacher trainers. The courses contain the learning of the IB curriculum, general and in the certain subject, material, evaluation, teaching approaches, student and teacher expectations and much interaction and sharing of experience among the teachers. Each teacher is equipped with an extensive program guide which includes evaluation criteria, curriculum, course objectives and ideas for material. In addition to this, IB teachers meet regularly to discuss the students’ progress and have semester meetings with the students’ parents to inform them of the class content, expectations, work load and address individual concerns.
Prior Diagnosis of the Problematic Situation

In relation to the problem, a semi-structured interview with the director of the Languages Department of TEC (Mexico State Campus) was conducted in order to elaborate on the previous diagnosis of the problem (see Appendix C). The problem being the lack of innovative teaching methods at the institution, which is the basis of this thesis, to analyze the impact of using PBL as an innovative way of teaching and learning in English classes in relation to enhancing writing skills. The interview established that there are no formally implemented activities that promote collaborative work with writing tasks due to the size of the classes and that PBL has very little use in the department. There is almost no innovation in the teaching-learning process. Only few teachers focus on the application of new learning strategies. The director recognizes the need to have better teacher-training in the area of collaborative work and critical thinking. He also agrees that there would be benefits from using PBL incorporated with writing tasks; for example: to develop creativity, analytical skills and a good attitude towards critical thinking assignments in English. By conducting this interview, the definition of the problem is clearer and the need for using different types of activities that promote collaborative learning and critical thinking through writing tasks. There is a problem that needs to be solved, in order to promote active and constructive learning in the English language classes.

Definition of the Problem

Considering the previous information, it is important to keep up with educational demands and prepare students for a future where they have to face and solve problems, make decisions, think critically and be able to write fluently in
English. The incorporation of PBL into a high-intermediate to advanced level EFL class aims to give the students new challenges that not only promote the development of the mentioned skills but does it in their second or third language. This type of activity involves both oral and written communication as well as a high level of reading comprehension; thus, incorporating practice of all language skills and respecting the input hypothesis which states that language learners should be given input that is slightly higher than their current level of output.

Acknowledging the prior diagnostic of the problematic situation, there are other factors to consider for the implementation of PBL in upper-intermediate to advanced level English language classes. The researcher sees a need to implement different types of activities that challenge the students, not only with the high level language but also using problem solving and critical thinking skills collaboratively and involve them with writing tasks. The researcher feels that many students see English class just as a means of improving their language skills, which, of course, is the primary aim; however, current society demands that the students be able to interact using the language in their future careers, thus, the abilities acquired in the PBL activities will be beneficial, especially with a focus on writing that is fundamental in the age of information communication skills. Another reason is that in the upper level classes, there is a large focus on vocabulary acquisition and writing and there have been little innovative ways of teaching these skills at the Mexico State Campus. The current teaching techniques used tend to be traditional and linear, thus not providing the students with new challenges and diverse ways of working with the language.

The researcher implements action research as the wish is to improve her teaching practices. Hartman, Kretschmer & Wang (2010) comment that through
action research the instructor has the liberty to elect the problematic situation he or she sees and conduct research accordingly. The steps these authors outline are: finding a practice that could be improved; planning a course of action that involves change in the practice; realizing the plan; and evaluating the effect and making subsequent modifications in the teaching practice. One of the key points in action research is the reflection done by the researcher as a participant and the facility to make changes based on the study results and reflection.

Due to the fact that language acquisition and learning writing are very long processes, there are many constructs to consider. The students may find that the group work interferes with their own individual learning and perfecting of the language and their writing skills. Considering what Tait (1999) notes about student needs, one of the foremost interests of students is grammatical accuracy; however, as James (2006) discovers, problem solving in an ESL class was also stated to be beneficial to the students. Lee & Kim (2005) discuss that collaborative learning in PBL gives the learners a common goal and allows them to articulate their thoughts through discussion. This discussion among peer learners can be more effective than interaction with the teacher as the students are at the same level. As they work through a problem, they may encounter conflicts and differentiating opinions, thus giving the students a chance to explain their own understanding and reasoning, which allows all members of a collaborative work team to learn.

The instructor represents a facilitator in the PBL activity. The instructor presents the small groups within the class with problems to be solved, strategies and step by step guidelines to accomplish the goal of the activity. Explicit examples are also given. The interaction between the students and the teacher will be one of guidance; the teacher is not there to solve the problem for the students, rather to help
them through the process, leading them to recourses or through the thought process that problem solving requires. The nature of the activity requires group work; thus, interaction among the students is upmost importance. The students practice listening, responding to what they hear, reasoning and defending their opinions. They must show interest, respect towards their fellow students and participate actively. Within the team, natural roles are designated to each member: leader, recorder, researchers and writers, and these roles overlap with the collaborative work. The team members must be aware of the difficulty that arises whilst coming to a consensus and be able to work through that difficulty and all the while take advantage of the group work to enhance the learning experience.

The teams are evaluated on their work as a team (collaborative performance), completing the required steps in the problem solving process and formulating their solution in the written work that is handed in at the end; and are evaluated individually on their efforts and contributions to the collaborative task. The written work is evaluated and analyzed by the correct use of complex grammatical structures; the proper use of new vocabulary and terms; and overall coherence and unity of the work.

The general research question may be stated as follows: What is the impact of the implementation of PBL on the innovation of the teaching-learning process and on the strengthening (enhancement) of the development of writing abilities in English for students in the English B course at the Tecnológico de Monterrey high school, Mexico State campus? The subsequent questions that the investigation proposes are:

- How does the teaching-learning process develop through implementing PBL with regard to a possible innovation in the development of writing skills in English?
What interactive strategies develop in the classroom during the PBL activity?

How is the students' participation (performance) in the collaborative activities belonging to the PBL stages of the written work?

Does PBL favour the correct use of grammatical structures, new vocabulary and correct spelling in formal writing?

What proposals can be made for improving the teaching practices, by using PBL as a meaningful learning practice, involving collaborative learning and writing in English, in the International Baccalaureate Program at the Mexico State Campus and in other high-level English courses at the institution?

Objectives of the Research

The objectives include:

To describe how the teaching-learning process develops through implementing PBL with regard to a possible innovation in the development of writing skills in English.

To know the interactive strategies that develop in the classroom during the PBL activity.

To describe the students' participation (performance) in the collaborative activities belonging to the PBL stages of the written work.

To determine if PBL favours the correct use of grammatical structures, new vocabulary and correct spelling in formal writing.

To give proposals for improving the teaching practices, by using PBL as a meaningful learning practice involving collaborative learning and writing in English, in the International Baccalaureate program at the Mexico State Campus and in other high-level English courses at the institution.
In congruence with the IB student profile, which states that the students are thinkers, PBL offers a dynamic approach to learning that allows the student to demonstrate and implement critical thinking skills. The IB student profile also indicates that the students are inquirers and communicators. PBL facilitates research and meaningful communication; hence, the students will be able to demonstrate their acquisition and use of inquiry and communicative skills. Additionally, the setting of a PBL activity is highly social and contributes to the creation of a thriving learning environment.

It is important that teachers know about using alternative methods of instruction for English language learning and writing that involve working with the language, not direct instruction of the language, and understand their advantages. By comprehending these advantages, teachers will be able to experiment with PBL in their own classes and incorporate it into lesson plans and curriculum. It has the objective to open doors to innovative ways that the students can do self-guiding and self-learning tasks where the teacher acts as a provider and facilitator in the classroom and the collaborative work provides social interaction. It is also essential that at the higher level other vital skills are practiced along with instruction of the language, and obtain practice in working with the language. This type of activity creates a meaningful learning experience for the students as they are working with a real life problem and the solving process includes debate and discussion, which helps develop their interactive oral skills along with critical thinking, then formulating their thoughts and discoveries into a well-organized written report. Furthermore, PBL enables a more dynamic teaching-learning process, favours active learning and centers on creating an amicable social environment. These benefits all respond to the student
The research takes a qualitative action research approach that involves participant observations, semi-structured interviews, evaluation of the written work. Another objective is to evaluate the students on the process as well as the outcome. For many writing assignments, teachers often only grade the final draft that is handed in to them, when in reality, writing is a process, a mental process, it is just that that part of it is not visible to the teacher. With PBL, a teacher can observe the interaction of the students in a group and witness the discussion, take notes, and use it as part of the grade. As well as observing the process of the activity, the teacher-researcher can interact with the students and guide them in discussions when needed and ask provoking questions related to the problem.

*Rational and Feasibility*

By doing this investigation and presenting the results, teachers of high level English courses are able to see the benefits of using PBL in their classes. Teaching is not a solitary type of work; it involves sharing experiences with colleagues and offering suggestions on how to improve classes. Keeping this in mind, the study will promote professional development not only for the researcher but all those with whom the investigation will be shared. The study facilitates the use of new activities on a variety of topics that involve skills other than speaking, listening, reading and writing.

Teachers see their students incorporate problem solving skills, research and collaborative work. According to the PBL instruction manual for teachers from the Academic Vice-Rector, PBL promotes communication skills, both oral and written; creativity; critical thinking; self-directed learning; collaborative work, research skills and the abilities to identify one’s own strengths and weaknesses. Instructors can
witness the dynamics of a PBL activity and notice how the learning process evolves among the students with their discussions, arguments, defenses, reasoning, coming to a final consensus on the solution to the problem and finally their solution in a formal written assignment. The point is to go beyond the language in English classes and see the students involved in real life issues and putting their heads together to solve actual problems. Along with the problem solving skills and group work, the investigation incorporates writing skills as the end of the PBL task involves a write-up of the solution and the process that it takes. This type of writing offers the students a variety to the traditional task of essay writing.

The study is feasible in the IB English B class. Due to the nature of this course, the teacher can adopt different techniques that focus on the learning objectives of the course. These learning objectives include active discussion in groups and different writing tasks; and PBL incorporates both, and because the class is purely presentia, the process takes place inside the classroom. The class has a population of 20 students, so there will be 4 groups of 5 students each. The time is not a factor as the teacher has the flexibility to dedicate several classes to include the activity in the schedule. There is sufficient instruction about the steps that they take in the problem solving process and guidelines on the writing of the solution.

Study Limitations and Delimitations

Limitations

Because PBL is normally used in content based courses, finding appropriate problems and giving appropriate background information may be limiting. In order to solve this issue, the instructor gave the students 2 options of problems about topics of interest to the class. One was about an immigration question in the Unites States and
the other about furnishing an office to be environmentally friendly and have an amicable working atmosphere. The students opted for the second option and as it had been a previous topic used for learning in the class, the instructor referred the students to the previous learning in order to give them ideas for their assignment.

Another limitation occurred when two students were absent for a class during this PBL group project. One of the ways of evaluating was through observation, thus, attendance was important. The teacher informed the students that attendance was vital for their participation and their grade. As Roskelly (2000) points out, sometimes group work can result in one or two of the students doing the majority of the work on a project and the others are passive workers who participate and contribute very little. As a result, the two students who were absent for one class of the activity, lost points on their individual portion of the grade, the collaborative work (see Appendix E).

Another obstacle that occurred was the students’ inexperience with the didactic technique. Because this was their first experience with PBL in their English class, there was some confusion about the procedures and the students had somewhat of a tendency to not follow the procedures and instructions given. For example, one team started to obtain information before they had defined the problem, which did not follow the PBL stages outlined in the instructions (see Appendix D). The instructor intervened and let it be known to the students to follow the stages established in order to correct the problem. In addition, the roles that were to be assumed by each student were not followed by all teams as they were established in the instructions corresponding to the PBL stages (see Appendix D). Although 2 teams did follow the roles, it was evident from the semi-structured interviews with 2 students (see Appendixes L & M) that the other teams did not.

Additionally, a difficulty that tends to occur in language classes where the
native language is common among the students is the tendency to use that language during the interaction. Although the discussions occurred mostly in English, there were some utterances in Spanish. These utterances seemed to take place when the students were unsure of the correct expression or word in English or when they thought that the teacher was out of listening range. There were only a few reminders required and given by the instructor to keep the language to English only as the students conversed about the problem.

**Delimitations**

The research was centered on the English B course in the forth semester of the IB program. The actual classroom time was not extensive, 4 class hours and the study required observation during all 4 of those classes. Because the investigation was action research (with a qualitative approach), the researcher was the instructor of these courses; therefore, the study was not interfering with another instructor’s lessons. The study’s aims were not quantify results, rather to monitor or describe the students’ interactions and later make proposals for the improvement of teaching practices in the area of English language learning.

**Glossary**

*Action research:* Latorre (2008) describes action research as a broad range of strategies carried out in order to improve the education and social system. Elliot (1993, quoted by Latorre 2008) states that action research is a study of a social situation with a goal of improving the quality of the action in said situation.

*Collaboration:* Friend & Cook (1996, quoted by Diaz-Rico & Weed, 2006) define collaborations as a style of direct interaction between at least two coequal
parties voluntarily engaged in shared decision making as they work toward a common goal.

**Critical thinking:** Diaz-Rico & Weed (2006) define critical thinking as the ability to separate fact from opinion, support opinions from reading, make inferences, analyze ideas and solve problems.

**Social interaction:** Ramirez (2010) explains social interaction as human interaction based on social relationships taken as objectives, means or both. Moreover, it is the manner in which individuals understand their ties with others and with society.

**CLT:** Communicative language teaching

**ESL:** English as a second language

**EFL:** English as a foreign language

**PBL:** Problem based learning

**SILL:** The Strategy inventory for Language Learning

**TBL:** Task based learning

**TOEFL:** Test of English as a Foreign Language
2. Theoretical Framework

The research done and the information compiled for this theoretical framework consists of the following topics: the teaching-learning process of English as a foreign language, English language skills in relation to writing, strategies in English language: teaching and learning, collaborative learning with problem based learning (PBL) and task-based learning (TBL) and other approaches to teaching writing. As well, in accordance with interactive learning, the types of interaction are described; student-content, student-teacher and student-student. The reason that PBL was chosen was due to the fact that it requires an in-depth look at a situation that deals with real issues in the world that the students may encounter in their future careers. Because of the level of the students involved in the study and the program that they are in, International Baccalaureate which promotes and requires high level cognitive skills, PBL more aptly functioned in the learning process, challenged the students as well as allowed them to explore research possibilities and think critically. Furthermore, PBL helps develop the skills and competencies that the students who are the subject of this study will need in their future academic lives and careers. Although there has been extensive research done in the fields of second/foreign language learning, writing issues in a foreign language, as well as PBL, there was little evidence found of studies done in using PBL for writing purposes in a foreign language class of high-intermediate to advanced level learners. Thus, one of the methodological objectives of the chapter is to conceptually define this qualitative study’s constructs: PBL, interactive strategies and writing abilities in the English language.
The teaching-learning process of English as a foreign language involves many factors and considerations on the part of the teacher as well as the student. A teacher must take into account the learning environment established in a classroom, motivating factors and the reasons why their students are learning English. One of the key elements involved in creating a positive learning environment is promoting an interest in the language and helping the students see the benefits of learning English, not only for scholastic purposes but also for social. Gocer (2010) outlines 6 principles that can aid the teaching process of a foreign language:

- Listening, speaking, reading and writing skills must be taught together when teaching to use the language as a communication tool.

- The use of visual and auditory tools makes for effective teaching and create a natural environment in the classroom.

- Although the students must hear and use the target language, the use of their first language is appropriate when necessary.

- Students must be taught how the grammatical structures are used in daily communication and they must be given opportunities to practice it in that manner.

- The teacher must consider the students’ differences and needs.

- Before a teacher begins a lesson, the students must be informed of the objectives and what will be learned in the class, so that they are motivated to learn.

(Gocer, p. 197)

Gocer (2010) also asserts that in order to promote skill acquisition, a teacher must encompass the use of different learning styles to enable an equal opportunity learning
environment. He further states that the theoretical approaches must be acknowledged; such as: cognitive, communicational, social-emotional, auditory-lingual, audio-visual, functional conceptual and the natural approach. Within these approaches are the strategies, metacognitive, cognitive and social-affective. Cognitive strategies incorporate problem solving and direct analysis, paraphrasing and asking for repetition to keep a conversation going. Metacognitive strategies involve learning to learn, planning, goal setting and self-evaluation. The social-affective implicates collaborative work and interaction with peers and teachers. Gocer (2010) clarifies that the learning styles are unconscious traits that individuals have that dictate how they learn most effectively whereas learning strategies are consciously used by the students.

The above information is vital for language instructors to consider when planning and carrying out their daily lessons. Language teaching and learning goes beyond the realm of grammar, vocabulary, reading and writing lessons, it must be thought of as a whole unit, involving learning styles and strategies and always bearing in mind the needs and interest of the student. Knowing a number of teaching methods is also essential, but a teacher must also know the strategies that lie behind those methods and involve their students in those strategies and make them known to the students; thus they can become more responsible for their own learning.

Gocer (2010) indicates that language learning classrooms must be learner centered and facilitators should direct the students to the information and help them transform the information into something that can be used in real life. By doing this, the students will become active learners. The use of a wide variety of materials and a broad range of activities is fundamental in a language learning environment as to not limit the development of the students. Among the types of activities used, the students
should be provided with projects with which they can explore something that allows them to be creative, use their imagination, think in a different manner, and get involved in the learning process. Such activities are intriguing and inspiring to the students and also teach them to learn how to learn.

By analysing the information above, it can be seen that a language instructor acts as a facilitator in the classroom, giving the students the tools and some instruction, but allowing them to develop their abilities by the awareness and use of learning strategies. By making the classroom student centered, the students become more prompted to learn of their own accord and more likely to search for their own methods of personal language development. Although explicit teaching methods should not be disregarded and have their place in language classrooms, once students are at an intermediate to high level, more implicit methods should be used and students can be given projects that let them learn by doing and also be exposed to authentic material and real life situations. This can be related to using PBL in the classroom. A PBL activity incorporates a real life problem that the students must decipher, analyze and research; thus, they learn by doing and acquire the language through working with it.

*English Language Skills*

*Writing process*

Zen (2005) discusses the writing process as not only a way of teaching writing, but also a key factor in the development of cognitive skills. He states that there are two types of writing in language classes: "writing without composing" and "writing with composing" (p. 3). Writing without composing comprises of filling in blanks, note taking, list writing and other writing activities that do not involve much
creative thinking, whereas writing with composing consists of reports, essays, journals, letters, among other types of academic writing or writing that involves creative and/or critical thinking. Zen describes how second language teachers started to model their writing classes after writing classes for native speakers which focused more on the writing process rather than the final product, as native speakers often face the same difficulty in writing, which was less to do with language issues than competence in writing. This shift in approach was based on theories about cognitive psychology in which the writing process included recognizable steps: brainstorming or pre-writing, outlining, drafting, revising and editing. Teachers should be helping students through this process, acting as guides and allow students to find their own writing process. The stages in the writing process aided students to discover meaning and learn through the process of writing.

Both Diaz-Rico & Weed (2006) and Bloom (2003) support the writing process and believe that instructors should be grading the process as well as the final product. Both authors talk about the paradigm shift where the focus was on the activity as a meaningful way of interacting with the language, a way to learn and discover in the process, and writing as a social practice, as opposed to the focus on a finished written work. The writing process also allows for instructor intervention at various stages to help the students through the process and detect any problems closer to the point of their origin.

It is important to elaborate on the outline given of the writing process and explain the procedure of each step. First, the brainstorming or prewriting step includes finding a topic and deciding what approach to take with the topic. This can be done by making a cluster diagram, listing, reading for ideas, or depending on the topic, research can be done. It is valid to note that during this process a student should be
narrowing the focus of the topic. For example, a student may want to write an essay about sports, which is obviously a very broad topic. So, during the brainstorming process, the student will narrow it down to one sport, then to one aspect of the sport, in order to be able to give that one aspect sufficient coverage.

The next step is the outline. The reason why students should be encouraged to make outlines is to give clarity, unity and organization to their writing. An outline provides a visual skeleton to an essay and helps the student focus on the thesis statement and the appropriate subtopics. Because English writing is very linear, making a good outline will help keep the focus of the paper. After the outline, the student can begin writing the first draft. This step can cause some distress for the students as it is here that they have to find the words and sentences to put together the pieces of their outline. A good example essay can provide the guidance a student needs to begin this phase. Another strategy, other than providing a readymade example, is to take the students through this process. A teacher can demonstrate by writing an introductory paragraph, a thesis statement and follow it with the body paragraphs of the essay (for the traditional five paragraph essay) and a conclusion. This may seem like a lot to accomplish in one session; however, if several class hours are dedicated to teaching the writing process it can be done.

Revising and editing are imperative steps to practice, not only in the students own writing but in other works. Revising consists of checking the organization and possibly reordering paragraphs or sentences to make the paper flow more nicely and editing incorporates all that has to do with correcting grammatical, spelling, punctuation, and mechanical errors. This last step is often the least practiced by second language learners; thus should be emphasised in an EFL class. An experienced teacher usually has a list of the most common errors ELLs make and this list, with
proper corrections, can be made available and gone over in class, so that the students can practice looking for errors and more easily find them in their own works. Peer revision can be another useful tool during the editing and revising process.

Campbell (1998) is another supporter of teaching the writing process. She indicates that teaching writing should involve the same basic framework: planning, gathering information, drafting, revising and editing; however, she indicates that this procedure be taught to be flexible and interchangeable depending on the student and the writing task. She analogizes the writing process with a pinball machine saying that it can go back and forth between steps many or few times and play with it for a varying length of time before actually submitting the final draft. She asserts that teachers have to allow students to be flexible and try to allow time to tutor individually because inevitably each student will have different strengths and weaknesses. Other observations she makes are about the setbacks that language learners face that teachers have to be aware of. First, that their understanding or misunderstanding of texts read for research will affect the writing process. Secondly, that their cultural background and manner of writing may be very different from the linear and rhetorical approach used by native English speakers. Thirdly, she notes that when writing in a foreign language, one tends to do little proofreading or editing due to the fact that their expertise in the area is limited. Nevertheless, she recommends that teachers try to use the different cultural backgrounds to an advantage by letting students write about it rather than a setback.

Writing to learn

Leist (2005) links the process approach with the concept of writing to learn. This approach not only allows students to work on their language skills but also helps
develop cognitive and creative writing skills. The strategies introduced in the writing process are congruent with those used in higher level critical thinking, thus, enabling the students to discover and learn. Leist goes into great detail of the writing process described in the above section and elaborates on the notion of writing to learn. She talks about the process of writing an academic paper that requires much reading in the investigation stage which in itself is learning. Later she discusses how each step in the writing process encourages learning. The initial stages of pre-writing and outlining make students think about a topic then decide on sub-topics relevant to the main idea. The drafting stage is a linguistically cognitive process when students think about structures and vocabulary, often promoting the use of thesauruses which can facilitate the learning of new words. Then the revising stage, she claims, lets students critically think about the best order of the information and whether it is all relevant, which in some cases may even cause re-drafting, and allow students to discover their own writing process.

*Strategies in English Language: Teaching and Learning*

*Teaching strategies*

*The communicative approach.* The Communicative Approach or Communicative Language Teaching (CLT) focuses on the use of the language in real-life situations, and hence the name, promotes communication (Harmer 2001). CLT strays from the traditional approaches of teaching grammar and vocabulary and, stands by the argument that ample exposure to the language and sufficient chances to use and practice it are highly necessary for a learner's development. To say that CLT encompasses one approach is to limit what it has become, which is virtually any technique that a teacher uses to promote communication. Harmer (2001) notes that
although CLT is highly popular and used all over the world, is has been criticized for favouring native speaker teachers due to the variety of language use and the lack of focus on traditional grammar teaching methods. Nevertheless, CLT has become a very important asset to language teaching. Huang (2010) notes that form-focused instruction is a beneficial adjunct to CLT in order to help the production of grammatically correct language, which encompasses not only oral skills but also writing.

Ramirez (2010) notes that CLT goes beyond the students’ oral expression. It incorporates communicative language learning encompassing the creation of meaningful utterances including social and cultural aspects. The teacher’s role is one of the source of information and designer of activities that allow the students to be practitioners of the language and communicate with it in role plays that represent real-life situations. Communication in language teaching and learning embodies the use of the language in the 4 abilities: listening, speaking, reading and writing. Ramirez notes that writing involves other types of skills: achievement of the highest possible level of use of a language, mastery of linguistic forms, development of language abilities for meaningful communication in a variety of situations, and knowledge of social implications of linguistic forms. Considering this information, it can be inferred that writing is a vital part of the communicative skills when learning another language and it requires a higher level of ability with the language to be able to produce meaningful written work that is congruent with a social context.

Learning strategies

The learning of a second or foreign language is a topic of study that has grown in the past two decades due to globalization and the fact the English has become the
international language of business. Teachers of English as a Second or Foreign
glanguage have to stay abreast of the research done in the area in order to give their
students the best possible methods in learning and achieving fluency. It is important
to be well informed in the area of linguistics, second language acquisition, teaching
methodology and strategies, as well as be an observer of one’s own students and note
the trials and tribulations they have while learning English. Working collaboratively
with other teachers, sharing experiences and doing peer observations are also
beneficial ways of keeping up to date in teaching practices. Teachers can also attend
workshops and do research on their own and try out the practices they hear and read
about in their classes.

Huang (2001) mentions the 6 language learning strategies that The Strategy
Inventory for Language Learning (SILL), developed by Oxford, incorporates:
memory, cognitive, compensation, metacognitive, affective, and social strategies. The
purpose of SILL was for investigators to assess the frequency of these strategies used
by learners. All of these mentioned strategies relate to different skill areas in language
learning. For example, Chamot (2004) exemplifies that when students are preparing
for vocabulary or grammar exams, memorization strategies are helpful and when they
are learning for academic purposes, cognitive strategies are useful, whereas in a
communicative learning atmosphere affective learning strategies aid the learner.
Schmais (2003) notes that the more competent learners apply strategies that
incorporate self-motivation and self-management and use learning strategies that are
fitting to a certain task. In language learning situations, it is important for teachers to
promote language learning strategies as well as incorporate teaching methodologies.
Teachers can use implicit methods to relay the strategies but it is still recommended
that explicit explanations be given when they see that it is needed.
Huang's (2003) research also includes mention of teacher training with respect to the learning strategies. She notes that the main training teachers received involved instructor performance, instruction design, and evaluation. The instruction design included explicitness and purpose of content, learner's affective filter, providing a relaxed learning environment, ample practice provided, making students aware of the strategies and their functions and planning continuous strategy instruction. In her own study, a teacher reported that the students needed moral support from the instructor to enable positive development and gain self-confidence in their use of the language.

Regarding these learning strategies and the things that teachers can do to help students learn and use the strategies, teachers need to make their students aware of the opportunities there are for language practice beyond the realm of classroom instruction. Nowadays, with the internet, there are an infinite number of websites for English language learners. Teachers can spend some time searching for appropriate links to give their students that they can work on at home when they have some spare time. Another tip teachers can give their students is to keep a vocabulary diary and to review it daily. Also, in many places in the world, DVDs in English are available, so students can watch them and put the subtitles in English to hear and read the words at the same time. This will help improve listening comprehension as well as spelling.

**Importance of Collaborative Learning**

Collaborative learning is an essential part of education because it deals with interaction among students, between students and teacher and between students and the material. The different types of interaction become a part of the social setting and interchange that occurs in a presentential class as well as in distance learning environments. Ramirez (2010) develops the idea of these types of interaction. First
mentioned is the interaction between the student and the content which represents the intellectual interaction process. The student is made to retrieve existing knowledge through cognitive structures and understand the new information through that previously attained information, thus creating an internal conversation. In the interaction that takes place between the teacher and the student, the teacher’s role is to motivate the student and entice his or her interest. Additionally, the teacher is there to prepare the class and material, provide support and help the student be able to learn for himself or her. Next, the interaction among the students is discussed. This can refer to the learning process as well as any social interaction that occurs among a group of students. This interaction promotes the effort that students must make to complete a task correctly in order to obtain an agreeable evaluation. Lastly, Ramirez explains the interaction between the student and a web-based interface in distance or online learning situations. This interaction can be affected by the comfort level the user has with technology and the way the interface has been designed.

In congruence with the interaction that happens using web-based interfaces for interaction, Mortera (2002) notes the same types of interaction as Ramirez (2010); student-content; student-instructor; student-student; and student technology. Although the author recognizes that this type of interaction has its drawbacks, such as the lack of face to face interaction, the benefits are also discussed. For instance the control and independence it offers the students, the design of the interface and the information that is provided by the instructor and the flexibility of time and place for the participants involved. Lee and Kim (2005) also support this type of interaction with regard to PBL. They state that when the internet is used for educational purposes rather than just a simple delivery system, learning strategies have to be employed based on pedagogical theories. Additionally, when using the web-based tools, the
cognitive development is enhanced as the students have to formulate their thoughts and considerations about the problem in written form, which helps their communicative skills and the time allotted allows the students to read, understand and interpret then produce their response.

In support of collaborative learning, Watkins & Wentzel (2002) elaborate that peer collaborative learning enables positive cooperation in learning activities, enhance problem solving skills, augment understanding and remembering of material and promote confident social communication and negotiation abilities. They note that interactions between more advanced students and those who are less competent benefit both sides, because the less competent student has the potential to develop problem solving and negotiation skills with the interplay at a higher level and the more competent student can benefit by being able to provide comprehensible and meaningful explanations.

Roskelly (2000), in contrast, believes in applying caution to collaborative work in the classroom. He explains that group work is something that has to be carefully planned in order for it to be executed properly and for it to be of benefit to the students. He includes comments from teachers: “I feel so pressed for time. And group work takes it all up.” “I feel guilty when I’m not actually teaching.” “I’m afraid they’ll start socializing.” (p. 123) He further advocated for caution by including this comment from a student: “One person did all the work. It was me. Seems like the teacher counts on the ‘smart kid’ to keep the others in line. But most of them read the paper in my group.” (p. 123). He states that if teachers neglect the contention that arises with group work and do not act as mediators, the goal that collaborative work wishes to obtain diminishes. The objectives that he believes group work should achieve are socialization and criticizing; however, he finds that these two objectives
tend to be separated rather than joint entities. Although Roskelly recognizes the benefits of group work and advocates it when done in a thoughtful way where teachers prudently plan and give it specific objectives, he believes it is usually more of an institutional goal, coming from directors and administrators who carry a distance from what actually happens in a classroom. He also notes to be cautious and introspective when dealing with different cultures, claiming that students studying in foreign countries are having to deal with finding their identity both inside and outside the classroom, therefore, having the double challenge to fit in.

Problem Based Learning

TBL and PBL have many similar traits. They both use collaborative learning and require students to explore their problem solving skills. Both use a relatively flexible framework that teachers use to set up the problem and give guidelines on how to solve it and both promote discussion in the classroom and cognitive development. The difference between the two is that TBL is used as a language learning approach and PBL is used in content courses with real problems that occur in the field of study. (Amador, Miles & Peters; 2006) (Wee; 2004)

Sola (2005) explains the basic framework of the PBL stages:

1. Read and analyse the problem
2. Identify the information that given and the information needed. (Make a list of what you know and what you do not know.)
3. Make a list of what is needed in order to solve the problem.
4. Define the problem. (Write statements that explain what needs to be solved, produced, answered, proved or demonstrated. Obtain information. (This stage
also includes the exchange of ideas, classifying the information from the various solution alternatives.)

5. List the possible actions that can be taken and possible solutions. Here a detailed list should be made of the pros and cons of each solution.

6. Present the results (solution to this problem).

The benefits of using PBL are: self-directed learning, students can become considerably connected with course material, contribute to a deep level of processing and learning and collaborative learning. Amador et al. (2006) declare that PBL has been proven to be more effective than traditional didactic methods with respect to learning outcomes. Amador et al. comment that the reason for the change in paradigm was the awakening that students were learning in isolation and did not know how to apply the knowledge they were acquiring in class lectures and associate it with real world situations. They give a number of teacher testimonies about the use of PBL. One comment was that with PBL students learn the content because they needed to in order to solve the problem and this teacher noticed that students started to incorporate information and knowledge from other classes and learned to propose critical questions to the members of their group. Another comment from a teacher of a rhetorical writing class says PBL has enabled: “collaborating, engaging in increasingly sophisticated research, integrating technologies, being aware of and sensitive to different audiences, inhabiting situation-based writing, negotiating complex and diverse perspectives on an issue, and acting through writing toward some sort of solution” (Amador et al., p. 8). These comments among others show a remarkably positive outlook on PBL.

PBL enhances the aspect of independent and self-directed learning in students. Silén (2001) supports this notion and states that PBL works in contrast to teacher
centered education by allowing the students to become aware of their own understanding of a problem and solve it in a social context. As the students realize that their learning depends on their own involvement with the activity, they become interested, curious and willing to learn more. Barrett (2001) explains how the independent learning in PBL aids personal development and social empowerment in students. This development and empowerment is created through 4 themes that Barrett relates to Freire’s (1884) theories; object versus subject; becoming versus being; living versus existing; and oppressing versus liberating. By understanding these comments and benefits that PBL can bring to a class, a teacher can explore the method and develop learning opportunities for students by implementing PBL activities and witness the advantages for themselves.

Task-Based Learning

A rather recent method that language teachers have begun to use more to promote content based and hands-on learning by students is Task-based learning (TBL) (Diaz-Rico & Weed, 2006, & Harmer 2001) Activities in TBL are more extensive because they involve a series of steps: pre-task, task cycle and language focus. TBL was made popular by N. Prabhu who worked in schools in southern India. He theorized that learners were equally probable to acquire a language working on a non-linguistic problem than if they were focusing on language forms. Teachers can give the students target vocabulary and address language issues during the learning process and after with written work; however, the task, not language, is the focus. The weakness of TBL is that it may not be suitable for beginner level learners (Harmer 2001).

Dunn & Ogilvie (2010) define task-based teaching as language instruction and
implementation of activities that are focused on meaning with the central component being the task. Its goal is to facilitate authentic use of the language and incorporate that with problem solving skills. They report that task-based learning is innovative both philosophically and methodologically in that language acquisition is not always a linear process and requires a lot of contact and practice of meaningful language and allows learners to use the language rather than learn it. Huang (2010) expands on the definition and says that task-based learning must include: meaning, a problem to resolve, real world context and a goal that can be assessed in terms of an outcome. Huang also includes that the tasks are usually worked on collaboratively to provide interaction and oral communication. It is important that the tasks have a measurable outcome and be genuinely engaging in order to draw and retain students' attention and keep them motivated. For instructors using the task-based method, it is noteworthy to know the phases of the framework: pre-task, task cycle and language focus, although it is mentioned that this framework is flexible and adaptable to different levels.

Other Approaches to Teaching Writing Abilities

Free writing

Leist (2005) believes that regular timed free writing practice in the classroom has benefits. She highlights that free writing helps to improve a writer's fluency, "get their thoughts down on paper" and lets "words engender thought" (p. 30). The basic procedures for implementing free writing in the classroom are: to do it regularly, give a time limit, tell the students not to worry about grammar and editing and have the students share their work with the class on a voluntary basis. Leist asserts that the voluntary sharing will be slow the first few times this activity is implemented; however, as the students get acquainted with their own writing they become more and
more enthusiastic about reading their free writing works out to the class. To add to the advantages of the activity, the reading aloud process promotes oral fluency, thinking on one’s feet, peer and teacher feedback and error correction as reading aloud helps bring errors to the surface. Zen (2005) also advocates free writing and agrees that it helps fluency and the generating of thoughts into words that can be transformed into writing.

Peer evaluation

Something that can be considered in an ESL writing class is peer evaluation. Grace Hui Chin Lin (2009) did a study assessing peer feedback at the National University of Taiwan in Taipei in a required writing course for English majors in the Department of Foreign Languages and Literature. The results of this study showed generally positive reaction towards peer evaluation. As Chin Lin points out, according to Krashen’s affective filter hypothesis states that emotional blocks can inhibit the second language learning process and at times, teacher’s corrections can cause adverse feelings in students. Chin Lin argues that peer evaluation would lower the affective filter and make students feel more comfortable. Moreover, she contends that this type of evaluation creates a “more modern and democratic pedagogy concerning the self-determining and student-centered concepts, which make students feel freer and more independent.” (p. 80). In further support of peer feedback, Chin Lin says that the students benefit from the chance to discover different forms of thinking, reflect on their own progress in the class and it helps reveal shortcomings in their own writing by seeing other’s. Additionally, although the focus of the class is writing, peer evaluation, she comments, creates chances to open up dialogue among the students in an amicable atmosphere.

The results of the study by Chin Lin (2009) show that although the peer
feedback cannot totally replace teacher evaluation and comments, it has many benefits and she has proposed that it become part of the curriculum in writing classes at the National University of Taiwan.

Brown (2004) takes a slightly more critical approach to peer assessment; nevertheless, he favours it in the sense that it contributes to cooperative learning and helps develop intrinsic motivation. Arguments against this type of evaluation are that how can students in the learning process possibly give appropriate assessments to their peers of the same level as they may or may not notice the mistakes. There is also the question of subjectivity. Peers may or may not be critical enough to give valuable feedback to each other. One suggestion that he makes is that if teachers are to implement peer evaluation in the classroom, that there be guidelines and criteria, such as a rubric or a checklist that students follow when assessing their peers’ work.

Diaz-Rico & Weed (2006) state their support for peer evaluation as it teaches the skills of collaborative assessment, promotes student to student learning, it can help isolate and deal with individual problems and students are often more apt to request help from a fellow student than from a teacher. Leist (2006) also claims that there are benefits in peer feedback as it is seen as important in so many professional situations. She further states that it provokes discussion in the classroom, helps students to focus on writing tasks and gives them an audience. A benefit for the teachers is that it frees up time to help those students who may require a bit of extra attention. Campbell (1998) agrees with Leist that peer evaluation creates more time to help students who need extra tutoring in the area of writing. Campbell also insists that students be taught how to give constructive criticism to their classmates and agrees with Brown that criteria must be given. What she does is creates a list of questions that the evaluator will answer as he/she reads through their peer’s work. The list of questions attends to
both positive and negative feedback and helps to offer suggestions. Some of the questions she writes are: “What did you enjoy most about the paper? What are questions you have about the paper? What do you see as the purpose and audience of the paper? What suggestions can you offer the writer?” (Campbell, p. 57). She further recommends that more than one student evaluate each paper if time permits.

**Portfolios**

Portfolios as a tool for learning and assessment is something that has become popular in recent years in language learning classrooms as well as many other fields of study and professional work. In regards to writing classes, there is much alluring evidence and support for portfolios and institutions are providing workshops for teachers in facilitating their use in the classroom. Aydin (2010) administered a study using qualitative research in Balikesir University in Turkey, not on students, rather on pre-service teachers in order to discover both the positive and negative effects on portfolio keeping.

During the preliminary research in literature, Aydin (2010) found mostly positive reactions to portfolio keeping for EFL students including improving grammatical competence, decrease in writing anxiety, promoting independent learning, motivation, among others. The reason for conducting the investigation for pre-service teachers was that there was little to no evidence that studies had been done in that particular context. In his own study, results indicated positive results such as improvement of vocabulary, grammar, reading and research abilities, structure and development of paragraphs and compositions and giving and receiving feedback. On the other hand, the subjects of the study also found that portfolio keeping a time consuming and tiring activity, impeding of creative writing, difficult with respect to
the use of checklists and technical writing and fearful in regard to negative evaluation.

Hurley & Tinajero (2001) say that portfolios should be common place in an EFL class for writing as they render writing abilities and help students see their own improvement. They advocate that the portfolios should include only final drafts of the students work and should be used after they have been given sufficient instruction. Furthermore, portfolios should include a list of requirements provided by the teacher consisting of a reflection written by the student in order that they understand its purpose.

**Self-regulation**

In relation to writing to learn and the writing process, the self-regulation approach to writing is inevitably useful for many types of writing tasks. Magno (2009) describes that writing tasks can entice one to use a number of approaches that are related to self-regulation; idea generating, self-evaluating, self-monitoring and reflecting and how these strategies become more perceptible when writing in a foreign language. He goes on to describe the deep approach which is when a student becomes pensively immersed in the subject that they are writing about. The deep approach requires a writer to have a genuine interest in the subject, a feeling of responsibility towards a task, an ability to integrate ideas and an understanding of the material. Self-regulation in relation to writing involves learning from models. A teacher demonstrates the writing process in the class and gives students a viable outcome or product, then; the students will follow the same process, monitoring their own progress through the steps.

In doing this research, there was an underlying issue that arose in many texts; this was the matter of developing competencies beyond the actual learning of a
language. These competencies include: metacognitive skills, self-regulation, problem solving, and collaborative learning, among others. Valenzuela (2010) outlines ten competencies that he deems vital that educators aim to develop in their students to enable them to succeed academically and meet the needs required by potential future employers.

1. Learning by one’s own accord
2. Know how to search information
3. Exert critical thinking
4. Propose and solve problems
5. Participate in networks
6. Work collaboratively
7. Use ITC
8. Manage information
9. Speak English
10. Know how to communicate

The use of PBL to promote collaborative learning and writing in English involve virtually all of these competencies. In sum, the activity aims to provide a well-rounded learning experience that will provide opportunities to, either directly or indirectly, develop a number of fundamental skills.

Writing in a foreign language can be a daunting task for students, even at a high intermediate or advanced level. It can be equally daunting for teachers to grade, give valuable feedback and feel that they are doing their part in helping the students learn this skill. It is important that teachers of this task give ample opportunities for them to experiment with writing and try to do so in less traditional ways. It is also vital that students feel challenged by an activity and feel that the skills they acquire
will serve them beyond the use of the English language. By using PBL as an initial activity to writing, the students are not only going to be practicing writing, but also, speaking, listening, reading critical thinking, research, collaborative work and peer editing of drafts. Additionally, PBL is a teaching method that is used in many other areas, in consequence, if the students get exposure to the method in their English class at the high school level, they will be equipped with some experience when they encounter it in their university classes. Evidence shows that PBL can be a rewarding experience for both student and teacher and using their efforts to solve then write a solution to the case will give a sense of satisfaction, especially by doing it in another language.

**Related Research**

There has been some research done in the area of PBL and TBL; however, in the precise area of using the PBL approach with writing with advanced learners, there has been relatively little. The following will give some information about the research that has been done in the area.

An investigation called, *A problem based learning approach to integrating foreign language into Engineering* done by Britt & Neville (2007) was conducted at the University of Rhode Island in the International Engineering Program where there is a high number of German students. The background information of the study asserts that PBL is a logical approach to both Engineering and language study as it promotes critical thinking and collaborative work. This investigation acts as a precursor to research that is recommended to be done in the area with the motive to encourage students to study internationally. They would like to uncover some of the issues in the area of transfer of skills to new linguistic situations using PBL and note that mixed methods should be employed. The study should include the topics of
acquisition of target vocabulary, metacognitive skills, small group interaction and test type evaluation.

Another study which carries weight in this area was done by Merkouris (2008) for a Master’s in science in the field of teaching English to speakers of other languages, entitled *Using task based writing instruction to provide differentiated instruction for English language learners*. The questions for this study are: “1. What are the issues involved with using Task Based writing Instruction (TBwI) as communicative language teaching with principals of TBI/FFI (focused form instruction) & constructivist pedagogy? 2. How does TBI impact the degree of differentiated instruction within a mixed ability classroom? 3. How does TBwI impact second language acquisition?” (p. 42-43) Mixed methods with a primarily qualitative method were used to conduct this study. The main purpose of the study was to explore the use of TBwI in third grade English language learners in a program designed for native speakers of the language. The motive behind the study was to further raise awareness of the issue of the abundance of non-native speakers of English enrolled in public schools in Southern California where the main language of instruction is English.

Data collection was done using writing samples, transcribing of audio recordings of writing conferences and interviews. The categories studied were: end marks (periods and sentence structure), other marks (apostrophes and commas), semantics, prepositions, pronouns, schema (information shared with the reader), simile (improper word order), syntax, topicality (understanding of the prompt), verb tense and coherence. The results showed that the TBwI was effective in giving students authentic language to interact with, was effective in providing differential instruction to the participants, and the impact of TBwI on language acquisition was
stated to be non-conclusive due to the type of measures used, the broad range of
topics and the fact that language acquisition is a very long process; nevertheless, it
was reported that there was some indication that TBwI has positive impact on
language acquisition.

Results of a study done by Tait (1999) called *Multiple perspectives on
academic writing needs*, reveals a number of insights about the issue of student needs.
The study was done at the University of Melbourne in Australia where there are
numerous non-native speaking students. EFL students studying at an English-
speaking university have a number of needs that have to be taken into consideration,
not only by their English language instructors, but also the instructors of their other
curricular classes. These needs include; knowing expectations and guidelines;
knowledge of plagiarism; grammatical accuracy; congruency between ESL class
content and content courses; academic vocabulary and discipline specific words; and
cultural and language issues.

One of the needs Tait describes is the need for clear expectations and
guidelines which in turn would lead to better grades for the students; another need.
One student commented that the topics for essay writing were very broad and he did
not know how to deal with the fact that there may be more than one possible answer.
To add to this category, students in ESL classes did not know how to manage the
writing tasks in different subjects. They found there were different expectations in
their English writing classes than their Economics classes for example.

Another need that Tait (1999) explores is the need for students to know about
plagiarism. Carson & Leki (1997) also comment on this issue and noted that ESL
students were frustrated because they lacked the language structures and vocabulary
to properly paraphrase, "They worried about the need to use their own words (i.e.,
different) words when they perceived themselves as having no other words besides those used in the text” (p. 51). Tait adds that good paraphrasing skills require good reading comprehension skills and a broad vocabulary which are factors in ESL student needs. Carson & Leki concur, “the students also perceived the availability of a source text as creating additional burdens. The foremost consideration for working with a source text was understanding the text” (p. 51). Furthermore, Tait adds that the idea of plagiarism varies from culture to culture and when foreign students attend an English speaking university that they need to be made aware of this.

The students of this study also felt the need to be able to write with grammatical accuracy. They feel that in their content courses they are stigmatized for their grammar errors and not sounding native-like. Whereas the ESL professors recognised the grammatical problems right away and corrected them, the content courses professors claimed that those errors did not affect the non-native speaking students’ grades. These professors, however, did mention that the non-native speakers had fewer tendencies to write in the linear fashion in which English speakers are accustomed and suggested that that need be addressed in their ESL writing classes (Tait 1999).

To further add to the issue of content and language, ESL professors confessed not to be so concerned with content, rather more with grammar and structure, whereas the content course professors did not spend time correcting language and really only saw language as a problem when it obscured the meaning or made it very difficult to know what the student was saying. Students had conflicting comments about the matter; one commented that his lack of fluency in his writing was holding him back while another mentioned that it was her lack of understanding the concepts (Tait 1999).
Tait (1999) mentions that there is an exigency for ESL teachers to team up with content course professors in order to fill this gap that is left in the ESL classes. At the University of Melbourne the Economics Department requested that international students be enrolled in a reading and writing courses before entering the discipline in order that the language barrier be narrowed. This caused some controversy as the ESL professors claimed that the other professors needed to be more sensitive to the international students’ needs. From a different perspective, Carson & Leki (1997) report that although some students found the writing topics in their ESL classes as random and not intellectually challenging, they did not regard this as a counter-productive because the goal of the ESL class was to correct their grammar and learn to write clearly and for a specific audience. However, Carson & Leki state that even though they perceived no real complaints from students that ESL writing classes were not studiously stimulating, this should be taken by teachers as a call to contemplate about the academic needs of the students.

In addition to the lack of general academic vocabulary, there is the need of acquiring subject-specific words. ESL teachers are not always equipped to teach discipline-specific language and therefore foreign students studying at English speaking universities are left with that need in their ESL classes (Tait 1999). Vocabulary is not the only issue with subject specific language as Gavioli (2005) reports: “Students who need to be guided to writing academic papers or essays may need to be made aware of those salient features which characterize such genres.” (pp. 56). She proceeds to say that writers of different content areas have different ways of creating a relationship with their readers. An example that Gavioli illustrates in academic writing is that words such as suggest, indicate or possibly may indicate that the authors may not wish to be 100% bound to claims made in their articles. Hyland
& Tse (2009) who have done extensive research in the area of the creation of an Academic Word List (AWL), support the notion that different disciplines can give different meanings to words. They give further evidence about the diverse lexical meanings with the example of process:

- a constant volume combustion process...
- the trouble call handling process...
- processing dependent saturation junction factors
- the graphical process configuration editor

(Hyland & Tse).

As seen in this example, the word takes on a different meaning in different fields. Hyland & Tse argue that the field of English for Academic Purposes (EAP), from which the AWL is based, neglect this issue, therefore not completely responding to the needs of the students. The issue of culture and cultural differences is evident in many English speaking universities where there are an increasing number of foreign students whose first language is not English. Not only are there differences in writing styles, there are the issues of students succeeding in content courses in English without having the fluency of a native speaker.

Zamel (2000) took the opportunity to assess this situation in an English speaking university. She interviewed a number of faculty and students to get their reactions and gain some perspective on the issue. She mentions some of the same discrepancies that Tait (2009) mentions that exist between the ESL instructors and the content course professors. One generalization she makes about the teachers’ comments and attitudes towards the ESL students was that many of the students were ill-prepared linguistically to do the required writing for the assignments and that the
problem should be in the responsibility of the students and the ESL teachers to repair before they enter into content courses. On the other hand, the students’ comments lean towards a view that the content professors undermine their ability and deem that lack of language proficiency relates to lack of intelligence. The students believe that the content professors should be more sensitive about their needs and give them opportunities to prove themselves. Zamel agrees that the professors should take the ESL population into consideration when giving lectures and take the time to gloss difficult words, be more patient when listening to these students’ opinions and give them sufficient instruction and guidance with written assignments, because content courses along with ESL classes can offer very rich language learning environments for the foreign students.

A similar study done by Andrade (2006), *International students in English-speaking universities*, which involved 4 universities in Australia, Canada, New Zealand and the United States, found related results. She remarks that professors felt that international students lacked critical thinking skills and had difficulty understanding spoken English and the students considered that the professors used too much colloquial speech and spoke very quickly. She says that the studies indicate that: “this discussion demonstrates that because educational systems and ways of thinking are cultural, professors often fail to recognize the complexity of language issues confronting foreign students, particularly those associated with writing” (Andrade, p. 138). More findings reflect that students do understand that adjusting to the language and culture is primarily their concern; however, teachers could modify their speech and teaching styles somewhat when they have foreign students in the class. In relation to writing, the students, even if they had adequate grammar and vocabulary, felt that they were still given lower grades due to the difference in writing.
styles. A Spanish speaking student was baffled by a teacher’s remarks that his paper contained tangents and was unstructured.

Considering the writing process, Suzuki, Watanabe, Yoshihara, Jung & Chang (2009) conducted a study entitled *Sustaining internet-based collaborative learning in process-oriented writing classes: Feasibility of an action research approach*. This research was done because the authors saw the need to measure the development of online activities to strengthen students’ language skills and enhance the participating teachers’ opinions on the internet-based collaborative learning with a goal of increasing the benefits of using this learning strategy. It was based on an international online learning class for Asian students to practice collaborative writing. The participants were 55 university students, 152 high school students, 4 English teachers and 5 researchers from Japan and Korea. The researchers’ case study incorporated a hypothesis that joined the action-research method into a collaborative online discussion project for a process-oriented writing class and was based on the assumptions that teachers’ professional development would probably be promoted through collaborative action research; involving students in meaningful language; learning by scaffolding in a cross cultural environment; and building learning autonomy and enabling students to write with confidence.

The project incorporated online discussions about various topics. First the students watched video reports about these topics then formulated a draft of their viewpoint about them to upload onto the website. Other students would respond to their opinions using the scaffolding method. The researchers used pre and post writing tests, interviews, questionnaires, observations and teachers’ reflection journals for data collection. They analysed how the process approach affected the use of vocabulary, the use of scaffolding, the students’ awareness of culture and language.
through meaningful online communication and how the collaborative action research worked to enhance teachers’ professional development. The results indicated in vocabulary, word type and volume in the students’ writing and an increase in cross-cultural interest and awareness. The scaffolding showed that the writing process included paraphrasing, the negotiation of meaning through discussion and the development of understanding through interaction. The teachers’ reflections included insight about the learners’ frustrations in acquiring useful vocabulary and in their struggles in the writing process and that the collaborative action research project was useful for cross cultural ties and the learning of technology use for enhancing students’ writing.

These studies are not only relevant to foreign students in English speaking universities, but also to foreign teachers who teach abroad. A teacher must take cultural differences in writing into account and not expect that the students will think in English and easily adapt to an English style of writing. They also represent the growing need to implement content-based learning in ESL/EFL classes, especially at a high-intermediate and advanced level, where the students’ future needs will incorporate not only communicating in English but also using problem-solving skills and working collaboratively. As well, the use of technology and the internet can enhance English learning programs and promote interaction. Whether the students are in English-speaking countries or not, communication in English is essential as it is the primary language used internationally in the fields of business and science. Moreover, with the surge of virtual communication, these abilities will be indispensable in their lives.

The information given in this theoretical framework provides some background into the issue of second language learning, with a focus on writing while
opening up the topic to include collaborative learning with PBL. These are all very broad topics that require individual recognition and explanation as well as links to each other as the study aims to incorporate them. It is important to always bear the needs of the students in mind when developing and incorporating new methods or strategies into teaching; thus, by involving PBL and writing, the students will be exposed to the language in a different way, using cognitive skills such as critical thinking and problem solving, which, as stated, are essential in today’s information society.
3. Methodology

This chapter contains the information about the methodology that was used in the investigation. The research was done in order to make proposals about improving the teaching-learning process of the English language at the upper-intermediate to higher level in the language department at the Tecnológico de Monterrey, Mexico State campus. Furthermore, to solve the issue at the institution of there being a lack of formal activities implemented in high level English classes that combine collaborative work, problem solving and writing skills. The methodological focus that was used was qualitative with action research methodology. The qualitative method was chosen due to the main focus of the research which was to analyse and describe the impact of the implementation of PBL in innovating the teaching learning process of the English language to strengthen the development of writing skills in the students. Latorre (2008) indicates that action research is a hands-on approach in which the teacher is the investigator of his or her own educational practice with the process of planning, implementing and evaluating. The researcher also opted for action research as she will be evaluating her own students with one of the primary intentions being to improve her own teaching practices and incorporate new activities in her classes. The population and sample were chosen from the researcher’s group of students that she taught and for this group’s level of English, which is high-intermediate to advanced, which is necessary for the complexity of the activity that they did, PBL. The participants’ characteristics were described to give information about their age, program of study and intellectual competence that they have that will play a role in their learning strategies throughout the process of the PBL activity. The qualitative data collection techniques used were participant observation and semi-structured interviews, as according to qualitative action research. The procedures consisted of
observing the interaction among the students as they worked through their problems, examining their final written work and deciphering their opinions from the semi-structured interviews. The strategies for analyzing the data encompassed screening the initial corpus data to assess the information for themes and sub topics that arise, then using the data and examples to support the discussions about the themes to come up with conclusions about the research. This process is called categorizing the data. First, coding took place, which involves searching for key issues, recurring events or activities, and incidents that become the basis for summarizing, coding and categorizing the data. This helps to determine the most meaningful themes and categories. Finally, triangulation of multiple sources, data, and theories from the Theoretical Framework was conducted in order to confirm emerging findings.

Methodological Focus

The research that was used was of the qualitative focus. This type of methodology was chosen for the research question that is stated in Chapter 1: What is the impact of using PBL to innovate the teaching-learning process and to enhance the development of writing abilities in the English language? The answer to this question did not come in a statistical form, as quantitative research is, and it is more a question of discovery in which qualitative research was necessary. Hernández et al. (2010) indicate that qualitative research is inductive and moves from particular to general; for example it takes the individual incidences and analyses them to create a general perspective of the problem: thus: the research involved a discovery process. The researcher’s aims were to explore in-depth about the benefits or negative aspects of using PBL in the classroom and see if it had any effect on the writing abilities of the students; therefore, qualitative research served as the best method. Stake (2005) also
indicates that qualitative research is holistic with a focus on the quality of information, not the quantity. Furthermore, the investigation, like the essence of qualitative research, sought to describe, analyze, and document the results of this study. Holliday (2007) asserts that qualitative research believes that what is important to look for will emerge.

Moreover, the research incorporated the action research design. Ferrance (2001) describes action research as a process where the researchers are the participants who thoughtfully and carefully examine their own teaching practices through research. She further states that action research is based on the notion that teachers work best on problems they have identified for themselves; teachers become more effective when working on ways to improve their own practices; teachers work collaboratively with their directors and colleagues to promote professional development (Ferrance). McKernan (1991) notes that the aim of action research is to solve the imminent daily problems of practitioners. The researcher in this project had been working with the students of the same profile for 3 semesters prior to the investigation and wished to broaden her scope about the development of writing and wanted to incorporate language learning through content based work using PBL. The researcher had the desire to improve her own teaching practice in the area; therefore, she implemented action research. Furthermore, the researcher has observed a lack of innovative teaching strategies used at the intermediate-advanced level English classes and wished to employ new strategies in order to give students a different challenge and expose them to real life research and problem solving.

Somekh (2006) gives some key points about action research. First, that action research "involves the development of understanding and knowledge of a unique kind" (p. 7), and with this there is a focus on change and improvement within a
professional’s own working environment. She adds that there is a perspective that cannot be obtained by a researcher that comes from the outside. Next, that action research is highly reflexive and is constructed through interpersonal and professional relationships and the researcher is in an ideal situation to create change. Another important point is that “action research engenders powerful learning for participants through combining research with reflection on practice” (p. 8). The researcher’s primary goal is to improve his or her own practices; therefore, the participants and future students receive benefits. Mertler (2006) supports the notion stating: “Action research is a process that improves education in general, by incorporating a change. It is a process involving educators working to improve their own practices” (Mertler, 2006, p. 20).

Latorre (2008, quoting Elliot 1993) says that action research is centralized in the discovery and resolution of problems that confront teachers in order to put into practice their educational values. It is a simultaneous reflection about the means and the end. McKernan (1991) acknowledges that action research gives teachers autonomy and makes them better equipped to make judgements about curriculum. Moreover, it involves the teachers more in their own practice. Action research is an empowering tool for teachers and puts them at the forefront of their discipline by having them reflect deeply about the impact that their lessons and overall teaching practice has on the students’ learning.

Population and Sample

The sample for this research was a homogeneous sample. Hernandez, Fernandez & Baptista (2010) indicate that a homogeneous sample consists of a group or groups of participants with the same or similar profile. At the same time, this
research falls under the category of sample of convenience. The researcher
implemented action research; therefore, had to use the group of students she was
teaching. Silverman (2004) indicates that the sample for qualitative research must be
accessible to the researcher and not involve large numbers of cases that cannot be
embodied under simple categories. He also indicates that a sample that is too random
does not ensure that a generalization of themes emerged as qualitative research seeks
(Silverman). Richards & Morse (2007) support this view of non-random sampling and
further indicate that a qualitative researcher may choose a sample of the best or worst
of an instance.

Considering the above information, the sample that was chosen for this
research was 1 group of students with an upper intermediate to advanced level of
English. The students are from a particular program within the high school that
requires a high level of English to enter and also requires a very high average from
their previous school and a high score on the entrance exam. Thus, it can be said that
these students had a higher academic level than the general population of the high
school, which was ideal for the type of activity that the investigation explored,
problem based learning incorporated with writing in higher level English language
classes. The group that was evaluated contained 20 students, therefore making it ideal
for participant observation and semi-structured interviews. The students of this
sample (unit of analysis) have similar profiles, which enabled the researcher to equate
themes that emerge as the study unfolded. As they all have a relatively high level of
English, this facilitated their participation in the activity.
Participants

The participants were from the Tecnológico de Monterrey High School in Mexico State. They ranged in age from 15-17 years. These students in this qualitative research had a high-intermediate to advanced level of English. The participating class did not have a completely uniform level of the language, rather a somewhat stratified one with several that were near native and some that are in the upper intermediate category. Although they all had a high level of comprehension, their output levels are not all equal. That said, the different levels were able to complement each other in work groups enabling pairing among the stronger and weaker students of the group to facilitate a more dynamic learning atmosphere where the less strong students can learn while interacting with the stronger ones and the stronger ones gaining invaluable guiding experience.

This group of students belonged to a special group within the high school called International Baccalaureate. As was mentioned in chapter 1, this program requires and involves a high academic level and, therefore, the students in this program normally have more highly developed cognitive skills than average adolescents. Consequently, using PBL gave them an intellectual challenge while developing their language skills. It was for these reasons that these particular participants were chosen. Considering the complexity of the activity and the fact that they will be working with the language rather than directly learning it, it was essential that they already have a high level and have the cognitive skills to deal with the structure of a PBL activity.
Instruments

The instruments used were participant observation and semi-structured interviews to 3 students from the group about the stages of the PBL activity, the learning results, the interaction among the group members, and concerning the writing ability (see Appendixes G & L). According to qualitative investigation, these instruments allowed the discovery of the themes that permitted the answering of the investigation questions. The combination of the techniques made known the participants’ opinions and the observations allowed the researcher to discern the learning techniques that the students are involved in during the process. In congruence with the objectives of the study, the observations allowed the researcher to witness the interaction, behaviour and collaborative work among the students, as well as with the instructor during the activity. Additionally, the study wished to observe the development of the teaching-learning techniques during the phases of the PBL activity and inspect the impact that it had on the final written work, thus, the interviewed students were asked about that aspect as well. The researcher used the qualitative design action research; thus, she was an observer as well as a participant in the study. Richards & Morse (2007) state that observation provides the means for the researcher to uncover what is taken for granted in a situation. McKernan (1991) mentions that participant observations have the benefit of providing the researcher with authentic details and evidence of ideas through empirical behaviours. Freebody (2003) asserts that interviews allow the participants to answer with sophistication and “allow latitude in breadth and relevance” (p. 133). There were semi-structured interviews conducted. McKernan (1991) specifies that semi-structured interviews allows the interviewer to add clarifying or exploring questions that are not in the guide and should occur naturally as the interview progresses; additionally, the semi-structured interview
consists of open-ended questions. These open-ended questions had no predetermined wording to allow the students to convey their thoughts without being led in a direction. The researcher used an interview guide with a list of questions and issues to be explored (see Appendix L).

The purpose of the interview was to enable the researcher to gain insight into the students’ reactions to the activity and assess their take on the learning process of the activity. The questions in the semi-structured interview guide were aimed to allow the students to reflect on their English language learning, collaborative learning, working with the language and the topic of the problem itself. They were asked what they liked and did not like about the activity and if they would do it again if given the chance. Also, they were asked how their writing ability was affected with the use of PBL (see Appendix L). The 3 interviewees were asked to participate on a volunteer basis, with the knowledge that it would be part of the investigation and that there would be no academic or monetary compensation. Before the interviews began, the instructor explained that it was important that they answer honestly and say what they thought and felt, not what they thought the instructor wanted to hear. The investigator recorded the interviews and later transcribed them.

The participant observation included observing the students involved in the collaborative activity with their peers and the process of developing the written work. The observer had guidelines or reference points to follow that encompassed these aspects. They detailed how the sessions began, how the level of participation was, if there was respect and tolerance among the groups, if the interaction was responsible, if the individual and group goals are being met with respect to the writing task and if there was confidence on the part of the students to ask questions (see Appendix G).

These observation reference points deal with the primary aims of PBL, which
according to Amador, Miles & Peters (2006), are: to engage the students in active learning; allow the students to direct their own learning through the solving of the problem; and allow the discovery of a solution to emerge through discussion, research and thoughtful planning. The researcher wished to examine the interaction of the students and discover the benefits that working with PBL brought. Because a substantial part of the focus of the investigation was on the writing process, the observation involved analyzing the written work that the students submitted and the writing process that took place during the 4 sessions of the activity. The observation of the written work used a writing rubric with the categories: organization, development, sentence structure, word choice-grammar usage and mechanics (see Appendix F). As the students have had extensive prior instruction on writing in English and the writing process, the expectations were high for this report. The grading and observation of the written work also involved looking at the use of new vocabulary, coherence in the writing, clarity of the expression of complex ideas and clear signs of editing and revising.

Procedures

The PBL activity that the students carried out, took place over 4 classes and the instructor had the flexibility to extend this allotted time period if needed. Because this was first time the instructor implemented this type of activity and it was first time the students are using PBL in English, the time limits were able to be adapted as the process unfolded. On the first day, the students were placed into groups of 5 members each. Then they were presented with a problem and a list of procedures that they followed during the solving of the problem. Following designs from Wee (2004), Savin-Baden & Howell (2004) the PBL guide from the Vice-rector of ITESM, the
instructor adapted the PBL stages for the activity implemented in the class: (1) reading and analyzing the problem; (2) identify information given and needed; (3) list needs to solve problem; (4) define the problem; (5) obtain information; (6) list possible action and their pros and cons; and (7) present the results (see Appendix D).

The first session involved stages 1 and 2. Before the description of the activity was distributed, the teacher-observer divided the class into teams of 5 members each. This was done strategically so that students with a greater capacity in English would be working with the less fluent students and so that the students that do not normally work together became teams in order to make new acquaintances. Once the students had joined with their teammates for the project, they began to read and analyse the problem as step one indicated. The next step was to identify the information given and the information needed as well as designate the roles of the teams' participants. The students proceeded onto this step after 20 minutes that the teacher allotted for the reading of the problem. During this step, the teacher circulated around the room in order to guide the student towards the academic goals of the session and answer any questions that arose. At the end of the session, the teacher examined each teams' lists of what they knew and needed to know and asked who occupied each role they designated. The second class period was dedicated to steps 3 and 4. The teams created their lists of what they needed to solve the problem and proceeded to define it. Because PBL requires much verbal interaction, the students were discussing the problem and the issues that surround it. As this work was happening, the teacher-observer again circulated around the room, interacting with the students and checking their work. She asked to see the definitions of the problem they had written and offered advice on their diction. The third class session was dedicated to steps 5 and 6. This was the research part of the activity. As the students were doing their research
they were discussing and debating the possibilities of the actions that could be taken and finally came to a consensus on the many items that the problem required. Finally stage 7, the writing of the final document, happened on the fourth day of the activity. On this day the students were compiling the information that they had attained individually and decided on as a group, to present it in the form of a formally written document. Although the students were working on their individual computers, they were still collaborating in order to produce the written assignment. They were discussing vocabulary, wording, grammar, structure and organization of the document.

Research became a part of the steps during the discussion about possible solutions. The roles that the groups delegated were: moderator, secretary and participants. The moderator acted as the leader of the group, the secretary took notes of the discussions and possible solutions and was responsible for sending these notes to the other members of the group and the participants were responsible for gathering information, participating in all the discussions and helping put together the final solution in written form. Amador et al. (2006) encourage the delegation of roles in teams during PBL activities.

The researcher began the observations during the first class period of the 4 class-session activity. The investigator observed the students during all 4 class periods using the guideline and taking notes on the students’ interaction, team relations, participation, work strategies and progress through the PBL stages and the writing process (see Appendix G). Considering the main question that the study wished to explore, to analyse the impact of the implementation of PBL on the teaching learning process and the students’ writing abilities, the observations of these classes provided the instructor with evidence regarding the answer to this question. The objectives
were to describe, know and analyse the interactions and communication; exchange of ideas; the cooperation in learning that takes place during these classes; the benefits or downsides of using PBL; seek methods to strengthen the writing ability in upper level English students; and look for ways to innovate teaching and learning in higher level English language classes, which was a need in the institution where the research took place.

Once the students had turned in their final written work containing their final solution to the problem, the evidence that supported that solution and the steps they took to come up with it; the researcher examined these written works and made observations following the rubric as well as other pertaining considerations, such as the implementation of new vocabulary, the overall structure of the document, clarity of expression and evidence of editing and revising. The observations and analysis of the written work presented the researcher with the evidence needed to determine how PBL helped or hindered writing in English for high-intermediate to advanced learners. In congruence with the rubric, the observer looked at organization, development, sentence structure, word choice, grammar and mechanics (see Appendix F).

The final phase was to interview the students about the PBL activity using the semi-structured interview guide (see appendix L). The students’ input enabled the investigator to respond and develop insight about the students’ opinions about the activity, know their attitude towards working with PBL and the collaborative work involved, know about their writing experiences with PBL and get their suggestions about improving the activity. From these responses the researcher deciphered categories which aided the validity of the study. The researcher looked for similar responses to create codes then categories and later patterns to analyse in order to be able to respond to the problem of the investigation. According to Hernández et al
(2010), the segments of content are grouped into categories that are representative of the problem and the objectives of the study.

All of this information obtained, from both the observations and the semistructured interviews, is oriented toward elaborating a description of the development of the teaching-learning process by means of the implementation of PBL, with an ultimate goal of enhancing the English writing skills of the International Baccalaureate, English B students in the high school of the Tecnológico de Monterrey, Mexico State campus. This description embarks from the analysis of the interaction in determining the advantages and disadvantages of PBL and concluding if it favours the use of correct grammatical structures, vocabulary and spelling in English.

*Data Analysis Strategies*

The data was analysed by taking the information noted during the observations and the semi-structured interviews. Holliday (2007) outlines the steps to be taken in data analysis. First, the researcher took a look at the corpus of raw data and drew out what she deemed as important. Next, the researcher searched for natural divisions and determined the character of each division. The following step was the creation of themes and from these themes subtopics were created from which to develop further analysis. The final step was a written text of data discussion. The themes provided the headings and the arguments revealed themselves through the discussion. Extracts from the initial corpus of data were shown as support for the arguments. Hernández et al. (2010) further describe this process of codification in qualitative research, which implicates the identification of the units and their meaning, then the analysis of the ideas and concepts that emerge, then putting them into categories. They note the importance of knowing why a category arises and how all categories must relate to the
solving of the problem and the answering of the research questions. Moreover, the categories must be able to reflect what the participants and observer say in their own words.

With respect to data analysis and categorization, Stake (2005) notes that in qualitative case studies, the main goal is to understand the case with the aid of discovering relationships, inquiring into themes and joining information into categories. Goetz & LeCompte (1998) employ the term theorization, which is the cognitive process consisting of the discovery and manipulation of categories and the relationships among them. The work of theorization includes perception, comparison, contrasting, adding and ordering. They further explain that the units have two functions; they are the perceptive divisions that guide the data collection and the means of converting the data into manageable subsets. Categorization includes the determining of the attributes that the units share. These attributes are discovered in the elaboration of the lists of similarities and differences.

Considering the comments from Stake (2005) and Goetz & LeCompte (1998), the researcher thoroughly analysed the collected data for categories. The analysis of data incorporated the triangulation of the methods: first, the observations of the classes, then the evaluation of the written work, finally the students' opinions from the semi-structured interviews. The researcher initially examined these three segments of data separately, then, as themes and categories emerge, evidence from the three techniques was used to support each category. The data was examined for key issues and recurring events, activities or conducts, as the basis for categorizing the data. The categories were explored, attempting to describe and explain all the incidents included in the data, while at the same time searching for new incidents. The researcher worked with the data and the emerging model in order to discover the basic social processes.
and relationships among the individuals in the group studied. The researcher engaged in summarising, coding and writing as the analysis focused on the most meaningful categories. From the data, units of data were organized into segments of content to determine categories, sub-categories, themes and patterns. All this process can be referred to as grounded theory; which Hernández et al. (2010) explain as the theory that discoveries emerge from the data. It is a non-lineal process where the investigator knows where to start, with the first view of the raw data, but the end is undetermined as it requires reviewing and re-reviewing data until the categories are established. It was important to include units of analysis from both the researcher’s participant observations and the students’ semi-structured interviews, because, the researcher, as a professional language instructor and with all the background information, could use insight and knowledge to make conclusions about the study, and the students’ opinions provided invaluable understanding of the learning process of the PBL activity.

Validity, Credibility and Dependability

Validity in qualitative research is a result of research that is plausible, credible, trustworthy and defensible (Burke, 1997, p. 282). Hernández et al. (2010) explain that validity is a requisite that must be fulfilled in research and credibility refers to whether the researcher has captured the whole meaning of the participants’ experience which is linked to the problem of an investigation. Burke (1997) mentions various ways in which validity can be obtained. First, a researcher can be critically self-reflective in order to control any researcher bias that may occur during observations. Next, there is what is called descriptive validity. This is when the researcher is accurately reporting what took place during observations. Mertler (2006) explains that
having prolonged engagement and persistent participant observation aids the observation of behaviour patterns, in order that these patterns are observed to the point of being routine. Interpretive validity is when a researcher is precise in his or her portrayal of meanings of the participants’ actions or words. Theoretical validity comes when the data fits a theoretical explanation developed from the study. This implies triangulating the results with the theory; according to Hernández et al. (2010) it is a way of increasing a study’s credibility. This denotes the triangulation of the sources and the data. Lastly, to continue with internal validity, it is important to use more than one data collection procedure, such as interviews and observations, and use these procedures multiple times. According to Mertler, this will ensure the trustworthiness of the data; first the triangulation of multiple data sources and multiple data collection, to support the findings from the study.

Considering the ideas of Burke, the validity and dependability of this study was reached in a number of procedures. First, the researcher used both semistructured interviews and participant observations for collecting data. By cross-referencing the information obtained by both of these procedures, relationships were able to be recognized. As well, the interviews were recorded and transcribed in order to review their contents a number of times to verify the statements the participants made, and these statements were later used to support the categorization seen in Chapter 4. The dependability emphasizes the need for the researcher to account to the ever-changing context within which the research occurs (Mertler, 2006). Before the interviews were conducted, the interviewer remarked to the interviewees the importance of answering honestly. In regards to the observations, they were also recorded and reviewed more than once to see if the first impressions were the same as the subsequent ones. Furthermore, there were 3 interviews conducted and all 4 sessions of the PBL activity
were observed in order to have a broader spectrum of information for the analysis.

*Strategy to Solve the Problem*

The strategy for solving the problem entails the staged of planning, acting, developing and reflecting (see Figure 1).

![Strategy scheme of action research](image)

*Figure 1. Strategy scheme of action research: step by step process to solve the problem (Adapted from Mertler, 2009).*

According to this scheme, the researcher pondered a number of possible topics to do research on; such as task-based learning and the writing process, and decided on problem-based learning in combination with writing for the level of English in her groups, high intermediate-advanced, and because it was a relatively new topic for her
that she felt the students would benefit from. In the revision of the literature, a number of topics were dealt with: teaching-learning strategies in ESL/EFL classes; English language skills; writing in English; collaborative learning and interaction; problem-based learning; and other approaches to language teaching-learning with a focus on writing. After that, the research plan was developed using qualitative approach and an action research design. Once the sample and participants were chosen, the researcher implemented the PBL activity, observed the class sessions of the activity and conducted semistructured interviews to obtain the data. The data was then analysed according to qualitative methodology and reported in written, narrative form. From the results a number of proposals were made regarding modifications the researcher would make in implementing a PBL activity again, for improving teaching practices and ideas for future studies about this didactic technique. Throughout this process, the teacher-researcher has reflected on the process and continues to contemplate it. The researcher intends to share the discoveries and the proposals about improvement to the teaching practices with her director and colleagues in the languages department at the Tecnológico de Monterrey, Mexico State Campus. This would be done with the objective of considering future redesigns of English courses to incorporate PBL in order to enrich the teaching learning process at the institution.
4. Results

This chapter's aim is to present, describe, analyse and interpret the results that were obtained from the application of the instruments; semi-structured interviews and observations; that were described in Chapter 3 about the implementation of PBL in the 4th semester English B class of the International Baccalaureate Program at the high school of the Tecnológico de Monterrey, Mexico State campus. The chapter is divided into 2 parts. First, the results from each instrument are presented and categorized. Secondly, those results are analysed and interpreted. As well, the author presents a triangulation among the results of the instruments used and the theories presented in Chapter 2, with the intention of answering the research questions. As Stake (2005) mentions, the analysis and interpretation consists of making sense of all the data that has been collected.

Presentation of the Results

This section aims to present the results gathered from the application of the instruments that were described in Chapter 3. It shall be noted here that the data presented is that which has relevance to the answering of the research questions, included in Chapter 1. As Algozzine & Hancock (2006) describe, the analysing and interpreting process can mean setting aside the less relevant information. Thus, the data presented in this section includes that which pertains to the impact of using PBL in an upper-intermediate to advanced level English class in the strengthening of writing skills and collaborative work.

As was mentioned in Chapter 3, only 20 students participated in the study and the activity was implemented as part of course work to be graded for the first grading period of the semester. The work had a weight of 40% for the first grading period;
10% for the individual grade of participation based on the rubric (see Appendix E); and 30% for the written work based on the rubric (see Appendix F). The grading period was from January 10 to February 4 of 2011 and the activity was implemented on January 28, 31, and February 1 & 2. The work was to be done collaboratively so the class was divided into 4 groups, each of which worked on the same PBL project, furnishing an office to create a dynamic work environment with environmentally friendly furniture and supplies (see Appendix D). At the end of the activity each team handed in a collaboratively written report. The students were given 4 classes to complete the activity and all of those classes were observed. As the research was action research, the observer was the instructor of the class, thus, a participant in the study (see Appendix G). McKernan (1999) notes that in participant observation the observer enthusiastically takes part in the activity, the events, the behaviour and the culture of the group. The researcher is accustomed to being a part of the social situation and is able to assimilate and understand the behaviour and, as McKernan mentions, the participant observer in action research has the advantage of collecting authentic reports. As the observer was the instructor, note taking during the classes was limited as there was the need to be interacting with the groups and answering questions. For this reason, the classes were videotaped and additional notes were made for the observations while reviewing them.

After the completion of the activity on the fourth day, 3 students were interviewed. The interview was semistructured with a guide of 20 questions congruent with objectives of the investigation (see Appendix L). McKernan (1999) states that these questions should be probing and allow the participant to give a full description in their answer. Stake (2005) concurs and notes that formulating questions that provoke good answers is an art and that the interview should be rehearsed mentally
before it is conducted. He also indicates that the purpose of the qualitative interview is to gather the opinions and knowledge of multiple interviewees. The 3 interviewees were asked to participate on a volunteer basis. The students were interviewed the same day that the activity finished so that the information would be fresh in their minds. They took place in the teacher's office which was a place where the students were familiar and comfortable. As was mentioned in Chapter 3, the instructor mentioned to the students to answer the questions honestly.

From both the participant observation and the semistructured interviews, the researcher took the information and looked for patterns to come up with the categorization. Hernández et al. (2010) explain, first, the researcher identifies units that have meaning to the study. As the researcher analyses the units, similarities and differences are sought, and at this point, the coding process starts. If there are similar units, these units can be coded and later put into a category, meanwhile, if the units present meaningful and pertinent information but are different, they can stand alone in a category. During this coding process, the researcher analyses the units, generates ideas and concepts, then, they are put into categories.

Results of the participant observation of the interaction among the students

There were 4 observations of the groups' collaborative work done for this study (see Appendixes H-K). The students were graded individually on their efforts. The rubric for this grading process considered focusing on the task and participation; dependability and responsibility; listening, questioning and discussing; research and information sharing; problem solving; and teamwork (see Appendix E). The categories extracted from the data collected from the observations are: interaction with the teacher, interaction among students, and written work (see Table 1).
Table 1

Categories attained from the participant observation of the students’ interaction

<table>
<thead>
<tr>
<th>Categories / Subcategories &amp; Codes</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Interaction with the teacher ((IWT))</td>
<td>Grouped in this category are the incidents about the interaction of the students with the teacher of the course during the presential class work in the implementation of the PBL activity with respect to the manner of giving feedback on their progress and answered questions and clarified doubts.</td>
</tr>
<tr>
<td>2. Interaction among students ((IAS))</td>
<td>Grouped in this category are the incidents in which the interaction and participation among the students were observed. This section has 2 subcategories:</td>
</tr>
<tr>
<td></td>
<td>a. The success of the completion of the PBL activity ((SCA)).</td>
</tr>
<tr>
<td></td>
<td>b. The difficulties in the completion of the PBL activity ((DCA)).</td>
</tr>
<tr>
<td>3. Written work ((WA))</td>
<td>Grouped in this category are the incidences of the students’ written work or final report with the solution to the problem, considering correct grammar, spelling and vocabulary.</td>
</tr>
</tbody>
</table>

The following section describes the most relevant incidences of each category.

1. *Interaction with the teacher.* The first category describes the interaction the teacher has with the students during the activity. The 4 class periods of the activity were observed by the participant observer: January 28 & 31, February 1 & 2, 2011. The participant observer used the observation guide to take notes during the classes (see Appendix G). The instructor took the time to explain the activity during the first session, considering the PBL stages for the problem solution. After the initial explanation the class was divided into groups ensuring that the students were working with classmates that they don’t normally interact with in class. The point of this was
to give them an opportunity to get to know other students; as well, the teacher consciously divided the groups in order that stronger and weaker students were mixed. In collaborative activities this mix is important so that the students who are more proficient in English can help the less proficient ones in this aspect. Initially, there were few questions on the part of the students; the questions arose as the process unfolded.

After the explanation of the activity and the division of the groups, the teacher allowed approximately 20 minutes for the teams to read and analyse the problem, as according to the steps of the PBL activity (see Appendix D). After this, as the students proceeded to the next step which was identifying the information you have and the information you need, the teacher started circulating around the room to observe the progress, answer questions and orient the students towards the academic goals of the session. For example, one group started immediately searching for information on the internet; so, the teacher intercepted and suggested they follow the instructions and create the lists of information given and information needed. Additionally, during this time as the students were brainstorming the information they needed, the teacher offered suggestions and referred back to previous classes where the students watched videos about ecological buildings and furniture and an article the students read which contained information about creating a fun and dynamic workplace. During this interaction the students responded positively and asked questions freely to clarify precisely what they needed to do.

At the end of this first session, the teacher asked to check each team’s notes (see Appendix H). She noted that 2 of the teams had not yet considered the research that needed to be done about creating a friendly office space; hence, she advised that this had to be considered in the information needed. It is important to mention that an
important question arose during this first session; a student asked what the budget would be. This was something that the instructor had failed to consider for the activity. She gave them the amount of 15,000 Canadian dollars for a maximum budget the next class, and noted the error in the activity guideline for future reference.

During the subsequent sessions, the teacher-observer acted as a facilitator during the classes, circulating around the room giving comments, feedback and checking the progress being made (see Appendixes I-K). In the first few minutes of these sessions, the teacher noticed that the students’ participation was not very active. So the teacher went around to each group to motivate them to start interacting and the students responded respectfully and began to get involved in the collaborative work. The teacher took this opportunity to see if the students’ individual work was being done and there were positive results about that. Each student either showed or explained what they had done. The second session’s tasks were to make a list of what was needed to solve the problem and to define the problem. The instructor checked each group’s definition of the problem and made suggestions to better the wording of these statements. As the groups completed the session’s tasks before the class ended, they requested to get on with the information gathering process, which the teacher indicated was a good idea.

As the students were obtaining information for the solving of the problem, some questions surfaced, such as: what floor the office was located on in order to have a green roof; if the process had to be converted into Mexican pesos; if the prices and budget included taxes; and if they had to list every item and the individual price in the report. The students felt confident to ask questions and these questions also allowed for more interaction with the teacher-observer; thus, she would take advantage of these questions to dialogue with the groups about their investigation,
make observations and ensure all group members were contributing to the discussion. For example, she posed questions to the less participative students in order to get them involved in the discussions. There were also times during the investigation where the students were working individually with their laptops and there was little to no discussion happening. At these times, the teacher intervened and encouraged the students to share and compare their findings and discuss why they should or should not buy certain products for the office. At the end of the sessions, the teacher took the time to check each group's advancements and make recommendations.

The teacher's interaction with the students during this activity, as explained previously, was facilitating the activity, checking the progress of the steps of the PBL assignment, offering encouragement for discussions, clarifying doubts, answering questions about vocabulary and terms, and ensuring that all students were participating and doing their share of the work. The interaction was positive and respectful in that the students always spoke English to the teacher, with the exception of words they did not know how to say in English, even with that, they often tried to describe the word instead of saying the word in Spanish. It was also positive in regards to acting on the teacher's requests, such as making modifications to the work and participating more in discussions. Overall, the teacher’s interaction with the students enhanced the responsibility of the students' collaborative work, established a means of clarifying doubts immediately, and guided the students towards coming up with a good, thoughtful solution to the task.

2. Interaction among the students. The second category describes the interaction among the students in 2 subcategories, the success and the difficulties during the PBL activity (see Table 1). First, the successes are described. Due to the
nature of the activity, collaborative work and discussion were essential. During the completion of the stages of the PBL activity, the students were working collaboratively, exchanging ideas, debating and discussing the items for the office and its design and working together to achieve the written report. The students were graded on the collaborative work according to a rubric (see Appendix E). During all 4 sessions observed (see Appendixes H-K), there was a high degree of respect and tolerance shown among the students. In the first session, after the instructions had been given the class was split up into groups. As explained earlier, the instructor strategically formed the groups so that the students would work with new people and to mix the more fluent students with the less proficient ones; there was no resistance to this formation. The teacher noted that several students greeted their new team members with a hello and a smile as they sat down to read through the activity guideline. The initiative taken by these students to greet their teammates provoked a cordial relationship among the groups as the activity commenced, as those who were greeted with a smile returned the same gesture.

Along with having amicable relations, the students also worked together and interacted very well. For example, there was a conversation in one group where a student suggested that each desk have a phone, but another student disagreed and said, “well that would be convenient but...” and went on to state his opinion. The second student considered his teammate’s opinion before disregarding it and stating his own, thus showing respect. Additionally, the teacher-observer noted that the interaction among the students was taking place mostly in English. This showed respect for the task and for their learning needs to strengthen their communication skills in English.

During the first session, the students delegated the roles as the activity guideline indicated. In this session these roles were respected. The secretary was
writing the lists and taking notes as the others gave ideas and the leaders were observing the instructions and making sure the task was being completed. In the following session, the participation continued to be mostly high as the students completed steps 3 and 4 of the activity and proceeded onto step 5 (see Appendix J & K). Also, during this session, the teams delegated the research tasks among their members, which gave them the means to do the research efficiently. The third session’s interaction was motivated by the teacher’s encouragement, who told the students that they should be sharing and explaining their findings to each other. After the teacher intervention the participation and discussions increased. On the fourth day of the activity, the students were working collaboratively on the written work. The teacher noted that, although the students were working on different sections of the written task, they were still discussing styles of writing, correct wording and vocabulary, layout of the written assignment and their reflections.

Although the researcher observed mostly positive interaction among the students, there were some difficulties and areas for improvement (second subcategory – see Table 1). For example, on the second day of the activity, 2 students were absent from class, and the absences were not excused, meaning those students’ parents did not call to report an illness or something of the sort. The students were told several days before the activity started that their attendance would be required during the 4 collaborative work classes as the majority of the work was to be done in class time. Although the teammates of these 2 students asserted that they were delegated a task to do, respect in collaborative work includes being present at group meetings, consequently, the 2 students did not respect their teammates.

Another difficulty observed was the initiation of discussions. At times, primarily at the beginning of each class, the discussion was lagging and slow; thus,
the instructor had to approach the groups and generate dialogue among the students. As well, as some of the individual research was being done, there was little interaction and the teacher took the same action by talking to the groups to get the conversations going. Another example was during the third class, one group did not put their desk together, rather they were in a straight line as they individually worked, therefore hindering any kind of interaction. The teacher suggested to the group that they put their desks together and start discussing the problem and sharing what they learned.

In spite of the difficulties, the interaction among the students was productive and promoted the learning objectives for the activity. The learning sessions worked towards the goals of practicing their oral English skills, their writing skills and working through a real life problem using the English language. Also, the collaborative work encouraged good social interaction skills, including the respect and tolerance shown for the ideas of others and responsibility towards group work in general.

3. Written work. This category describes the observations of the written work during the process and the final document that was handed in by each group. It is important to mention here that the students in this group already had highly developed writing skills in English; therefore, their previous knowledge was an asset as they developed the written task for the assignment. However, this was the first time that the students had been assigned written work in this form (including the PBL strategy). The problem consisted of designing an environmentally friendly office space with a good dynamic that would promote amicable working conditions (see Appendix D). The guideline for the assignment indicated that they had to have a list and description of the office supplies chosen and why they were chosen, a description of the office layout and why it is congruent with a friendly office atmosphere and a reflection
about the activity (see Appendix D). The instructor thought it necessary to include the reflection so that the students could analyse the learning process during the activity.

The writing of the report with the solution to the problem took place during the last session for the activity (February 2). The teacher-observer noticed that the students were working diligently in order to meet the deadline of submitting the document that day. Most of the students brought their laptops that class and were working individually; nevertheless, there was some discussion happening in regards to how to organize the document and about the wording, vocabulary and grammar. The teacher-observer circled around the room to monitor the progress and answer questions. As the students finished their individual parts, they sent their documents to each other for revision and so one member of each team could compile the information for the final work to be sent to the teacher by email.

The final documents that were sent to the teacher were considered to be very good in most aspects. Although not all the teams scored perfectly, the results were commendable. The documents were graded according to a rubric for writing that included 5 categories to be evaluated (see Appendix F). The categories pertained not only to the language structure but the organization and development of the written report, as in a higher level class and in a report of this kind these are important characteristics to consider. The categories were: organization, which pertained to having a logical order, strong introductions and conclusions and the use of transition words; development, which related to the report having sufficient descriptions; sentence structure, which related to having no run-ons or sentence fragments; word choice/grammar, which dealt with the use of formal language employed, correct vocabulary and grammar; and mechanics, which was the category pertaining to
punctuation, spelling and capitalization. The grades given are displayed according to the categories in the rubric (see Table 2).

Table 2

*Grades of each group according to the categories in the writing rubric*

<table>
<thead>
<tr>
<th>Group</th>
<th>Organization</th>
<th>Development</th>
<th>Sentence Structure</th>
<th>Word Choice-Grammar Usage</th>
<th>Mechanics</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>B</td>
<td>6</td>
<td>5</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>C</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>D</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

Table 3

*The results of the evaluation of the students’ written report*

<table>
<thead>
<tr>
<th>Data</th>
<th>Group Results (English B Course)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Students</td>
<td>20</td>
</tr>
<tr>
<td>Number of groups</td>
<td>4</td>
</tr>
<tr>
<td>Average</td>
<td>95</td>
</tr>
<tr>
<td>Lowest grade</td>
<td>90</td>
</tr>
<tr>
<td>Highest grade</td>
<td>100</td>
</tr>
<tr>
<td>Median</td>
<td>97</td>
</tr>
</tbody>
</table>

It can be observed that the highest score obtained on the written work was 100 while the lowest was 90 with an average of 95 for the whole group. The numbers shown are the grades (frequencies) given for each category (see Table 2); the highest
grade possible in each section was 6 (exemplary written work). The categories of sentence structure, word choice-grammar usage and mechanics were based on the students’ prior knowledge of the language and training in writing, also their performance of these aspects in the report for this project (see Appendix F). As it is a higher level group, the expectations were high in congruence with their level. They were expected to use formal language with new vocabulary from the research, and to have good sentence structure and mechanics (minor errors in punctuation, capitalization and spelling). The organization and development in this type of document was something relatively new for the students, furthermore it was their first experience with PBL, but considering the high level, both in English and academically, they were expected to achieve good results in these categories as well.

The category sentence structure was given full marks for each group (see Table 2). This group of students has had extensive exposure to English and writing in English, so they achieved the expected results. In the category of word choice-grammar usage, groups A and D did not achieve the maximum 6 due to the use of informal language and grammar errors that should not occur at their level. Group A scored lower in mechanics due to a number of typographical and spelling errors that could have been corrected with a more thorough proofreading. Organization and development was generally done well with the exception of Group D who gave very brief descriptions of the reasons why they chose the office supplies and the office layout. As well, Group B’s descriptions were quite limited for what the assignment required. Group D’s report was lacking the headings needed in the report to guide the reader to what they wanted to portray.

Overall, the teacher-observer was pleased with the written work handed in by the students and the process in which they achieved it; therefore, in response to the
primary research question, it can be asserted that PBL positively impacted the strengthening of the development of writing abilities in that it was a different style of writing, the students worked on the writing process and in teams, the final works contained newly acquired vocabulary and evidence of proofreading was mostly evident. Although not all the teams achieved the exemplary status, the scores in the individual categories did not fall below a 5, which shows a very good effort made by the students. An additional table of frequencies was constructed that show the frequencies of the grades from the written work (see Appendix P).

Results of the semistructured interviews to the students

Three students participated in the semistructured interviews conducted by the teacher-observer in the afternoon of the final day of the PBL activity (see Appendix M-O). The categories of these results are: collaborative interaction, the chosen problem, writing abilities, satisfaction of the students, and future experiences with PBL (see Table 4).

Table 4

Categories attained from the semistructured interviews to the students

<table>
<thead>
<tr>
<th>Category &amp; Code</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Collaborative interaction (CI)</td>
<td>Grouped in this category are the units of analysis from the students’ commentaries which relate to their interaction and participation during the collaborative completion of the PBL activity.</td>
</tr>
<tr>
<td>2. The chosen problem (CHP)</td>
<td>Grouped in this category are the units of analysis which relate to the students’ perceptions of the problem used in the activity.</td>
</tr>
<tr>
<td>3. Writing abilities (WA)</td>
<td>Grouped in this category are the units of analysis from the students’ commentaries which relate to the writing process of the final report, concerning the final solution to the problem and considering correct grammar, spelling and punctuation.</td>
</tr>
<tr>
<td>4. Satisfaction of the students (SOS)</td>
<td>Grouped in this category are the units of analysis from the students’ opinion about their satisfaction with the PBL strategy.</td>
</tr>
</tbody>
</table>
The following description gives details about the categories and their units of analysis or student responses during the semistructured interviews accordingly.

1. **Collaborative interaction.** The first category discussed here pertains to the collaborative interaction among the students during the 4 classes of the activity. All 3 interviewees described the collaborative work positively and gave the following details about it (see Appendixes M-O). (The units of analysis pertain to questions 1-3, 5, 7, 8, see Appendix L). In the cases where the question is not included in the response, the question is included for clarification (see Table 5).

Table 5

*Responses about the category of collaborative interaction (CI)*

<table>
<thead>
<tr>
<th>Student interviewed</th>
<th>Response about collaborative interaction</th>
</tr>
</thead>
</table>
| Student 1 | Question 1 – [Enjoyment of the activity]:
“Well, I like working in a group, but it depends on the size of the group and the people that are in the group, because if the group is too big, there are always 1 or 2 people that never work and if it’s too small there is a lot of work for everyone. And the people because sometimes there are people that don’t get along, or they get along too well, so it’s hard sometimes. But I like working in a group generally”.

Question 5 – [Group members represented their role and achieved their tasks]:
“Everyone worked, but when we divided the roles, they were kind of ignored later. Like for example, (student), who was the secretary, did work, he wrote everything down, but for example, we wanted to decide who was going to be the moderator, and we asked (student), he said sure, but we weren’t sure exactly what he was supposed to do. Everyone worked but the roles were kind of like not there”.

Question 7 – [Respect and tolerance in the group]:
“Yes, there was no problem with that.”

Question 8 – [Respect of agreements]:
“Yes. There were discussion about what we were going to do and we came to a conclusion and everyone respected it”.

5. *Future experiences with PBL (FEPBL)*

Grouped in this category are the units of analysis form the students’ perceptions of future English courses with PBL activities.
Student 2

Question 3 – [Liked working in a group]:
"Yes. It was nice to meet other people that I don’t really know and also that they have different ideas that complement my ideas".

Question 5 – [Group members represented their role and achieved their tasks]:
"Actually, no. We didn’t have like roles. What we did was work all together and if anyone had a doubt, anyone could answer that. Actually I think that the roles were more significant if we had a larger assignment. What we did was designate the items to search for, and everyone was happy".

Question 7 – [Respect and tolerance in the group]:
"Yes, it was pretty good".

Question 8 – [Respect of agreements]:
"Yes".

Student 3

Question 3 – [Liked working in a group]:
"Yes. It’s a way to relate with other people and to know them".

Question 5 – [Group members represented their role and achieved their tasks]:
"They did the parts that they have assigned from the beginning. Sometimes, for example, I was the secretary, and I also have the option to participate and to give my ideas so I wasn’t only writing all the time".

Question 7 – [Respect and tolerance in the group]:
"Yes, all of us were listening to the others".

Question 8 – [Respect of agreements]:
"Yes. It was difficult but yes. Haha".

Question 2 – [Most enjoyed]:
"Working in teams".

According to these responses, it can be inferred that the collaborative work during the activity was a success. Although student 1 made the observations about the difficulties that can arise in doing group work, his general response about this particular task was positive; thus, it can be thought that the student was simply generalizing about the issue. Essentially, the responses indicated that there was a high degree of respect and tolerance among the groups and that the students were content.
with their groups’ members’ work and attitude and compliance.

2. *The chosen problem.* This category includes the units of analysis which relate to the students’ perceptions of the problem used in the activity. They had mixed responses as 2 of the students were pleased with the topic and only 1 would have preferred a different theme (see Table 6). (The units of analysis considered for this category pertain to questions 1, 4, 6, 9 & 18, see Appendix L). Before the activity began, the teacher gave the class 2 options of problems to work on; the majority of the students voted for the problem about designing an ecological office with a friendly work environment (see Appendix D). The other problem was about the denial of rights for immigrants in the United States; their struggle for access to health benefits, property and voting rights.

Table 6

*Responses about the category of the chosen problem (CHP)*

<table>
<thead>
<tr>
<th>Student interviewed</th>
<th>Response about the chosen problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student 1</td>
<td>Question 9 – [Problem was of interest]:</td>
</tr>
<tr>
<td></td>
<td>“Yeah, maybe because, first of all, most jobs out there are working in an office and it’s already well-know that it’s boring, so everyone wants to have fun doing that kind of job so yeah it’s something we can relate to. And the ecological aspect that is becoming a problem and everything now is ecological, so yeah, we could relate to it”.</td>
</tr>
<tr>
<td></td>
<td>Question 18 – [Real life problem]:</td>
</tr>
<tr>
<td></td>
<td>“Yes”.</td>
</tr>
<tr>
<td></td>
<td>Question 6 – [Difficulties in solving the problem]:</td>
</tr>
</tbody>
</table>
|                     | “First, the budget, because we imagined something big and expensive, then we realized we didn’t have that much money so we had to go for something less expensive and lower the quality of what you want to get. Second, finding some things was hard, for example, cheap laptops that were efficient. That kind of stuff”.

102
Student 2  Question 4 – [Not enjoy of activity]:
"The topic, I would have preferred the one about the immigrants. I don’t think that providing furniture for an office is so interesting".

Question 6 – [Difficulties in solving the problem]:
What difficulties arose during your solving of the problem?
"We didn’t know what to include. It was a little bit subjective, because we didn’t know what was going to work. It included a lot of areas to consider".

Question 9 – [Problem was of interest]:
Did you feel the problem was related to an issue that you and your classmates can relate to or are interested in?
"I think that my classmates are interested in those issues and you could use what you leaned here in other problems, but I don’t like the topic".

Question 18 – [Real life problem]:
Do you think that by doing this activity you were exposed to a real life problem?
"Yes".

Student 3  Question 1 – [Enjoyment of activity]:
"It was interesting to see all the problems that we have in the environment and try to find a solution, well not a solution but try to help in that aspect, because for example in trying to look for the ecological furniture it was a good part to help the environment. Yes I enjoyed it".

Question 9 – [Problem was of interest]:
"For me yes. For the others more or less".

Question 18 – [Real life problem]:
"Yes".

Question 6 – [Difficulties in solving the problem]:
"The prices because I wanted to buy the more expensive furniture and we also wanted to save money".

The previous units of analysis (see Table 6) clearly indicate that the students felt as if they were exposed to a real life problem and that the topic was somewhat of interest for the interviewees and their teammates. However, student 2 pointed out that the problem was very broad and students 1 and 3 expressed issues with the budget included in the problem. Positive comments were given about the issues involved in the problem, about the ecological and friendly work ambiance aspects, both of which have pertinence for the students. Generally speaking, the reflections about the chosen
problem were valuable in that they gave the instructor (researcher) insight on how to modify it for future use and, when she implements PBL with this class again, she will use the other topic in order to be more of interest to the students who originally opted for that topic.

3. Writing abilities. This category considers the units of analysis obtained from the semi-structured interviews that pertain to the students’ perceptions about the strengthening of their writing abilities through the writing of the assignment for the PBL activity. (The units of analysis considered for this category pertain to questions 10-15, see Appendix L). The commentaries relate to the writing process of the final report, concerning the final solution to the problem and considering correct grammar, vocabulary and spelling (see Table 7).
Table 7

Responses about the category of writing abilities (WA)

<table>
<thead>
<tr>
<th>Student interviewed</th>
<th>Response about writing abilities</th>
</tr>
</thead>
</table>
| **Student 1**       | **Question 10** — [Improvement of writing abilities]:  
                      "Yeah, because, especially when correcting some mistakes of others and when we were checking the report, we were thinking of other words, and what would be correct grammatically in a sentence".  
                      **Question 11** — [Previous experience with this type of writing]:  
                      "I think I have but not exactly like this, more like writing a story, but not like this".  
                      **Question 12** — [Research aided writing]:  
                      "Yeah, a lot. Especially for the fun work place, because something that might be fun for you is not exactly fun for the others, so if you start searching you might find some fun activities, let's say, for people that work in an office and you say yeah this sounds fun so it really helps in the design".  
                      **Question 13** — [Research expanded vocabulary]:  
                      "Yeah, with all the office supplies the names of everything".  
                      **Question 14** — [Research help grammar]:  
                      "Well yeah because when we’re talking about fun work places you find lots of business terms, and when you are looking for office supplies, you look at the descriptions of the chairs and desks for example".  
                      **Question 15** — [Team effort in proofreading]:  
                      "Yeah, and we did it collaboratively". |
| **Student 2**       | **Question 10** — [Improvement of writing abilities]:  
                      "Yes, adapting to another style of writing".  
                      **Question 11** — [Previous experience with this type of writing]:  
                      "No".  
                      **Question 12** — [Research aided writing]:  
                      "Yes, it helped is to include stuff that we don't know and how to call them. Also the use of more technical words".  
                      **Question 13** — [Research expanded vocabulary]:  
                      "Yes".  
                      **Question 14** — [Research help grammar]:  
                      "Yes, and I tried to use the same structures".  
                      **Question 15** — [Team effort in proofreading]:  
                      "Yes, we all checked the grammar". |
Student 3  Question 10 – [Improvement of writing abilities]:
"Yes. Also in the process because we have to search for example the vocabulary of the furniture”.

Question 11 – [Previous experience with this type of writing]:
"Yes, for my mother because she doesn’t speak English so I have to help her”.

Question 12 – [Research aided writing]:
"Yes because when we were looking for the furniture and discussing about the problem, for example the materials and all that, it helps us to define why we are buying that thing”.

Question 13 – [Research expanded vocabulary]:
"Yes, as I explained for the previous question”.

Question 14 – [Research help grammar]:
"No”.

Question 15 – [Team effort in proofreading]:
"Yes, all the team participated”.

These comments are an evident indication that the PBL activity had some impact on the writing abilities of the interviewees. Firstly, they all mentioned that the research (during the PBL stages) exposed them to new vocabulary that they included in the written report. Although student 3 said that her team did not try to mimic complex grammatical structures, the other 2 students mentioned that they were exposed to these structures and tried to imitate them. Student 3 claimed to have done this type of writing previously, but the other 2 students said otherwise, and student 2 also mentioned that the task helped him to adapt to another style of writing. These comments are important not only for the study at hand, but also that the students realize the progress they make towards their learning goals in writing in English.

4. Satisfaction of the students. This category deals with the students’ enjoyment of the activity and their favourable perception of the PBL strategy.

Grouped in this category are the units of analysis from the students’ opinion about the
satisfaction with the PBL strategy (see Table 8). (The units of analysis considered for this category pertain to questions 1, 2, 4 & 17, see Appendix L). This category also includes their positive thoughts about the critical thinking involved in the activity. The category considers the questions from the semi-structured interview that are pertinent (see Appendix L).

Table 8

Responses about the category of students’ satisfaction (SOS)

<table>
<thead>
<tr>
<th>Student interviewed</th>
<th>Response about satisfaction of the activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student 1</td>
<td>Question 1 – [Enjoyment of activity]:</td>
</tr>
<tr>
<td></td>
<td>“I did enjoy it. It was kind of different from what we have been doing and it was interesting because of the freedom. You just have the space and the budget and you can fill it with whatever you want. It’s kind of fun when you can look up in the internet for things that you want to put in there and to make it a fun place, it’s like a fun activity and it’s fun to think how you are going to make it fun for these people to work there. Yeah, I liked it”.</td>
</tr>
<tr>
<td></td>
<td>Question 2 – [Most liked]:</td>
</tr>
<tr>
<td></td>
<td>“I think that imagining where we were going to put the stuff and what kind of stuff we were going to put in the office”.</td>
</tr>
<tr>
<td></td>
<td>Question 4 – [Not enjoy of activity]:</td>
</tr>
<tr>
<td></td>
<td>“Well, searching in the internet, because first it was kind of hard to find ecological items, and at times everyone was searching in their laptops alone and it was team work and it felt like it separated everyone”.</td>
</tr>
<tr>
<td></td>
<td>Question 17 – [Promotion of critical thinking]:</td>
</tr>
<tr>
<td></td>
<td>“Yeah. First, for the creativity for how you are going to put those things in the office and then for the ecological aspects of those things. You could think that you wanted a stapler, for example, but staplers waste, so you start thinking about a stapler that doesn’t use staples, you start thinking of ecological items that don’t have ecological options. So yeah”.</td>
</tr>
</tbody>
</table>
Student 2

Question 1 – [Enjoyment of activity]:
"Actually yes, I did enjoy it very much. What I didn’t enjoy was the topic.”

Question 2 – [Most liked]:
"What I liked most was that I have experience living in Canada so I knew which store was the best to buy everything”.

Question 4 – [Not enjoy of activity]:
"The topic, I would have preferred the one about the immigrants. I don’t think that providing furniture for an office is so interesting”.

Question 17 – [Promotion of critical thinking]:
"Yes, by debating the things you needed for the office”.

Student 3

Question 1 – [Enjoyment of activity]:
"It was interesting to see all the problems that we have in the environment and try to find a solution, well not a solution but try to help in that aspect, because for example in trying to look for the ecological furniture it was a good part to help the environment. Yes I enjoyed it.”

Question 2 – [Most liked]:
"Working in teams.”

Question 4 – [Not enjoy of activity]:
"To search for the prices. It was difficult.”

Question 17 – [Promotion of critical thinking]:
"Yes, because we have to search and also respect the opinions of the others and with the opinions of the others you have to search the reasons and explain them.”

These units of analysis overtly demonstrate the students’ satisfaction of the PBL strategy, both in the enjoyment of it as well as in the academic challenge. Although the students mentioned things they did not like about the activity, which were relevant comments, the overall feedback in this category is positive. The responses about critical thinking were incorporated into this category because they show another side of the satisfaction of the activity, the academic challenge. One aspect of PBL is that it promotes critical thinking; thus, it is important that the students recognize that the activity’s purpose was not only to practice and enhance language skills, but also to promote critical thinking, which can be considered as another ability that PBL helps
to strengthen.

5. **Future learning experiences with PBL.** This category briefly details the students' perceptions of future English courses with PBL activities (see Table 9). The category considers the pertinent questions from the semi-structured interview and it details the students' perceptions of future English courses with PBL activities (see Appendix L). (The units of analysis considered for this category pertain to questions 19 & 20, see Appendix L).

**Table 9**

*Responses about the category of future experiences with PBL (FEPBL)*

<table>
<thead>
<tr>
<th>Student interviewed</th>
<th>Question 19 - [Opportunity to work with PBL again]:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student 1</td>
<td>&quot;Yes, lots of times.&quot;</td>
</tr>
</tbody>
</table>

Question 20 – [Recommendations to improve the activity and the English course]:

"It would be nice to have a day for investigating less in the computer and more in the real world. For example going to Office Depot and asking for real office supplies that are ecological, so you can actually see those things and not only have the idea that the internet gives you. For example, in your team you see in the computer an ecological chair, but you actually go to Office Depot and you see that they don't seem very ecological yourself, so you don't just go with the idea the internet gives you, because that's what many people are doing nowadays, they just say it's ecological and really it's not. Seeing some real-life evidence would be nice. It would be fun to go to an Office Depot and ask for stuff".

<table>
<thead>
<tr>
<th>Student 2</th>
<th>Question 19 - [Opportunity to work with PBL again]:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&quot;Yes I would do it with a different topic and by investigating not only in the internet, by doing real life like making calls or something.&quot;</td>
</tr>
</tbody>
</table>

Question 20 – [Recommendations to improve the activity and the English course]:

"Actually like having more real life stuff like in a market".
Student 3  Question 19 - [Opportunity to work with PBL again]:
"Yes. I liked it".

Question 20 – [Recommendations to improve the activity and the English course]:
"I think it was ok. It's fine I like the class. In the activity maybe teams of 3 for having more participation".

It is obvious that the students would repeat a PBL activity, although for student 2 a different topic would be better; however, he did say that he would work with PBL again. The important things to consider here are the suggestions that the students made. Students 1 and 2 made suggestions about doing more real-life research, which the teacher would have to consider the feasibility of, and student 3 recommended smaller groups. Whether a teacher is conducting a formal study, such as this one, or simply looking for feedback, it is always valuable to obtain the students' opinions and recommendations on order to improve educational practices. Teachers are giving lessons to the students for their needs and their lives, and their input is always beneficial.

Analysis and Interpretation

This section of the chapter is dedicated to the analysis and interpretation of the data collected and presented above. It is important here to note that the researcher analysed the data in order to reply to the research questions given in Chapter 1. Mertler (2006) notes: "This is the stage of the analysis process where the teacher-researcher begins to make connections between the data and the original, or emerging, research questions" (p. 129). Merriam (2009) explains that a qualitative research is an effort to understand situations in their uniqueness as a part of their particular context and the interactions there. According to Stake (2005) the main task is to understand
and to describe relations, inquire about the themes and to put together the data that will help the investigator in this comprehension.

Due to the fact that the study is qualitative, and furthermore, with action research methodology, there are certain characteristics that pertain to the analysis. Stake (2005) states that the researchers use 2 methods simultaneously in the interpretation: the direct interpretation of individual examples and the sum of examples that can be put together as a whole or class. Mertler (2006) indicates that in addition to answering the research questions, it is also important to examine the data that conflicts or contradicts with the patterns or trends that have arisen, as this will add accuracy to the analysis and be more meaningful to future teaching practices. Elliot (2000) indicates that the main purpose of action research is to emphasize professional development in teaching practices derived from educational theories to the reformation of curriculum. Thus, the researcher, in this section, evaluates that data that pertains to the research questions and attempts to make proposals about the improvement of teaching practices in high-level English classes at the institution where she works.

This section of the chapter also wishes to bring together the results of the investigation with the information collected for Chapter 2, Theoretical Framework, and compare the present results from the participant observations and the semistructured interviews with the established theories discussed and presented in that chapter. Morse & Richards (2007) give the following definition of triangulation.

Triangulation refers to the gaining of multiple perspectives through completed studies that have been conducted on the same topic and that directly address the other’s findings. To be considered triangulated, studies must meet—that is, one must encounter another in order challenge it (for clarification), illuminate it (add to it conceptually or theoretically), or verify it (provide the same conclusions) (Morse & Richards, 2007).
Hernández et al. (2010) say that qualitative research is at an advantage for triangulation due to the nature of collecting data with interviews and observations. In order to reply to the research questions (see Chapter 1), the following section is divided into different subsections, which include the building of grounded theory (Merriam, 2009).

**Question 1: How did the teaching-learning process develop by means of the implementation of PBL?** The students learning during the PBL activity was independent as they took on the roles of the workers for the agency that provided services for designing eco-friendly work spaces, as the PBL activity required (see Appendix D). Their performance during the activity was relatively good, considering it was their first exposure to PBL in their English class. Their learning incorporated the analysis of the problem, how to go about solving it, the research involved in the solving, collaborative debates and discussions and the organization and writing of the final document to be submitted for grading by the instructor. Through their interaction, it can be inferred that the students took responsibility for their own learning, with some guidance from the instructor when necessary, and guided each other through sharing their findings, discussing and debating and finally consulting with each other during the writing of the final document. Silén (2001) concurs that PBL enables responsibility and independence in students. Thus, the learning process was one of self-guided acquisition of information and taking previous knowledge of the English language and putting it to use.

One of the biggest discoveries pertaining to this section was that the role of the teacher was transformed into that of a facilitator. As described in the previous section about the observations in the first category of students' interaction with the
teacher, the interaction was respectful and was mostly limited to the teacher checking the progress of groups’ work, initiating discussions, ensuring that the students were on track with the steps of the activity, answering questions and clarifying doubts. Amador et al. (2006) state that during a PBL activity, the students are using self-directed learning and the teacher acts as a guide through the process. Thus, it can be inferred that PBL offers students an opportunity to work independently, make discoveries on their own as to what they are capable of accomplishing while still having the instructor available to guide them through the learning process and provide instruction and clarification when needed.

Another discovery that pertains to the interaction between the teacher and the students is that the students always showed respect to the teacher during the interactions. This can be noted in the previous section about in the observations. Gocer (2010) notes that creating a positive leaning environment enhances language learning and that the teachers should use material that can be related to something the students can use in real life. The respect among all participants of the class demonstrated the positive atmosphere that had been created and the PBL activity allowed students to strengthen skills that will be required of them in their future studies and careers.

**Question 2: How did the interactive strategies develop during the implementation of PBL in the classroom?** The interactive strategies that develop during the implementation of PBL were described in the previous section under the observations and under the semi-structured interviews (see Table 1 – Interaction among the students; Interaction with the teacher) (see Table 4 – Collaborative interaction). The categories referred to allow the description of the 2 types of
interaction that developed in the classroom. It can be said that the interaction consisted of discussion and debates among the members of the groups and that the interaction was highly respectful and tolerant. Also, it can be noted that the students interviewed stated that their team members complied with the agreements and that all team members worked towards accomplishing the task (see table 5). Watkins & Wentzel (2002) say that this type of work promotes problem solving skills and promotes confident social communication. Hence, it can be inferred that the PBL activity encourages discussion and promotes social interaction among the students.

Although the interaction among the students was largely successful, there were difficulties during the process. The observations note that the teacher had to intervene on several occasions in order to initiate discussion among the teams and help them facilitate the collaborative work (see Appendixes H-K). Along with this, as noted in the observations, there were absences on one day of the activity’s class-work; which impeded the interaction that was vital to the activity. The students of those teams that were present assured that the absent students were doing their share of the work at a distance and it would be incorporated into the work that was taking place in the classroom. Roskelly (2002) states that instructors must be cautious when implementing collaborative work activities. He includes reports from students that teachers expect that the smart kids keep the others on track and that it can occur that one member of a group does the large majority of the work. Although the teacher specifically opted for the work to be done in class in order to prevent this type of problem, there was still evidence that indicated that some students participated more than others.

In spite of the difficulties, there was evidence that the collaborative work, along with the interaction with the teacher, aided in the solving of the problem and
promoted the intellectual discussion about the issue the students had to resolve. The observations noted that the students exchanged ideas with respect and with reason (see Appendixes H-K). The students would not disregard an idea of another without supporting evidence that the other idea was better. As well, the teacher interventions were not abrupt interruptions to criticize, rather they were guiding questions that enabled the students to reflect and encourage student discussion. As Lee and Kim (2005) discuss, collaborative work with PBL involves a group of learners that have a common goal and perform tasks at the same level; as they interact they influence their peers' cognitive process. Consequently, the learning benefits can be recognized through the interaction among the students.

**Question 3:** How did the students participate in the collaborative activities belonging to the PBL stages of the written work? The information for this question comes from the participant observations (see Table 1 – Interaction among the students / Written Work) and the semistructured interviews (see Table 4 – Collaborative Interaction/ Writing abilities). As well, the collaborative work with the writing is discussed referring to the incidences of the students' written work with the solution to the problem, considering correct grammar, spelling and vocabulary. As noted before, the role of the teacher during the activity was one of a facilitator as the students were involved in self-directed learning. The student participation was mostly active with the exception of a few quieter students who had little oral participation. This participation directly affected the written work as all the sessions were essentially leading up to the production of the assignment to be handed in. Amador et al. (2006) confirm that the benefits of PBL are self-guided learning, students become connected with the material and it promotes deep-level processing and collaborative learning. It
can be observed that PBL promotes participation from the students and allows the students to use all the English skills learned throughout their schooling in solving the problem and finally in developing a formal written task.

The written work was done collaboratively by the students and accomplished mostly during the class time in session 4 as that day was designated for this task according to the instructions (see Appendix D). However, the preceding days' discussions and research were fundamental in the final document that was submitted by each team. The teacher-observer noted that the students were working somewhat individually during the last session while writing the report; nevertheless, there was some discussion happening with regard to organization, wording, vocabulary and grammar as the students were formulating their individual components to be later compiled, revised and edited by all team members (see Appendixes H-K). The interviews gave the notion that the students worked together in the final editing and revision of the document (see Appendixes M-O). Zen (2005) considers the writing process as a pertinent part of the cognitive process for second language students. Barret (2001) states that PBL allows a certain freedom of expression for the students and empowers them with this act. Considering the ideas of these two authors and the performance of the students during the writing of the final report, it can be assumed that the collaborative writing process engaged the students in a cognitive process where they aided each other and gave them the capacity to express themselves with a certain liberty as they described their solution and articulated their opinions in the reflection part of the report.

*Question 4:* How did PBL favour the correct usage of English grammar, new vocabulary and correct spelling in formal writing? The information for this question
comes from the participant observations (see Table 1 – Written Work) and the semistructured interviews (see Table 4 - Writing abilities). The teacher-observer noticed from the final reports that were submitted that the students did a more than adequate job with their writing (see Table 2). With the exception of one report that contained a number of typographical and spelling errors and another that contained less than formal language, the students’ reports showed exemplary language, grammar, word choice and mechanics. Additionally, the teacher noted the correct usage of new vocabulary terms that were learned during the research process of the activity. She knew that they were new words as when she circled around the room during the sessions these were the words that she was asked about and that students were clarifying with one another.

The results of the study indicated that the PBL project favoured the broadening of the students’ vocabulary in English. The information from the semistructured interviews showed that the students’ discerned that their vocabulary had increased during the activity (see Table 7). Tait (1999) indicated that there is a need for ESL students to be introduced to activities that will help them in their other courses and that they need to be equipped with the proper vocabulary. Carson and Leki (1997) also comment that second language students can feel obstructed by their lack of proper vocabulary in writing tasks. This activity provided the students with the opportunity to be exposed to new words and incorporate them into their vocabulary by using them in the written report, as was noted by the students and the teacher-observer.

Although the students already had a high level of English, there was evidence that the written work provided them with exposure to complex grammatical structures that they later used in the written task. Two of the students interviewed claimed that
the research aided them in this area (see Table 7). Tait (1999) states that ESL students have a need for writing with grammatical accuracy. Diaz-Rico & Weed (2006) mention Krashen's (1981) theory about second-language acquisition saying that it is an unconscious process that occurs when language is used for real communication. Although one student interviewed said that the activity had not exposed her to complex grammatical structures in English which her team later tried to use, it may have happened unconsciously, which relates to Krashen's acquisition theory. The other two students said that the activity had exposed them to complex grammatical structures that they attempted to mimic; therefore, it can be inferred that the PBL activity relates to students' needs in improving their grammar usage in written work and the research involved aids the acquisition of the language.

In regards to proofreading, the collaborative nature of this activity provided the opportunity to do group revision of the written work. All the students interviewed stated that their teams collectively revised and edited the written work before it was submitted (see Table 7). In the observation of the written work the teacher noted that 3 of the reports contained minimal errors while one had a number of spelling mistakes and typos that could have been corrected with a more thorough proofreading (see Table 2). Campbell (1998) indicates that second language learners tend to do less editing and revising when doing writing tasks. Campbell's observation seems to be true for the one group that clearly did not revise the final written work; however, it is contradictory for the other groups. It can be understood that for 3 of the groups the collaborative work helped with the editing and revising of the final document.

Concerning writing in English as a second or foreign language, Diaz-Rico & Weed (2006) note that the ability to write develops later than the other abilities in the language: speaking, listening and reading. Moreover, they say that writing involves
more cognitive abilities, such as reasoning, expression, organization of thoughts and fluency of ideas. Relating this information with the study, PBL encourages cognitive ability and the writing of the report along with the activity promotes the acquisition of the ability at a high level.

**Question 5. What specific proposals could me made about improving the teaching practice based in PBL, to propitiate meaningful learning in the development of writing abilities at the Tecnológico de Monterrey high school, Mexico State campus?** In reflecting about the investigation’s results, there are a number of proceedings that the researcher would modify or change when conducting another study or implementing PBL again in the classroom. First, the implementation of a web-based tool, such as Blackboard which the institution subscribes to, would be of benefit in a collaborative work activity to better monitor individual work. Next, to promote more evenly distributed discussions, the usage of peer and self-evaluations would be valuable and would be considered as a substantial part of the grade. The peer assessment proposed would be based on the Likert scale and would contain categories such as: attendance in group meetings; active and thoughtful participation; attitude of tolerance and respect towards team members; positive work attitude; punctual completion of tasks; and encouragement of discussion (see Appendix Q). These evaluations would be kept confidential in order to have honesty in the grading and their usage would entice all the team members to participate actively in debates and discussions. As well, to help with the oral debates and discussions, a guideline would be given with helpful phrases and etiquette describing the participation. This guideline could be based on the Gunawardena model which encourages a polite and respectful exchange of ideas in group learning sessions such as: *I agree with your*
point and I'd like to add…. Lastly, on order to avoid extended individual work
during class sessions of PBL, a better organization of class time and more time added
to the activity so that the students could accomplish their individual task as homework
and the class time could be spent on the oral participation.

Alternatively, for the enhancement of the teaching learning process, it would
be optimum to implement this type of didactic technique in other English language
classes, not only in the upper-intermediate to advanced level in the International
Baccalaureate Program. The other programs in the high school tend to have larger
class sizes and it would be a useful activity for collaborative learning and interaction
in these classes. As well, in classes of all levels; the activity could be adapted for their
use in other levels of the language on order that the students and teachers are able to
experiment with PBL. Furthermore, the teachers and students of languages other than
English would benefit from the use of this didactic technique. The researcher has
proposed a training course specifically for language teachers (elaborated in Chapter 5)
that would enable the language teachers to learn about PBL and prepare them for its
use in their classes. The training incorporates 7 modules pertaining to use of
technology in the teaching-learning process, the PBL stages, using PBL with web-
based tools such as Blackboard, evaluation of PBL, PBL in language classes,
incorporation of the didactic technique in course design and design of a PBL activity.

In regard to the use of PBL with web-based interfaces, it would be opportune
to implement this type of activity using Blackboard, which is the technical internet
tool that the institution employs. Blackboard would enable the teacher to provide
more abundant resources and descriptions of the activity for the students, and provide
more control in respect to individual contributions to the task. Lee & Kim (2005)
support the use of web-based interfaces in PBL explaining that it provides control and
that the external representations of the students' thoughts have a great effect on their learning process in social context than when a person works individually. The web-based interfaces provide the social context through discussions on forums and provide interaction on various levels. Mortera (2002) explains these levels; student-content; student-instructor; student-student; and student-technology. These types of interaction are an important part of education in the information society. As Valenzuela (2010) describes, educators should be responsible for developing the competencies of collaborative work, communication and use of technology in their students. By implementing PBL with Blackboard, the acquisition of these skills would be enhanced and the students would be more prepared to work under similar conditions in their future careers.

In conclusion, this chapter described and analysed the data collected from the instruments used for the investigation: participant observation and semistructured interviews. The categories emerged from the analysis of the data and a careful revision of the units of analysis. The observation categories: interaction with the teacher; interaction among the students; and written work; and the interview categories: collaborative interaction; the chosen problem; writing abilities; students' satisfaction; and future experience with PBL; were examined to respond to the research questions and triangulation was used to connect the results to theories discussed in the Theoretical Framework chapter. The analysis of the results revealed a number of enlightening findings regarding the impact of the implementation of PBL, in innovation of the teaching-learning process in English to enhance writing skills. For example, the teaching-learning process involves the teacher as a facilitator and the students are learning more independently; the interactive strategies are compiled of discussions and debates among the students that contribute to the writing process of
the final document; and the observations as well as the semistructured interviews showed that the PBL activity favoured the correct use of grammar, new vocabulary and spelling in formal writing. Considering these points and those made previously in the chapter, it can be assumed that the implementation of PBL had a positive impact on the teaching-learning process and on the strengthening of the development of writing abilities in English for the students in the English B course at the Technológico de Monterrey high school, Mexico State campus.
5. Conclusions

This chapter summarises and discusses the main results and discoveries made about the findings in the implementation of the PBL activity according to the objectives of the study and makes conclusions with respect to this. It also relates the results of this study to previous studies mentioned in the Theoretical Framework and compares and contrasts the findings to the previous studies in order to confirm what has already been discovered and give new interpretations. Lastly, makes recommendations for future studies or possible projects in order to continue or broaden the knowledge gained during the process of this qualitative research.

On the other hand, in chapter 4, the impact of using PBL as a tool to strengthen writing and collaborative work in a high intermediate to advanced level English class in the International Baccalaureate program at the Tecnológico de Monterrey Mexico State Campus was evaluated. The research was done in order to innovate the teaching-learning process and came about from a problem to solve: What is the impact of the implementation of PBL on the innovation of the teaching-learning process of English language and in the strengthening the development of writing skills, in students of intermediate-advanced International Baccalaureate classes at the Tecnológico de Monterrey Mexico State campus?

The research was conducted by the teacher of the course, thus making the investigation action research. One main goal of action research is for the teacher to improve his or her own teaching practices. The teacher’s aim was to implement a new activity where the students are working with the language, using all the previously attained skills and knowledge about the language and apply it accompanied with problem solving skills and in their writing skills. After the completion of the activity, evaluate its success, and discuss adaptations to be made for further use. The teacher-
researcher not only intends to use the information for the improvement of her own practice, but also wishes to share the information with colleagues and readers of this document and invite them to experiment with PBL activities in their classes in order to improve the educational practices in the Languages Department at her institution and in English B courses in the International Baccalaureate program.

According to Kincheloe (1991, p. 81-82), educational action research is a continuous realization of one’s practices rather than achieving general conclusions.

From the teachers-as-researchers’ perspective teaching itself is thought of as a form of research which attempts to understand the process of translating larger educational values into modes of daily practice. Such a process requires that a teacher develop an understanding of educational purpose, preferably one which is aware of its dependence upon an awareness of a larger social purpose. The teacher researcher thus attempts to continuously evaluate his or her strategies for implementing those educational values deemed of worth.

Taking into consideration the ideas of Kincheloe (1991), the researcher has intended to impart an activity in which the students are involved not only in language learning and practicing which the course stipulates, but also dealing with a problem which is pertinent in the lives of all world citizens, the environment, and working with skills that are required for success in their futures lives which are collaborative work, problem solving and writing in English, all of which are included in the PBL stages.

The researcher deemed the problem worthy of study as in the institution where she works there is a lack of formally established activities of this type that are used at the upper-intermediate to advanced level. According to the interview with the director, there should be more activities that involve critical thinking that involve writing and the teachers should be trained in this respect (see Appendix C). Therefore, in addition to making improvements of her own teaching practices, the researcher will share the findings and positive results of this study in order to enhance the overall performance of the Languages Department at her institution.
Discoveries

This section deals directly with the objectives of this action-research. The discussion starts with the general objective: to analyse the impact of the implementation of PBL, in order to innovate the teaching-learning process of the English language and strengthen the development of writing skills in the students enrolled in the International Baccalaureate program in English B, an intermediate-advanced English language course. The researcher summarises and synthesises the results discussed in Chapter 4 and offers conclusions about the discoveries made to meet the goals of the study.

Conclusions with Regard to the Objectives of this Investigation

Objective 1: Description of how the teaching-learning process developed by means of the implementation of PBL, with regard to a possible innovation for improving writing skills in English. In a PBL activity, the teacher takes on the role of a facilitator and the students become independent learners, responsible for their own learning and development during the progress of the activity. In this part of the discussion of the teaching-learning process, the author has decided to include some segments taken from the reflections written by the students that were part of the written reports handed in. These segments give insight to the learning process that happens in a PBL activity from the point of view of the students. They are not necessarily from the students that were interviewed, rather taken from the group as a whole.

I have always thought that the best way to improve your English skills is practicing them. This activity gives me the opportunity to practice them through 4 days. It’s impossible not to say that this activity successfully complete its purpose, it makes me talk and think in English. It doesn’t matter how much you know about grammar, spelling, etc ;if you don’t demonstrate them or put them in
practice. This activity makes us put in practice all the things learned in class. This activity improves our, my English (Assignment C – see Appendix S).

The activity was a very original idea which helped break the usual written work atmosphere. Personally, I enjoyed the teamwork a lot, even if it kind of hard to agree with a specific point of view sometimes. This activity definitely helped me improve my English, since talking with each other is something that is not done much in a classroom. It also helped with the development of description skills, since you really needed to explain yourself clearly to be understood. Critical thinking was also a skill that I felt everyone developed during the activity. There were many specific requirements for most objects, so thinking how and which objects to choose helped to analyze every aspect of that item critically. Generally, this was a very fun activity and in my opinion, helped more than the usual quiz or team assignment (Assignment B – see Appendix R).

Another comment was: “This kind of activity helps us not only to improve our skills in written and spoken English, it helps us to start to think more in our planet” (Assignment A). These comments not only gave positive feedback to the teacher about the implementation of the PBL activity, they also reflected how the students felt about the learning process by using PBL. In addition to these comments, the teacher asked the students orally if they liked the activity and if they would like to do it again. A large majority of the students responded very enthusiastically to the idea, which gave the teacher further indication that the PBL activity implemented was a rewarding learning experience for them.

To further describe the role of the facilitator, the teacher spent little time in front of the class dictating instructions and going through the steps that the students needed to take in order to solve the problem. During the PBL stages (see Appendix D), the teacher-observer did spend some time explaining the activity and relating it to topics previously seen in class, as in the first session; however, in the subsequent sessions the work started immediately with the teams. During the sessions, the teacher spent time circulating around the room, answering the students’ questions and
initiating discussion among the groups when needed. The lack of direct instruction allowed the students to work independently and discover the solution to the problem themselves.

Once language students reach a certain level of fluency, the structure of their class should be adapted so that the students are working with the language, using authentic material and mimicking situations that are related with everyday life. A teacher becomes a facilitator rather than an instructor in these types of classes. Such was the case in the implementation of the PBL activity that was used and analysed for this activity. PBL takes on a different technique of the teaching learning process than the traditional teacher giving and students receiving methods. PBL involves self-directed learning by the students and collaborative work. In the classroom, the teacher acted as a facilitator as the groups of students worked together solving the problem. The initial stages of the activity required more instruction and clarification by the teacher; however, in the later stages, the students were working independently doing research and solving the problem. Theorists have associated PBL with the constructivist theory which indicates that learners construct knowledge, are predisposed towards learning and the learners structure this knowledge so that in can be learnt. Another aspect of this theory is that the learners construct their knowledge based on previous learning and views on the world (Amador, Miles & Peters, 2006; Savin-Baden & Howell Major, 2004; Wee, 2004).

The nature of the assignment was designed to motivate self-learning and teamwork, improve writing skills through research and deal with real life problems and issues which had been previously seen in the class. Thus, the teaching process for this particular project really began when the students were shown videos about ecological buildings and furniture and discussed fun and motivating workplaces that
were mentioned in an article that was read in class. The teacher introduced the activity by having the students reflect on those two topics and proposed the problem in a written document with the problem and the instructions detailed and allowed the students to read, interpret and pose questions throughout the 4 day learning process of the activity (see Appendix D).

The role of the teacher during the activity, along with facilitating, was to help the students keep on track with their progress through the learning process which is PBL. The teacher checked the individual progress of each student daily, which was done in order to ensure the responsibilities of the teamwork were being fulfilled. Also, when the teams needed inspiration and motivation to start discussions and share their findings, the teacher spoke with the groups, not by simply telling them to start their discussions but by asking provoking questions that made them think about and express their ideas and insights about the problem. These interventions by the teacher were moderate throughout the 4 day process of the activity. As well, the teacher spent time with each group listening to them speak to each other without interrupting.

In essence, to describe how the teaching-learning process developed by means of the implementation of PBL, the teacher acted as a facilitator and the learning process developed through interaction among the students as they breakdown the problem and begin to solve it. In a language classroom, especially at an advanced level, it is vital that the students work with the language and use it in everyday life situations, then, they will begin to see what they are capable of.

**Objective 2: Details of the interactive strategies that developed in the classroom during the implementation of the didactic technique.** Due to the nature of the activity, interaction among the students was vital and, as well, a part of the grade given for the assignment (see Appendix E). As mentioned in the previous chapter,
there was good interaction and, at times, the interaction needed to be stimulated by the
teacher. Overall, the teacher-researcher was pleased with the interaction that went on
during the task. The students were discussing their options, making arguments for and
against choices presented and generally working collaboratively. On the other hand,
not all teams respected the roles (in the PBL stages) that were outlined in the
instructions for the activity. Although the interviewed students did not deem this as a
problem, it showed the student's lack of acknowledgement for the teacher's
instructions. This can be taken in one way to be beneficial that the students
implemented their own methods, took initiative, and according to them it functioned
well; however, it can also be taken as the students' disregard for instructions. This is
an aspect that is dealt with in the proposals section in how to better the activity for
future use.

Through the observations, the teacher-researcher noticed that the students who
had a tendency to be not to outspoken in class, had the same tendencies in the group
work. Not all the students in the class held the same abilities with their spoken
English, and they were grouped accordingly so that the more fluent and outspoken
students would be in groups with the quieter, less fluent students with the expectation
of better discussion in the groups. The aim was for the more talkative students to
engage the less talkative ones in discussions and debates so that everyone could
practice their speaking skills in a less inhibiting atmosphere with the small groups.
Although there were attempts made by the more fluent students to initiate discussions,
it was still noticed that some students remained quiet and had limited oral
participation. The teacher intervened on several occasions to generate more discussion
among the quieter students.

The disparity in participation is a difficult aspect of collaborative work. It is
never easy for a teacher to ensure that all students participate equally, and at the adolescent age, the students are less likely to report this inequality to the teacher when it comes to the written work that is more difficult to observe the individual participation. As noted in Chapter 2, Roskelly (2000) states that teachers need to be very careful when using group work and have to plan in very carefully in order to ensure its success and that it complies with the objectives. This matter is further discussed in the section about proposals for future implementation of the activity.

The teacher encouraged the respect and tolerance with her interventions when the necessary discussion for the activity was not taking place. However, the students showed respect and tolerance on their own in many occasions. On the part of the students, they kept up with the designated schedule of the activity and the steps that were to be accomplished each day. They were motivated and interested by the activity and took initiative with their own learning. They helped each other in the editing and revision of the final written work and generally worked well collaboratively.

The students’ learning was self-determining throughout the activity. The teacher gave the problem and the students had to solve it on their own. This relates with Silén’s (2001) comments. As he explains, the philosophy behind PBL relates to assumptions about student-centered learning as opposed to teacher-centered. PBL offers independence to the students and makes them responsible for their own learning. They become aware of their own knowledge and skills through the process and are able to display this in a social context in a collaborative and interactive learning style. As the students worked through the problem, their autonomous learning was revealed through their actions and displayed as active members of their groups.
Objective 3: Description of the students' participation in the collaborative activities belonging to the PBL stages of the written work. In general, it can be said that the participation of both the students and the instructor was active and adequate for the activity. Some exceptions occurred; such as the 2 students that were absent from class on the second day of the activity and the lagging discussions in which the teacher had to intervene in order to generate the collaborative discourse. The instructor spent time circulating around the classroom, interacting with students, answering and asking questions, monitoring progress and provoking discussions; in essence, acting as a facilitator, as mentioned earlier. The students, for the most part, worked independently in accomplishing the work required of the task. As stated in the analysis of the results, the collaborative work during the activity was successful.

Throughout the stages of the activity the interaction was mostly advantageous. In the first session the students read over the problem, analysed it and delegated the roles for the teams' members as indicated in the instructions. They noted what information was given and what they needed to gather, according to the instructions. The next session involved steps 3 and 4 of the activity, making a list of what they needed in order to solve the problem and defining the problem (see Appendix I). As well, during this session they proceeded on to step 5, the research part and assigned the different items to search for among the team members. The next sessions' participation was slow at the beginning as all the teams' members seemed to be doing individual work with their own computers (see Appendix J). The teacher took this opportunity to mediate the discussions and entice sharing among the groups' members. The last session involved the writing process and the students' participation encompassed their asking each other about working, grammar and design of the final document to be handed in (see Appendix K). Their collaborative interaction also
indicated their wanting to avoid mistakes in grammar, vocabulary, sentence structure and punctuation in the final document they submitted for grading. The students, along with their team members, did the editing and revising of the document.

There was evidence from both the observations and the interviews that there was respect and tolerance shown throughout the activity and that the students enjoyed working together. That said, there is room for improvement in some aspects. As the prior section describes, the participation was not always equal and the researcher indicates how this can be tackled in the section about proposals for future implementation of the activity.

All of the progress throughout the 4 day session of the activity related to the writing of the final written report that the students handed in on day 4. The writing was done collaboratively by the teams, assigning different segments to compose then be compiled for the final document. During the last session, which was designated to the writing portion of the activity, the students were working independently; nevertheless, there was some discussion happening about the narration and organization of the documents. The interviewed students mentioned that the editing and revising was done by all the teams’ members (see Appendixes M-O). Campbell (1998) asserts that teachers should be promoting writing as a process in order to engage students intellectually in the task. The PBL activity, in the first 3 sessions, served as the prewriting and organizing steps for the final document and the final session was dedicated to the drafting, revising and editing stages of the writing process. By doing all this collaboratively, the students were able reap in the benefits of collaborative work such as social interaction, democratic social discussions and self-expression (Barret 2001).

This description of students’ participation can be related to Barret’s (2001)
comments about how PBL related to Freire’s (1972) concepts of personal development and social empowerment and how that relates to the philosophical principles of PBL. Barret (2001) relates PBL with Freire’s education theories on several levels: the tension between subject and object, the learner becomes the subject of his or her own learning; tension between being and becoming, the student becomes part of a small group that encourages social interaction which enables them to move beyond the current level of understanding; tension between existing and living, the students are confronted with real life problems; and tension between liberating and oppressing, the students enjoy freedom in PBL by developing their own plans of action to be carried out. It can be concluded that PBL is a didactic technique that promotes a different type of participation from students and teachers, which promotes social interaction and skills that make classes student-centered and in charge of their own learning.

Objective 4: Determining if PBL favours correct usage of English grammatical structures, new vocabulary and correct spelling in formal writing. This objective was fulfilled favourably. The written assignments showed the use of new words and were generally written well with the exception of one that contained a number of errors. This assignment in exception contained a number of typographical and spelling errors that could have been corrected with a thorough proofreading. The collaborative work required that all team members revised the final documents before submitting them; thus, it can be said that this particular group did not comply with this aspect. The evaluation of the written reports was good overall. Group A received lower grades in the word choice-grammar usage and mechanics categories of the rubric for the mentioned reasons above about the spelling errors and typos (see
Appendix F). Group B scored lower in development as they did not describe the reasons why they opted for the products they chose, Group C did an outstanding job of the written report and scored high in all categories of the rubric. Lastly Group D scored lower in organization, development and word choice-grammar usage.

Learning good writing skills in a foreign language can be very challenging, and one way it can be developed is through writing to learn. As Leist (2005) explains, writing can be used as a very effective learning tool in language learning. The writing process is a cognitive process and while writing in a foreign language, the students are developing those cognitive skills along with the language skills. As the students of this class went through all the PBL stages and compiled their information to write the final written assignment, they were experiencing the writing process and exploring new territory in their realm of writing activities. Thus, the writing served as a learning process.

In general, it can be said that the PBL activity implemented for the purpose of this research project was a success. The students reported favourably about the activity in their reflections in the written assignment and the teacher-researcher felt that the students enjoyed working with an activity that was different and that exposed them to a real life problem where they could put their English skills to use. Because this group of students do not normally get assigned collaborative writing projects, this assignment gave them an opportunity to explore that area and learn the responsibility of handling a group writing task. Another aspect of the project that enhances an upper-intermediate to advanced level English class is that the students are able to practice all 4 language skills, speaking, listening, reading and writing, along with their problem solving skills and the collaborative work. The interaction serves as a source of learning. The social construction conciliates communities of practice where the
students work together for one goal: to learn. One of the main aims of the study was to observe if the PBL activity had an impact on the students’ writing skills in regard to the use of correct grammar, spelling and a broader vocabulary. In this aspect, the researcher discovered mostly positive results; however, the activity encompassed much more than just the written work. The students were working collaboratively for 4 days (during the PBL stages), researching, discussing, organizing and planning, all in English. Thus, in many aspects the activity attained more than was originally expected. That said, being that it was the first time this teacher-researcher used the activity, there is room for improvement. The following section will deal with the improvements proposed by the researcher.

Objective 5: Specific proposals about improving the teaching practices in the International Baccalaureate program at the Tecnológico de Monterrey high school, Mexico State campus by using PBL, to propitiate meaningful learning in the development of writing abilities in relation with future generations of English B students. In this section, the teacher researcher first discusses the items mentioned above about what she would do differently when implementing a PBL activity. Later proposals will be made about improving the educational practice in more English courses at the institution using PBL to enhance writing abilities and about the possibilities of using the didactic technique with online tools such as Blackboard, considering a possible interaction with technology.

During the activity, the instructor circulated around the room and checked that the students’ individual work was being completed. The students either showed or explained what they had done. Although this can be effective, it is difficult to ensure that all members of each team are doing their share of the task. One way to remedy
this situation is to use Blackboard, email or another type of technological support and have the students upload their individual contributions for the teacher to review.

Unfortunately, for this course Blackboard is not used; however, the instructor can request that the course start using this tool. Having to submit individual contributions would increase the responsibility of each student and ensure that they are all working towards the goal of the assignment. As well, the use of forums (discussion board) in electronic platforms would provide the teacher with the opportunity to give feedback during the stages of PBL and evaluate the performance of the group. As Mortera (2002) mentions, the use of a platform in learning provides control and independence for the students and 4 types of interaction; student-content; student-instructor; student-student; and student-technology. Mortera (2002) points out that the interaction with web-based platforms generates individualized learning; opens up education to different styles of learning; includes information, video and audio, and contributes to personal relationships that predicate empathy among students and the instructor. The learning occurs without the limits of time and space and offers constant monitoring to the students, thus, motivating their progress and pleasure in learning. Furthermore, with web-based learning tools there is personalized communication with each participant and continuous dialogue with the teacher.

Another issue with collaborative work is that some students inevitably participate more than others in discussions, and sometimes this stratification is increased in language classes when some students have a better command of the language than others. The teacher attempted to alleviate by strategically forming groups with mixed abilities; however, the participation continued to be unequal. In future implementation of the activity, the teacher will indicate that the teams should strive for equal oral participation from each member and that all team members are
responsible for it; thus, the more fluent students should be responsible for posing questions to the less fluent students in order to involve them more in the discussions. As well, a confidential peer evaluation would be given in order that the team members evaluate each other and that that grade be taken into consideration. This way, the students who are reluctant to report that their team members are not working would be able to do that in confidence. The grades obtained from the peer evaluation would have a significant count toward the final grade for the project. Additionally, a self-assessment survey could be given and taken into account for the final grade. A self-evaluation would allow the students to reflect on their own performance and learning process throughout the activity. A peer assessment survey could be based on the Likert scale using the following closed-response rating options: totally agree, agree, neither agree nor disagree, disagree and totally disagree; and would include 10-12 items pertaining to individual student performance during a collaborative PBL activity (see Appendix Q). The survey includes closed-response rating scales, where individuals select their response from a selection of answers provided.

There were times during the activity where the teacher-researcher found that the students were working individually with their laptop computers doing research. Although this work is valid and there was a certain amount of individual work to be done, that time spent alone working took away from the group discussions and somewhat deterred the students from one of the main goals of the activity which was collaborative work through group discussion. In implementing this activity again, the teacher-researcher would take more time to do the activity discussion and sharing. The researcher would suggest to other instructors of the same course to consider giving more time for group discussion. The future planning of the activity would include 5 class days and would specify more specifically time for discussion, debate
and sharing of ideas. For example, considering the steps established for this study's activity (see Appendix D) the first class would include steps 1 and 2: reading and analysing the problem and identifying information known and needed. This first session would be discussion based and the students would plan how they want to solve the problem as well as how the time in the next four sessions would be spent. The next session would incorporate steps 3 and 4: making a list of what is needed and defining the problem. Here also, the students would be actively discussing the needs and working together to formulate a written definition of the problem to be included in the final written assignment. The teacher would monitor that the discussions are active and leading towards the goal of the session, without being cut short to begin research. The third session would be dedicated to the research, step 5, obtaining information. Each student would be designated information to search for and keep a record of it to be able to share for the following session (step 6) of listing possible actions to take. This fourth session would be dedicated to debating the best solution to the problem based on the findings of each team members' research. Active participation would be required throughout the session as each member makes proposals and the team comes to a consensus about what action to take. And lastly in session 5, the last step of presenting the results, or the writing up of the report would happen.

With respect to the discussions and debates, the teacher of the course did not give any guidelines of helpful phrases or etiquette regarding them. Although the students have a high level of the language and showed respect and good collaborative work etiquette, a guideline would have aided the benefits of the activity, especially those students who have tendency not to participate. Along with these guidelines about the discussions and debates, a more detailed timeline would be given. For
example, how much time to be dedicated each class day to discussion so that the activity ensures one of its purposes of practicing the language orally. Additionally, a future study could include a focus on oral English skills instead of writing skills as this study has done.

Finally, as the interviews and the observations revealed, not all teams respected the roles of the team that were to be delegated and followed during the activity. One of the students commented that the members of his team were not really sure what to do with respect to the roles, in that aspect the teacher-researcher understood that this part needed to be explained better. For example, with the use of a technological platform would give the teacher the space to upload a detailed description of the roles and the stages of PBL, and it would serve as a tool to monitor individual progress. In addition, the platform would serve as a tool to offer students a theoretical explanation of the learning process and benefits of using PBL so that they are aware of the progress being made in their language learning being incorporated with real-everyday issues that they may encounter in the future. Although the roles were indicated in the instructions, the instructor should give a verbal explanation and examples of duties, along with the possibly more-developed written one on a platform, to support the written indications; additionally, to better moderate that the students are fulfilling their delegated duties.

On the other hand, in the Tecnológico de Monterrey, there is a course for teachers about the implementation of PBL that is a requirement as part of teaching skills in a fundamental training for the teachers and professors; nevertheless, it is a general course that does not focus on specific disciplines, and, as the director of the department indicated, there is no documented formal use of the didactic technique in the Languages Department at any level (see Appendix C). For this reason, another
change that the researcher proposes is to have training about the use of PBL specifically in language classes; it is necessary to focus on a new innovative approach to redesign those courses.

The possible training could be a course of 7 modules (see Table 10). The training would be given over the course of one week (during summer weeks with no classes for students) and a total of 3 presential class hours would be required for each module. The 3 class hours for each module would incorporate instruction and a portion of the assignment work time.
Table 10

Proposal for a possible training course for the language teachers of the Tecnológico de Monterrey, Mexico State Campus about Problem Based Learning in foreign language classes

<table>
<thead>
<tr>
<th>Module</th>
<th>Activity</th>
</tr>
</thead>
</table>
| 1. *Introduction to the fundamental theories of teaching and learning using technology.* | Activity 1: Preparation of overview in the form of a table of the advantages and disadvantages of ICT in virtual environments  
Mode: Individual  
Submission: Email to instructor |
| 2. *PBL stages in a presential class* | Activity: Quiz on the PBL phases in a presential class  
Mode: Individual  
Submission: Quiz taken in-class and handed into instructor |
| 3. *PBL stages using Blackboard* | Activity: Elaboration of a timeline of phases using Blackboard  
Mode: Group activity – group teachers according to the language they teach  
Submission: Upload to Blackboard (Group Forum) |
| 4. *Evaluation of PBL* | Activity: Evaluation of several rubrics by creating a list of advantages and disadvantages of each rubric presented and which level of the language they would be best suited to  
Mode: Group activity with the same groups as the previous module  
Submission: Upload to Blackboard (Group Forum) |
| 5. *Using PBL in language classes* | Activity: Make a list of possible topics suited for language class use of PBL according to the students’ level of the language  
Mode: Individual  
Submission: Email to instructor |
| 6. *Incorporation of PBL into the curriculum: Main instructional design principles* | Activity: Analyse current curriculum and look for the most important principles of instructional design in order to implement PBL in the content  
Mode: Group – same groups as previous activities  
Submission: Upload to Blackboard (Group Forum) |
| 7. *Design of a PBL activity* | Final Activity: Design a PBL activity that would be suitable for the level of language and student interest  
Mode: Individual  
Submission: Upload to Blackboard (Group Forum) |

The work not completed in class would have to be done as homework. The
grading would encompass 40% for class activities and participation and 60% for the final activity. As the assignments would be submitted to the Group Forum in Blackboard, it would also be valuable to use a peer-assessment survey as part of the evaluation. This review would not only serve as evaluation but also as a way of sharing ideas. The training would encourage the use of PBL in language classes at the institution and the teachers would be able to judge the benefits for themselves. As a follow up, the language department director would ask each teacher to implement PBL in their classes the semester following the training and write a brief report about the outcomes of the activity.

Future Research Projects

In regard to possible future studies, the teacher-researcher would like to see how this type of activity works in lower-ability classes. After having done this research with a group of high level students, the teacher-researcher believes it pertinent to implement studies using PBL in classes of other English levels. This particular class was at an advantage due to its small size of 20 students, which facilitated the observation, and due to the students’ high level of the language. In this program in the high school at the Tecnológico de Monterrey Mexico State Campus, the student profile is somewhat different than the other programs in that the academic level is advanced and the students must have a high level of English to enter, over 500 points on the TOEFL exam. However, only a small percentage of students enter the high school in this program, thus in order that this information be pertinent to the researcher’s colleagues, it must be transferrable to classes of 30-35 students in levels that range from lower intermediate to advanced. For example, the courses English 5 & 6 and Advanced English 1 & 2 in the institution would benefit experimenting with
PBL activities. As the researcher has proposed a training course in PBL for language teachers at the institution, more teachers would be equipped to implement the activity, therefore, there would be more opportunity to conduct further studies. Thus, it would be favourable to do a similar study in a larger class of lower ability so that the languages department could formally implement this type of activity in more classes, not just those of a reduced number and of higher level.

In subsequent investigations at the institution, the use of Blackboard, which the school uses as a learning tool, would be a valuable asset in a PBL activity. Lee and Kim (2005) conducted a study about the use of web-based technology in PBL. They assess a number of benefits that using a web-based tool bring. First, the collaborative work (interactions) can be done without the constraints of time and geography. As well, the public statements that each individual team member publishes help them to articulate and externalize their thoughts and ideas as well as provide social interaction. Using a web-based tool facilitates the learning process by providing a distinct space for all the stages of PBL and more chance to share resources. Additionally, by having all the publications available, the participants can reflect on the on-going learning activities and provide an opportunity for more elaborate conversations. Cognitively, PBL is inspired by the constructivist epistemology that improves human learning by presenting students with authentic situations and the web-based interaction enables the student to refer back to what has been said and externalize their thoughts. Also, the tools demand a greater responsibility from the students which reduces the change of the free rider during collaborative work.

Taking into consideration the information from Lee and Kim (2005), the teacher-researcher proposes that subsequent studies of the use of PBL at the
institution incorporate the use of Blackboard as an additional tool to analyse and assess the procedure in this manner. The methodology of the present study was action-research, so the teacher had already built a relationship with the group of student-participants and was aware of their individual strengths and weaknesses and had a solid notion of how they work collaboratively.

Alternatively, a mixed methods study, adapting both quantitative and qualitative attributes, would embody a more representative view of the issue. Hernández at al. (2010) mention various advantages of a mixed method study. It achieves a broader view of a phenomenon. The problem statement is of greater quality and can produce more varied data to analyse offering a richer perspective of a problem. Johnson & Onwuegbuzie (2004) comment that mixed methods research attempts to accredit the use of multiple approaches in responding to research questions rather than limiting an investigator’s options. They affirm that it can often be the best way to obtain useful answers to the research questions. An example given of how to mix the methods to obtain the most optimum results is adding qualitative interviews to experiments as a control check and gain a different perspective from participants than a survey, which is traditionally used in qualitative research. A quantitative study would also be beneficial in this field as it would broaden the number of participants and show a different perspective than a qualitative study. Hernández et al. (2010) note that quantitative research offers a maximum control so it can disregard uncertainty and minimize error. It also analyses data statistically and looks to generalize the results in a collective manner in order to represent a certain population. The research questions established in a quantitative investigation create a hypothesis with a clearly defined plan in proving it. Thus, a study of this type to analyse the effects that PBL has in the teaching-learning process in a language class
would extend to a more general scope and contrive a new validity making the didactic method even more enticing for language teachers. The Tecnológico de Monterrey, Mexico State campus high school has a student body of more than 2000, with 12 English levels in the most populated program, bilingual; therefore, a quantitative study would be able to incorporate much more of this population than a qualitative study. This would function with control and experimental groups in order to manipulate the variables and measure the learning in each one.

Another suggestion in the area of PBL research in English language classes is to conduct case studies of several groups. A variety of groups would provide validity to a study and the findings of the different groups could be assessed and compared. In relation to the writing aspect, more samples could be analysed and compared, thus give a rich array of assessment on how PBL impacts the strengthening of the development of writing skills. Additionally, a comparison study between 2 groups could be conducted, one using PBL and one not, in order to provide evidence in support of, or not in congruence enhancement of writing abilities with PBLs. This would deal with the question of group experiment and control and enable the manipulation of variables to compare the learning in each group. Burke (1997) states that qualitative research is considered weak in terms of being able to generalize across populations. By having more than one group, for example one from the Bilingual Program at the institution and one from the International Baccalaureate program, a researcher could make more generalizations about the discoveries and, therefore, have more external validity.

With respect to external validity, it would be recommended to experiment with PBL in a similar context in order to support the findings in this study. Although there are no 2 identical contexts, by conducting another investigation in an English B
course with a different set of students, similar results should be discovered. Burke (1997) notes that one way of attaining external validity is through replication logic, which indicates that the more times findings are true with different sets of people, the more certainty can be placed on the original study; therefore, it would give way to being able to generalize the discoveries. As the researcher will continue working with International Baccalaureate, English B students in the future, this is a possibility.

In conclusion, this investigation provided the researcher with a learning opportunity, not only for her students but also for herself. The idea of the study came about as the teacher has writing as a significant part of the evaluation for the class, yet she wanted to incorporate different learning techniques that would provide the students with authentic learning situations using the language. The incorporation of PBL with writing skills accommodated these techniques. She also considered the issue of having no formal implementation of this type of activity in language classes at the institution; thus, there was a problem to resolve. She wanted to explore the topic in order to be able to know better its concepts and be able to propose its integration into the curriculum of the English B course. As well, the action-research gave the investigator to analyse her current teaching practices and make improvements in them. (Elliot 2007). As stated earlier, Zen (2005) says that writing is an ability that has to be developed and requires much effort and labour on the part of the students and the teacher. By granting a writing assignment that involved research and collaborative work, the students were able to take their writing skills into new territory and enrich their skills (correct grammar, spelling and new vocabulary). The learning experience using PBL with writing has begun for this researcher and will continue to grow with future use of the technology tools and further studies about the
problem at the Tecnológico de Monterrey, Mexico State campus.
Appendix B

Syllabus for International Baccalaureate English B Course
International Baccalaureate 4th Semester English B
January - May 2011
Room: 8503
Time: 7-8am daily

Teacher: Andrea Sue Richardson
Email: randrea@itesm.mx
Office hours: 10-11 Monday, Wednesday and Friday

Materials:
Novel – Angela’s Ashes
Textbook – Key Concepts 2

Goals and tasks for the semester:

- Look at the different types if IB English B writing and practice several types
- Work on academic reading, writing and vocabulary
- Read and analyze 1 novel (Angela’s Ashes)
- Broaden knowledge of the language, vocabulary and idiomatic expressions
- Practice speaking in groups and individually
- Become familiar with IB type readings and practice them

AIMS (from IBO Diploma Programme)

- Enable students to understand and use the language they have studied in a range of contexts and for a variety of purposes
- Enable students to use the language appropriately
- Encourage, through the study of texts and through social interaction, an awareness and appreciation of the different perspectives of people from other cultures
- Develop students’ of the role of language in relation to other areas of knowledge
- Provide the opportunity for enjoyment, creativity and intellectual stimulation through knowledge of a language
- Provide students with a basis for further study, work and leisure through language
- Develop students’ awareness of the relationship between languages and cultures with which they are familiar.

Objectives – Higher Level (from IBO Diploma Programme)

At the end of the language B course higher level candidates are expected to demonstrate an ability to:

- Communicate clearly and effectively in a wide range of situations
- Understand and use accurately oral and written forms of the language that are essential for effective communication in a range of styles and situations
- Understand and use a wide range of vocabulary
- Select a register and style that are appropriate to the situation
- Express ideas with general clarity and fluency
- Structure arguments in a clear, coherent and convincing way
- Understand and analyze moderately complex written and spoken material
- Assess subtleties of the language in a wide range of forms, styles and registers
- Show an awareness of, and sensitivity to, the cultures related to the language studied

Weekly schedule:
Monday and Tuesday: work with the novel and other readings. (The chapters of the novel indicated weekly are to be read for Monday of each week)
Wednesday, Thursday and Friday: Writing and work with Key Concepts
*The schedule is adjustable depending on student interest and pace the class takes.

<table>
<thead>
<tr>
<th>WEEK</th>
<th>READINGS</th>
<th>LEARNING AND ASSESSMENT ACTIVITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1: Jan 10-14</td>
<td></td>
<td>Welcome back, IB reading.</td>
</tr>
<tr>
<td>Week 2: Jan 17-21</td>
<td>Angela’s Ashes Ch. 1-2</td>
<td>Unit 1 Key Concepts – reading 1, academic vocabulary</td>
</tr>
<tr>
<td>Week 3: Jan 22-28</td>
<td>Angela’s Ashes Ch. 3-4</td>
<td>Unit 1 key Concepts (cont.) – reading 2</td>
</tr>
<tr>
<td>Week 4: Jan 31-Feb 4</td>
<td>Angela’s Ashes Ch. 5-6</td>
<td>Writing assignment due *PBL Activity in class (attendance required)</td>
</tr>
<tr>
<td>Week 5: Feb 8-11</td>
<td>Exam Week</td>
<td>In-class writing and speaking activities</td>
</tr>
<tr>
<td>Week 6: Feb 14-18</td>
<td>Angela’s Ashes Ch. 7-8</td>
<td>Unit 2 Key Concepts – reading 1, academic vocabulary</td>
</tr>
<tr>
<td>Week 7: Feb 21-25</td>
<td>Angela’s Ashes 9-10</td>
<td>Unit 2 Key Concepts – reading 2</td>
</tr>
<tr>
<td>Week 8: Feb 28-March 4</td>
<td>Angela’s Ashes 11-12</td>
<td>Writing assignment due</td>
</tr>
<tr>
<td>Week 9: March 7-11</td>
<td>Exam Week</td>
<td>Group Oral Activities – In-class writing</td>
</tr>
<tr>
<td>Week 10: March 14-18</td>
<td>Angela’s Ashes 13-14</td>
<td>Unit 3 Key Concepts – reading 1, academic vocabulary</td>
</tr>
<tr>
<td>Week 11: March 22-25</td>
<td>Angela’s Ashes 15-16</td>
<td>Unit 3 Key concepts – reading 2</td>
</tr>
<tr>
<td>Week 12: Mar 28-Apr 1</td>
<td></td>
<td>Writing assignment due</td>
</tr>
<tr>
<td>Week 13: April 4-8</td>
<td>Angela’s Ashes 17-18</td>
<td>In-class writing</td>
</tr>
<tr>
<td>Week 14: April 11-15</td>
<td>Exam Week</td>
<td>Group Oral Activities</td>
</tr>
<tr>
<td>Week 15: April 25-10</td>
<td></td>
<td>Individual oral practice</td>
</tr>
<tr>
<td>Week 16: May 2-4</td>
<td></td>
<td>Individual oral practice</td>
</tr>
</tbody>
</table>

**Final Exam**

**Mark Breakdown:**
Period 1
Exam 40% *This grade will be in the form of a collaborative project – Problem based learning
In-class writing 25%
Take home writing 25%
Class participation (Oral activities) 10%

Period 2
Exam 40%
In-class writing 25%
Take home writing 25%
Class participation (Oral activities) 10%

Period 3
Exam 40%
Reading and written response 25%
In-class writing 25%
Class participation Oral 10%

Final
Average of the 3 periods 60%
Individual Oral 5%
TOEFL 5% (pending)
Final Exam 30%
Appendix C

Semistructured Interview for the Director of the Languages Department of the Tecnológico de Monterrey, Mexico State Campus about the Use of Collaborative Learning and PBL in English Classes (Transcription)

1. What types of activities are used in upper intermediate to advanced level classes to promote critical thinking and collaborative learning?
   "There are writing courses with different writing styles, speech class. Ideally it should involve other studies that involve critical thinking and controversial ideas".

2. Are there reports about the use of various teaching techniques of the English language in the department?
   "Unfortunately no".

3. Would you consider it adequate to innovate the teaching-learning strategies of English in the department?
   "Yes, it's important to make changes".

4. Do you believe there is a lack of collaborative writing activities that promote critical thinking? Y N
   "There should be more, or have them more structured or formally established. Not everyone has the same idea of what collaborative learning is".

5. Why do you think there is limited teaching of English with collaborative learning?
   "The size of the groups disables the handling of this type of activity. We should have smaller groups".

6. Are you satisfied with the teacher training at CEM?
   "There should be more training, especially if a teacher is teaching a new level."  

7. What would you change about the way English is taught at CEM?
   "I would change the class size to have smaller groups. And I would implement well-structured teacher training".

8. Is there information about the academic performance at CEM? If there is poor performance, to what do you attribute this to?
“The TOEFL test is used as a measuring tool and is taken each semester to monitor improvement. The poor performance can be attributed to the poor quality of the programs”.

9. How can the teaching be innovated at CEM?

“It can be innovated by promoting critical thinking and training teachers in it, by making sure everyone understands their goals and the learning goals of the students, by the use of software and by promoting independent work for the students”.

10. Have you heard if your instructors implementing the use of Problem Based learning in their classes?

“No, very little. It’s not formally implemented”.

11. Do you think there would be benefits by using PBL activities incorporated with writing tasks? And what would these benefits be?

“Yes. It would help develop creativity and analytical skills in our students and a good attitude towards critical thinking assignments in English”.

12. Would you like to see your instructors using this type of activity? Why or why not?

“Yes, to promote critical thinking, analytical skills and working with the English language”.
Appendix D

Problem Based Learning Activity for the English B, 4th Semester Course
Tecnológico de Monterrey, Mexico State Campus

The instructor of this class is implementing this activity in order to observe the students during the activity to obtain information on the impact of using PBL in higher level English classes and to innovate the teaching-learning process in order to strengthen writing skills.

Class:

International Baccalaureate, English B, 4th semester

Objectives:

The purpose of this activity is to research about environmentally friendly office furniture and supplies for a small office. You will also be in charge of designing the office layout that provides a friendly and positive working environment. In English, and discuss in English with your team the best options and put together a written report with your final solution.

Length of time for the activity:

4 class hours will be allotted for the activity and the rest will be done for homework. The classes will be divided in the following manner:
Friday, January 28, 2011: Steps 1 & 2
Monday, January 31, 2011: Steps 3 & 4
Tuesday, February 1, 2011: Steps 5 & 6
Wednesday, February 2, 2011: Step 7

Problem:

You and your team form part of an innovative youth program of the Engineers and Architects Society in Vancouver that are in the search of promoting the design of offices and work spaces considering the impact on the environment. For this you have been put in charge of furnishing a small office space in downtown Vancouver with environmentally friendly furniture and office supplies and design an environment that is friendly, positive and that promotes good working conditions. There will be 4 people occupying this space, 1 assistant and 3 workers. All 4 people will need a desk, a chair and a computer. The office will need a printer, a fax machine, a scanner and office supplies such as paper, pens, pencils, paperclips, scissors, a stapler, calendars and other items that you and your team deem necessary. Other items to consider for the office include: a coffee machine, coffee mugs, a radio, pictures for the walls and other decorative items, telephones, lamps and bathroom supplies (towels and a mirror).

The space is 400 square meters and is completely empty right now. The office space
faces the north side of the city and on this side there are several large windows. You will have to decide if you want to put up walls to separate the 4 spaces for each person or leave it open. This will depend on what you and your team research about making friendly office spaces.

The steps that you will take to solve this problem are as follows:

7. Read and analyse the problem
8. Identify the information that you are given and the information you need. (Make a list of what you know and what you do not know.)
9. Make a list of what you need in order to solve the problem.
10. Define the problem. (Write statements that explain what your team is trying to solve, produce, answer, prove or demonstrate.)
11. Obtain information. (This information must be real and from sources in English.) (This stage also includes the exchange of ideas, classifying the information from the various solution alternatives.)
12. List the possible actions you can take and possible solutions. Here you should make a detailed list of the pros and cons of each solution.
13. Present the results (solution to this problem).

Within your group you will have to designate the roles of: moderator, secretary and participants. The moderator is in charge of overseeing the group discussions, keeping the team on track and resolving any discrepancies among the differing opinions of the group. The secretary will be in charge of making notes of the ideas that arise in the discussions and making the lists that are outlined in the steps. The participants will be participating in the discussions and gathering information and all the members of the group will be doing the research and participate in making the final report.

The final written report will include: a list and description of the office supplies and furniture and a description of why they are the best choice for the environment. A physical description of the office design and layout and why it will be congruent with a friendly and productive office atmosphere. Make this a very formally written report and cite your sources. Your report may consider more than one option for the problem. Also include a reflection about the process noting if you liked the PBL activity, if you thought it was beneficial to your English skills in discussion, writing and critical thinking.
## Appendix E

**Rubric for Evaluating the Collaborative Work**

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>Exemplary</th>
<th>Proficient</th>
<th>Partially Proficient</th>
<th>Unsatisfactory</th>
<th>POINTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Focus on the Task and Participation</strong></td>
<td>3 points</td>
<td>2 points</td>
<td>1 point</td>
<td>0 points</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Consistently stays focused on the task and what needs to be done. Very self-directed.</td>
<td>Focuses on the task and what needs to be done most of the time. Other group members can count on this person.</td>
<td>Focuses on the task and what needs to be done some of the time. Other group members must sometimes remind this person to keep on task.</td>
<td>Rarely focuses on the task and what needs to be done. Lets others do the work.</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>A true team member who contributes a lot of effort, and encourages and supports the efforts of others in the group.</td>
<td>A strong group member who tries hard!</td>
<td>Sometimes a satisfactory group member who does what is required</td>
<td>Sometimes chooses not to participate and does not complete assigned tasks.</td>
<td>3</td>
</tr>
<tr>
<td><strong>Dependability and Shared Responsibility</strong></td>
<td>3 points</td>
<td>2 points</td>
<td>1 point</td>
<td>0 points</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Consistently punctual for group meetings, turns in all work on time.</td>
<td>Usually punctual for group meetings, turns in most work on time.</td>
<td>Sometimes late for group meetings, frequently turns in work after the deadline.</td>
<td>Late for all or most group meetings, misses all deadlines for turning in work.</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Follows through on assigned tasks and does not depend on others to do the work, responsibility for tasks is shared evenly.</td>
<td>Follows through on most assigned tasks.</td>
<td>Does not follow through on most assigned tasks and sometimes depends on others to do the work.</td>
<td>Seldom or never follows through on assigned tasks. Depends on others to do all of the work.</td>
<td>3</td>
</tr>
<tr>
<td><strong>Listening, Questioning and Discussing</strong></td>
<td>3 points</td>
<td>2 points</td>
<td>1 point</td>
<td>0 points</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Respectfully listens, interacts, discusses and poses questions to all members of the team during discussions and helps direct the group in reaching consensus.</td>
<td>Respectfully listens, interacts, discusses and poses questions to others during discussions.</td>
<td>Has some difficulty respectfully listening and discussing, and tends to dominate discussions.</td>
<td>Has great difficulty listening, argues with teammates, and is unwilling to consider other opinions. Impedes group from reaching consensus.</td>
<td>3</td>
</tr>
<tr>
<td>Research and Information-Sharing</td>
<td>3 points</td>
<td>2 points</td>
<td>1 point</td>
<td>0 points</td>
<td>/3</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>---------</td>
<td>---------</td>
<td>---------</td>
<td>----------</td>
<td>----</td>
</tr>
<tr>
<td>Routinely gathers research and shares useful ideas when participating in the group discussion. Defends/rethinks ideas relating to the group's project goals.</td>
<td>Usually provides useful research and ideas when participating in the group discussion.</td>
<td>Sometimes provides useful research and ideas when participating in the group discussion.</td>
<td>Rarely provides useful research or ideas when participating in the group discussion.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Problem-Solving</th>
<th>3 points</th>
<th>2 points</th>
<th>1 point</th>
<th>0 points</th>
<th>/3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actively looks for and suggests solutions to problems.</td>
<td>Refines solutions suggested by others.</td>
<td>Does not suggest or refine solutions, but is willing to try out solutions suggested by others</td>
<td>Does not try to solve problems or help others solve problems.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Group/Partner Teamwork</th>
<th>3 points</th>
<th>2 points</th>
<th>1 point</th>
<th>0 points</th>
<th>/3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consistently makes necessary compromises to accomplish a common goal.</td>
<td>Usually makes necessary compromises to accomplish a common goal.</td>
<td>Occasionally makes compromises to accomplish a common goal, and sometimes helps keep the group working well together.</td>
<td>Rarely makes compromises to accomplish a common goal and has difficulty getting along with other group members.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Always has a positive attitude about the task(s) and the work of others.</td>
<td>Usually has a positive attitude about the task(s) and the work of others.</td>
<td>Occasionally is publicly critical of the task(s) or the work of other members of the group.</td>
<td>Is often negative and publicly critical of the task(s) or the work of other members of the group.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All team members contributed equally to the finished project.</td>
<td>Assisted group/partner in the finished project.</td>
<td>Finished individual task but did not assist group/partner during the project.</td>
<td>Contributed little to the group effort during the project.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performed all duties of assigned team role and contributed knowledge, opinions, and skills to share with the team. Always did the assigned work.</td>
<td>Performed nearly all duties of assigned team role and contributed knowledge, opinions, and skills to share with the team. Completed most of the assigned work.</td>
<td>Performed a few duties of assigned team role and contributed a small amount of knowledge, opinions, and skills to share with the team. Completed some of the assigned work.</td>
<td>Did not perform any duties of assigned team role and did not contribute knowledge, opinions or skills to share with the team. Relied on others to do the work.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TOTAL POINTS: /18
**Rubric to Evaluate the Students’ Written Report**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Exemplary Organization</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strategically placed topic sentence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clear and logical order</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strong introductory paragraph, supporting paragraphs and concluding paragraph</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sophisticated transition within and between sentences, ideas and paragraphs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Effective Organization</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effectively placed topic sentence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clear and logical order</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Introductory paragraph, supporting paragraphs and concluding paragraph</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Purposeful transition within and between sentences, ideas and paragraphs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Adequate Organization</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clearly stated topic sentence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evidence of a logical order</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Introductory paragraph, supporting paragraphs and concluding paragraph</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appropriate transition within and between sentences, ideas and paragraphs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Limited Organization</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poorly stated topic sentence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some evidence of organization</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Introductory paragraph, supporting paragraphs and concluding paragraph</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repetitive use of transition</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Minimal Organization/Minimal Response</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lacks stated topic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No logical pattern; difficult to follow</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inadequate paragraphing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Little or no transition</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Exemplary Development</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sophisticated development of the topic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sophisticated technical writing and development of an informative work with excellent descriptions of the products and design</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Well executed progression of ideas</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strong use of examples, evidence or relevant details Strong use of illustrations or graphs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Effective Development</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appropriate development of the topic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appropriate technical writing and development of an informative work with excellent descriptions of the products and design</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clear progression of ideas</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clear use of examples, evidence or relevant details Clear use of illustrations or graphs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Adequate Development</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sufficient development of the topic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appropriate technical writing and development of an informative work with excellent descriptions of the products and design</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Progression of ideas</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sufficient use of examples, evidence and/or relevant details Sufficient use of illustrations or graphs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Limited Development</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Limited development of the topic for narrative and descriptive writing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Limited Appropriate technical writing and development of an informative work with excellent descriptions of the products and design</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Limited progression of ideas</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Limited use of examples, evidence and/or relevant details Limited use of illustrations or graphs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Minimal Development/Minimal Response</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimal development of the topic for narrative and descriptive writing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimal Appropriate technical writing and development of an informative work with excellent descriptions of the products and design</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lacks a logical progression of ideas</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimal use of examples, and/or relevant details Minimal use of illustrations or graphs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Inadequate Development</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Little or no development of the topic for narrative and descriptive writing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unclear Appropriate technical writing and development of an informative work with excellent descriptions of the products and design</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unclear or no focus Few or no examples, evidence and/or relevant details Little use of analogies, illustrations or anecdotes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exemplary Sentence Structure</td>
<td>Effective Sentence Structure</td>
<td>Adequate Sentence Structure</td>
<td>Limited Sentence Structure</td>
<td>Minimal Sentence Structure/Minimal Response</td>
<td>Inadequate Sentence Structure</td>
<td></td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-----------------------------</td>
<td>-----------------------------</td>
<td>---------------------------</td>
<td>-------------------------------------------</td>
<td>-----------------------------</td>
<td></td>
</tr>
<tr>
<td>Sophisticated and well controlled sentences</td>
<td>Complete and correct sentences and correct sentences</td>
<td>Complete and correct sentences and correct sentences</td>
<td>Minor errors in sentence structure</td>
<td>Contains fragments and/or run-ons</td>
<td>Contains numerous fragments and/or run-ons</td>
<td></td>
</tr>
<tr>
<td>Sentence variation (simple, compound, complex, compound-complex)</td>
<td>Sentence variation (simple, compound, complex, compound-complex)</td>
<td>Sentence variation (simple, compound, complex, compound-complex)</td>
<td>Limited sentence variation (simple, compound, complex, compound-complex)</td>
<td>Minimal sentence variation (simple, compound, complex, compound-complex)</td>
<td>Little or no sentence variation (simple, compound, complex, compound-complex)</td>
<td></td>
</tr>
<tr>
<td>Variation of phrases and clauses (gerund, participial, infinitive; subordinate clauses)</td>
<td>Variation of phrases and clauses (gerund, participial, infinitive; subordinate clauses)</td>
<td>Variation of phrases and clauses (gerund, participial, infinitive; subordinate clauses)</td>
<td>Errors in more complex sentence structure do not detract</td>
<td>Errors in sentence structure begin to detract</td>
<td>Errors in sentence structure detract</td>
<td></td>
</tr>
<tr>
<td><strong>Exemplary Word Choice/ Grammar Usage</strong></td>
<td><strong>Effective Word Choice/ Grammar Usage</strong></td>
<td><strong>Adequate Word Choice/ Grammar Usage</strong></td>
<td><strong>Limited Word Choice/ Grammar Usage</strong></td>
<td><strong>Minimal Word Choice/ Grammar Usage</strong></td>
<td><strong>Inadequate Word Choice/ Grammar Usage</strong></td>
<td></td>
</tr>
<tr>
<td>Vivid, precise/concise, relevant, Consistent grammar usage</td>
<td>Appropriate, precise/concise, clear</td>
<td>Appropriate, specific</td>
<td>Vague, redundant, simplistic</td>
<td>Inadequate, imprecise, repetitive</td>
<td>Rambling, inappropriate, incorrect, unclear</td>
<td></td>
</tr>
<tr>
<td>Subject/verb agreement</td>
<td>Mostly consistent grammar usage</td>
<td>Somewhat consistent grammar usage</td>
<td>Several inconsistencies in grammar usage</td>
<td>Frequent inconsistencies in grammar usage</td>
<td>Distracting inconsistencies in grammar usage</td>
<td></td>
</tr>
<tr>
<td>Singular/plural nouns</td>
<td>Subject/verb agreement</td>
<td>Subject/verb agreement</td>
<td>Subject/verb agreement</td>
<td>Subject/verb agreement</td>
<td>Subject/verb agreement</td>
<td></td>
</tr>
<tr>
<td>Verb (tense and usage)</td>
<td>Singular/plural nouns</td>
<td>Singular/plural nouns</td>
<td>Singular/plural nouns</td>
<td>Singular/plural nouns</td>
<td>Singular/plural nouns</td>
<td></td>
</tr>
<tr>
<td>Pronoun usage</td>
<td>Verb (tense and usage)</td>
<td>Verb (tense and usage)</td>
<td>Verb (tense and usage)</td>
<td>Verb (tense and usage)</td>
<td>Verb (tense and usage)</td>
<td></td>
</tr>
<tr>
<td>Adjective/Adverb</td>
<td>Pronoun usage</td>
<td>Pronoun usage &amp; Adjective/Adverb</td>
<td>Pronoun usage &amp; Adjective/Adverb</td>
<td>Pronoun usage &amp; Adjective/Adverb</td>
<td>Pronoun usage &amp; Adjective/Adverb</td>
<td></td>
</tr>
<tr>
<td><strong>Exemplary Mechanics</strong></td>
<td><strong>Effective Mechanics</strong></td>
<td><strong>Adequate Mechanics</strong></td>
<td><strong>Limited Mechanics</strong></td>
<td><strong>Minimal Mechanics/Minimal Response</strong></td>
<td><strong>Inadequate Mechanics</strong></td>
<td></td>
</tr>
<tr>
<td>May have minor errors</td>
<td>Few errors</td>
<td>Some errors</td>
<td>Frequent errors</td>
<td>Consistent errors</td>
<td>Serious and consistent errors</td>
<td></td>
</tr>
<tr>
<td>Punctuation</td>
<td>Punctuation</td>
<td>Punctuation</td>
<td>Punctuation</td>
<td>Punctuation</td>
<td>Punctuation</td>
<td></td>
</tr>
<tr>
<td>Capitalization</td>
<td>Capitalization</td>
<td>Capitalization</td>
<td>Capitalization</td>
<td>Capitalization</td>
<td>Capitalization</td>
<td></td>
</tr>
<tr>
<td>Spelling</td>
<td>Spelling</td>
<td>Spelling</td>
<td>Spelling</td>
<td>Spelling</td>
<td>Spelling</td>
<td></td>
</tr>
<tr>
<td>Needs some editing</td>
<td>Needs editing but doesn’t impede readability</td>
<td>Needs editing but doesn’t impede readability</td>
<td>Begins to impede readability</td>
<td>Begins to impede readability</td>
<td>Begins to impede readability</td>
<td></td>
</tr>
<tr>
<td>Needs little or no editing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix G

Participant Observation Guide
Field note Page for the Interaction among the Students during the Completion of Collaborative Work using Problem-Based Learning

Universidad Virtual. Escuela de Graduados en Educación

Observation reference points for the research about the impact of using Problem-based learning in the development of writing skills and critical thinking in English as a foreign language. The purpose of the observation is to gain insight about the use of PBL as a collaborative learning activity to strengthen the writing ability of students at the upper-intermediate to advanced level of English.

Class: International Baccalaureate English B 4th Semester

Number of students: 20

Place: Tecnológico de Monterrey, Mexico State Campus, High School

Dates:

Instructor/Observer: Andrea Richardson  Start time: 7:05  End time: 7:55

Observation of the collaborative work

<table>
<thead>
<tr>
<th>What to observe?</th>
<th>Details observed and not observed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How did the session start?</td>
<td></td>
</tr>
<tr>
<td>2. Is there confidence on the part of the students to ask questions?</td>
<td></td>
</tr>
<tr>
<td>3. Are the students working collaboratively and using primarily English to do so?</td>
<td></td>
</tr>
<tr>
<td>4. Are the students engaged in the activity?</td>
<td></td>
</tr>
<tr>
<td>5. Do the students dedicate and assume the roles according to the instructions?</td>
<td></td>
</tr>
<tr>
<td>6. Do the students listen to each other with respect and tolerance and respect each others’ ideas?</td>
<td></td>
</tr>
</tbody>
</table>
7. Are all the members of the group respecting what the group agreed upon?

8. Is there sufficient progress being made according to the steps given in the instructions?

9. Is the individual work being done adequately and on a timely basis?

10. Are the students interacting responsibly, contributing ideas and showing signs of critical thinking?

11. Did the students achieve the academic objectives of the session?

12. What didactic materials were used and what resources did the students use?

13. How active was the students’ participation during the session? (passive, active)

14. What were the main behaviours that the students showed during the session while interacting with the instructor?
Environment of interaction in the classroom (put a tick on the line)

<table>
<thead>
<tr>
<th>Responsibility</th>
<th>Tolerance</th>
<th>Respect</th>
<th>Critical thinking</th>
<th>Dialogue</th>
<th>Interaction</th>
<th>Inquisitive</th>
<th>Interest</th>
<th>Collaboration</th>
<th>Organization</th>
<th>Creativity</th>
<th>Objectivity</th>
<th>Apathy</th>
</tr>
</thead>
</table>

General observations:

Positive aspects:

Aspects that could improve:
Appendix H

Participant Observation of the Interaction among the Students during the Completion of Collaborative Work using Problem-Based Learning (Session 1)

Observation reference points for the research about the impact of using Problem-based learning in the development of writing skills and critical thinking in English as a foreign language. The purpose of the observation is to gain insight about the use of PBL as a collaborative learning activity to strengthen the writing ability of students at the upper-intermediate to advanced level of English.

Class: International Baccalaureate English B 4th Semester

Number of students: 20

Place: Tecnológico de Monterrey, Mexico State Campus, High School

Dates: January 28

Instructor/Observer: Andrea Richardson  Start time: 7:05  End time: 7:55

Observation of the collaborative work

<table>
<thead>
<tr>
<th>What to observe?</th>
<th>Details observed and not observed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How did the session start?</td>
<td>This was the first session of the activity so the instructor took the time to explain the activity and the steps involved in solving the problem. It was at the beginning of this session that the students were placed into teams. The instructor ensured that the teams were made up by students who normally did not work together.</td>
</tr>
<tr>
<td>2. Is there confidence on the part of the students to ask questions?</td>
<td>Yes, the students felt confident to ask questions and clarify any doubts that they had.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>3. Are the students working collaboratively and using primarily English to do so?</td>
<td>Yes. During this session they were reviewing the problem and analysing the task at hand. They were speaking primarily English and working very much as teams.</td>
</tr>
<tr>
<td>4. Are the students engaged in the activity?</td>
<td>In this first session the students were moderately engaged as they were becoming familiar with the process and the problem. Near the end of the session the students were fully engaged.</td>
</tr>
<tr>
<td>5. Do the students dedicate and assume the roles according to the instructions?</td>
<td>Yes. As indicated in the instructions, the students delegated roles; however, on some groups the roles were not really followed thereafter.</td>
</tr>
<tr>
<td>6. Do the students listen to each other with respect and tolerance and respect each others’ ideas?</td>
<td>Yes. There is much evidence of respect and tolerance among the groups’ members. In general, the group of students is respectful and tolerant of each other and each others’ ideas, in this activity their actions were no different than normal class behaviour for this group.</td>
</tr>
<tr>
<td>7. Are all the members of the group respecting what the group agreed upon?</td>
<td>It was during this first session that the groups made the agreements; so, in the subsequent sessions this aspect was observed.</td>
</tr>
<tr>
<td>8. Is there sufficient progress being made according to the steps given in the instructions?</td>
<td>Yes. As indicated in the instructions of the activity, the students went through steps one and two.</td>
</tr>
<tr>
<td>9. Is the individual work being done adequately and on a timely basis?</td>
<td>As it was the first session, there was little work to be done individually. More about this aspect is observed in subsequent sessions.</td>
</tr>
<tr>
<td>Question</td>
<td>Answer</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>10. Are the students interacting responsibly, contributing ideas and showing signs of critical thinking?</td>
<td>Yes. They are all taking part in the analysis of the problem and getting involved in making the lists of what information.</td>
</tr>
<tr>
<td>11. Did the students achieve the academic objectives of the session?</td>
<td>Yes. As was indicated in the instructions, steps 1 and 2 were completed.</td>
</tr>
<tr>
<td>12. What didactic materials were used and what resources did the students use?</td>
<td>The materials used were the activity instructions that were given to the students by the instructor and the instructor's verbal instructions and indications about the process.</td>
</tr>
<tr>
<td>13. How active was the students' participation during the session? (passive, active)</td>
<td>At the beginning of the session, the students’ participation was not very high, but as the class progressed and the students started to figure out what was being asked of them, the participation level increased.</td>
</tr>
<tr>
<td>14. What were the main behaviours that the students showed during the session while interacting with the instructor?</td>
<td>The behaviour noted was inquisitive as they were asking questions and clarifying doubts. There were also questions about the problem and the place where it is based, as the place is the instructor's native country.</td>
</tr>
</tbody>
</table>
Environment of interaction in the classroom

Responsibility ✓
Tolerance ✓
Respect ✓
Critical thinking ✓
Dialogue ✓
Interaction ✓
Inquisitive ✓
Interest ✓
Collaboration ✓
Organization ✓
Creativity ✓
Objectivity ✓
Apathy

General observations:

Positive aspects:

The students were interacting well and had a positive attitude toward the activity. They accepted working in teams with new people very nicely and there was friendly interaction as they greeted each other. They got to work relatively soon after the explanation.

Aspects that could improve:

Although there was a good level of participation, some of the quieter students were not participating without the teacher’s help.
Appendix I

Participant Observation of the Interaction among the Students during the Completion of Collaborative Work using Problem-Based Learning (Session 2)

Observation reference points for the research about the impact of using Problem-based learning in the development of writing skills and critical thinking in English as a foreign language. The purpose of the observation is to gain insight about the use of PBL as a collaborative learning activity to strengthen the writing ability of students at the upper-intermediate to advanced level of English.

Class: International Baccalaureate English B 4th Semester

Number of students: 20

Place: Tecnológico de Monterrey, Mexico State Campus, High School

Dates: January 31

Instructor/Observer: Andrea Richardson  Start time: 7:05  End time: 7:55

Observation of the collaborative work

<table>
<thead>
<tr>
<th>What to observe</th>
<th>Details observed and not observed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How did the session start?</td>
<td>They had been given an explanation the previous day so not much was required this day. There was not a lot of talking at first as they were a little tired as they said that most has been up very late finishing a math project, but as the class progressed the discussion became more lively.</td>
</tr>
<tr>
<td>2. Is there confidence on the part of the students to ask questions?</td>
<td>Yes, they asked questions very freely.</td>
</tr>
<tr>
<td>Question</td>
<td>Answer</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>3. Are the students working collaboratively and using primarily English to do so?</td>
<td>Yes, primarily. There are some Spanish words spoken and a Korean being written, but the students are using English primarily.</td>
</tr>
<tr>
<td>4. Are the students engaged in the activity?</td>
<td>Yes, they are quite engaged in the activity.</td>
</tr>
<tr>
<td>5. Do the students dedicate and assume the roles according to the instructions?</td>
<td>At first they dictated roles, but afterwards there is little evidence that they are sticking to them, it seems to be more of a collaborative work without roles.</td>
</tr>
<tr>
<td>6. Do the students listen to each other with respect and tolerance and respect each others’ ideas?</td>
<td>Definitely. There is a lot of evidence of respect, saying, “I see your point of view, but…” No one is disrespectful of others’ ideas, rather inviting to hear them and discuss them.</td>
</tr>
<tr>
<td>7. Are all the members of the group respecting what the group agreed upon?</td>
<td>Yes, however, there were 2 students absent on the 2nd day of the activity.</td>
</tr>
<tr>
<td>8. Is there sufficient progress being made according to the steps given in the instructions?</td>
<td>There is progress; the students are following the steps of the activity.</td>
</tr>
<tr>
<td>Question</td>
<td>Response</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>9. Is the individual work being done adequately and on a timely basis?</td>
<td>The students came to class prepared with their individual contributions.</td>
</tr>
<tr>
<td>10. Are the students interacting responsibly, contributing ideas and showing signs of critical thinking?</td>
<td>You can hear signs of reasoning and debate among the students in the teams.</td>
</tr>
<tr>
<td>11. Did the students achieve the academic objectives of the session?</td>
<td>Yes.</td>
</tr>
<tr>
<td>12. What didactic materials were used and what resources did the students use?</td>
<td>Didactic materials were the teacher’s instructions and commentaries around the room as the students worked. The students used the internet for their resource.</td>
</tr>
<tr>
<td>13. How active was the students’ participation during the session? (passive, active)</td>
<td>The majority of the students were very participative, with about 30% being passive, they quieter students were not as participative.</td>
</tr>
<tr>
<td>14. What were the main behaviours that the students showed during the session while interacting with the instructor?</td>
<td>They worked collaboratively and the teams were independent. They asked questions when needed. They were inquisitive and creative in their work.</td>
</tr>
</tbody>
</table>
Environment of interaction in the classroom

Responsibility ✓
Tolerance ✓
Respect ✓
Critical thinking ✓
Dialogue ✓
Interaction ✓
Inquisitive ✓
Interest ✓
Collaboration ✓
Organization ✓
Creativity ✓
Objectivity ✓
Apathy

General observations:

Positive aspects:
The students were working collaboratively and most team members were making contributions to the discussions and all acted respectfully towards their teammates. The students were enthusiastic about the activity and had lots of excellent ideas about the planning of the office.

Aspects that could improve:
At times the students were very involved in their individual research about the products and friendly working environment in their computers and there was little discussion happening.
Appendix J

Participant Observation of the Interaction among the Students during the Completion of Collaborative Work using Problem-Based Learning (Session 3)

Observation reference points for the research about the impact of using Problem-based learning in the development of writing skills and critical thinking in English as a foreign language. The purpose of the observation is to gain insight about the use of PBL as a collaborative learning activity to strengthen the writing ability of students at the upper-intermediate to advanced level of English.

Class: International Baccalaureate English B 4th Semester

Number of students: 20

Place: Tecnológico de Monterrey, Mexico State Campus, High School

Dates: February 1, 2011

Instructor/Observer: Andrea Richardson Start time: 7:05 End time: 7:55

Observation of the collaborative work

<table>
<thead>
<tr>
<th>What to observe?</th>
<th>Details observed and not observed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How did the session start?</td>
<td>This third session was a little slow getting going and it took them about 5 minutes to get on task and get updated from the previous day’s work.</td>
</tr>
<tr>
<td>2. Is there confidence on the part of the students to ask questions?</td>
<td>Definitely, good questions were asked. For example, Daniela asked on what floor the office was in the building in order to research green roves.</td>
</tr>
<tr>
<td>3. Are the students working collaboratively and using primarily English to do so?</td>
<td>One group started off not putting their desks together, rather they were in 2 lines, but after I suggested they move together in order to communicate better, they moved. I notice one other group vary involved in their individual research in their computers, so I encourage the, to share their findings and discuss them with their team members. Otherwise, the teams are working collaboratively and using English to communicate.</td>
</tr>
<tr>
<td>Question</td>
<td>Answer</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>4. Are the students engaged in the activity?</td>
<td>At the beginning of the class the engagement was a little lacking, so I took the initiative to go around with each team to see their progress and get their discussions going by asking questions and motivating them to do the same. By mid-class the students were mostly engaged. Some of the quieter students were not fully engaged; an estimated 75% of the class was very engaged.</td>
</tr>
<tr>
<td>5. Do the students dedicate and assume the roles according to the instructions?</td>
<td>I can see that the leaders in 2 teams assume their roles and take charge of the progress of the group. The other groups seem to be not following the roles as dictated in the instructions; nevertheless, they are all working together.</td>
</tr>
<tr>
<td>6. Do the students listen to each other with respect and tolerance and respect each others’ ideas?</td>
<td>Yes. There is a lot of evidence of this as I circulate around the room. There was one discussion in particular where a student suggested that each desk have a phone, but another student from the team said he didn’t think it was necessary because everyone has cell phones. After going back and forth on this ideas for a few minutes and the other team members joined in the discussion, they finally decided to just have one phone at the reception desk.</td>
</tr>
<tr>
<td>7. Are all the members of the group respecting what the group agreed upon?</td>
<td>Yes, it appears as if they are working according to their plans. They designated items to search for and they are fulfilling those duties.</td>
</tr>
<tr>
<td>8. Is there sufficient progress being made according to the steps given in the instructions?</td>
<td>Definitely.</td>
</tr>
<tr>
<td>9. Is the individual work being done adequately and on a timely basis?</td>
<td>Yes, I see that each student is fulfilling their responsibilities.</td>
</tr>
<tr>
<td>10. Are the students interacting responsibly, contributing ideas and showing signs of critical</td>
<td>Yes, there are good discussions going on and reference to ideas previously seen in the class, like green roofs and ecological furniture. Also, there are discussions about the arrangements of the offices where the students are showing signs of critical thinking.</td>
</tr>
</tbody>
</table>
11. Did the students achieve the academic objectives of the session? Yes. They are discussing in English and doing the required research for the project.

12. What didactic materials were used and what resources did the students use? The internet was used for the research. There were 3-5 laptops per team. Also, they had the instructions out and were following them.

13. How active was the students' participation during the session? (passive, active) This depended a lot on the individual student. The majority were participating very actively while a few were quieter.

14. What were the main behaviours that the students showed during the session while interacting with the instructor? The proposed some questions to the instructor during this session, but for the most part the teams were working independently.

Environment of interaction in the classroom

- Responsibility ✓
- Tolerance ✓
- Respect ✓
- Critical thinking ✓
- Dialogue ✓
- Interaction ✓
- Inquisitive ✓
- Interest ✓
- Collaboration ✓
- Organization ✓
- Creativity ✓
- Objectivity ✓
- Apathy
General observations:

Positive aspects:
There were excellent discussions happening and they were happening mostly in English, with the odd word being clarified using Spanish. The students were very involved with the activity and appeared to enjoy the process of solving the problem and doing something different in English class to promote learning in a different way, working in the language.

Aspects that could improve:
Some of the shyer students were not as involved in the activity. I would suggest next time that the more talkative ones motivate the shyer ones to participate more in the discussions.
Appendix K
Participant Observation of the Interaction among the Students during the Completion of Collaborative Work using Problem-Based Learning (Session 4)

Observation reference points for the research about the impact of using Problem-based learning in the development of writing skills and critical thinking in English as a foreign language. The purpose of the observation is to gain insight about the use of PBL as a collaborative learning activity to strengthen the writing ability of students at the upper-intermediate to advanced level of English.

Class: International Baccalaureate English B 4th Semester

Number of students: 20

Place: Tecnológico de Monterrey, Mexico State Campus, High School

Dates: February 2, 2011

Instructor/Observer: Andrea Richardson  Start time: 7:05  End time: 7:55

Observation of the collaborative work

<table>
<thead>
<tr>
<th>What to observe</th>
<th>Details observed and not observed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How did the session start?</td>
<td>This was the last session of the activity so the students were working independently at this point, doing the written work of the task.</td>
</tr>
<tr>
<td>2. Is there confidence on the part of the students to ask questions?</td>
<td>Yes. Although they were working independently, there were still questions being asked about vocabulary and the written work in general.</td>
</tr>
<tr>
<td>3. Are the students working collaboratively and using primarily English to do so?</td>
<td>Yes. The students were working on the written task together and using mostly English.</td>
</tr>
</tbody>
</table>
4. Are the students engaged in the activity?  Yes. Because the task was due to be handed in, they were all working diligently.

5. Do the students dedicate and assume the roles according to the instructions?  At this point, the roles were not observed as the students were working collaboratively on the final written task.

6. Do the students listen to each other with respect and tolerance and respect each others' ideas?  By this point, most of the information that needed to be researched was done, so there was little exchange of ideas; however, there was still interaction about the written work, and the students were acting respectfully towards each other as they were completing the task.

7. Are all the members of the group respecting what the group agreed upon?  Yes.

8. Is there sufficient progress being made according to the steps given in the instructions?  Yes. As the instructions indicated, the students were to be working on the final step of the activity which was the presentation of their problem in written form. For the most part, this is what they were working on.

9. Is the individual work being done adequately and on a timely basis?  Yes. The observer consulted with each of the groups to check the progress and that each member of the groups was fulfilling their duties.

10. Are the students interacting responsibly, contributing ideas and showing signs of critical thinking?  Yes. They are interacting responsibly in that each student is working on the part of the report of which they were designated to write. The signs of critical thinking are there in that they are explaining the solution to the problem in written form. As well, they had to write a reflection about the activity which enables them to think critically about the process, abilities with the language and the benefits of working with this type of activity.
11. Did the students achieve the academic objectives of the session? Mostly. The groups were nearly finished the written report by this time. They were given until later that day to do the final revision of their documents and hand them in.

12. What didactic materials were used and what resources did the students use? The students were using their computers. 2 groups used Adobe to create the final report and 2 used Word. Didactically, the teacher circulated the room to answer questions and check progress.

13. How active was the students’ participation during the session? (passive, active) During this session the participation was very active as they were working to meet the deadline of handing in the documents.

14. What were the main behaviours that the students showed during the session while interacting with the instructor? The students were working mainly independently at this point; so, the interaction with the teacher was limited to asking questions and showing the teacher their progress. The interaction was respectful and responsible.

**Environment of interaction in the classroom**

- Responsibility ✔
- Tolerance ✔
- Respect ✔
- Critical thinking ✔
- Dialogue ✔
- Interaction ✔
- Inquisitive ✔
- Interest ✔
- Collaboration ✔
- Organization ✔
- Creativity ✔
- Objectivity ✔
- Apathy
**General observations:**

Positive aspects:
The students were working diligently in order to finish the assignment. The interaction was good. The students were being respectful toward one another.

Aspects that could improve:
Although the interaction was good, it was not plentiful. There could have been more discussion about wording and more teamwork with the compilation of the final document.
Appendix L

Semi-structured Interview Guide for the Students about the PBL Activity

Universidad Virtual. Escuela de Graduados en Educación

Date:________________ Time:________________ Place:________________
Interviewer:________________________ Interviewee:________________________
Age:______ Sex:__________ Position:________________

Purpose: The interview is part of a research project in a Master's Thesis. The purpose of this interview is to get to know the students' opinion of the PBL activity for the purpose of improving critical thinking skills with writing tasks in English language courses at the Tecnológico de Monterrey Mexico State Campus.

The contents of this interview are strictly confidential.
1. Did you enjoy working with the Problem-based learning project? Y/N Explain your answer
2. What did you like most about working with PBL?
3. Did you like working in a group? Why or why not?
4. What did you not like about the activity?
5. Did all the members of your group comply with their role and function in the group to fulfill the requirements of the task?
6. What difficulties arose during your solving of the problem?
7. Was there respect and tolerance among the members of the group?
8. Did everyone respect the agreements of the group?
9. Did you feel the problem was related to an issue that you and your classmates can relate to or are interested in?
10. Do you feel like your writing abilities improved with the collaborative writing of the final report? How?

11. Had you done this type of writing before? If yes, describe.

12. Did the research help the writing of the final report? How?

13. Did the research help you expand your vocabulary in English?

14. Did the research expose you to complex grammatical structures in English? If yes, did you try to mimic these structures in your written report?

15. Did you and your team proofread and edit the final written work? Explain.

16. Did you feel there was adequate time given for the completion of the activity?

17. Do you feel like the activity promoted critical thinking? How?

18. Do you think that by doing this activity you were exposed to a real life problem?

19. If you could work with PBL again would you do it?

20. What recommendations would you make about improving the activity and the English class?

Observations:

Thank you for your participation!
Appendix M

Semi-structured Interview for the Students about the PBL Activity
Transcription Student 1

Universidad Virtual. Escuela de Graduados en Educación

Date: February 2, 2011 Time: 11:35am
Place: Tecnológico de Monterrey, High School, Mexico State campus
Interviewer: Andrea Richardson
Interviewee: Student 1
Age: 16 Sex: M Position: student

Purpose: The interview is part of a research project in a Master’s Thesis. The purpose of this interview is to get to know the students’ opinion of the PBL activity for the purpose of improving critical thinking skills with writing tasks in English language courses at the Tecnológico de Monterrey Mexico State Campus.

The contents of this interview are strictly confidential.
1. Did you enjoy working with the Problem-based learning project? Y/N Explain your answer.
   “I did enjoy it. It was kind of different from what we have been doing and it was interesting because of the freedom. You just have the space and the budget and you can fill it with whatever you want. It’s kind of fun when you can look up in the internet for things that you want to put in there and to make it a fun place, it’s like a fun activity and it’s fun to think how you are going to make it fun for these people to work there. Yeah, I liked it”.

2. What did you like most about working with PBL?
   “I think that imagining where we were going to put the stuff and what kind of stuff we were going to put in the office”.

3. Did you like working in a group? Why or why not?
"Well, I like working in a group, but it depends on the size of the group and the people that are in the group, because if the group is too big, there are always 1 or 2 people that never work and if it's too small there is a lot of work for everyone. And the people because sometimes there are people that don't get along, or they get along too well, so it's hard sometimes. But I like working in a group generally”.

4. What did you not like about the activity?

"Well, searching in the internet, because first it was kind of hard to find ecological items, and at times everyone was searching in their laptops alone and it was team work and it felt like it separated everyone”.

5. Did all the members of your group comply with their role and function in the group to fulfill the requirements of the task?

"Everyone worked, but when we divided the roles, they were kind of ignored later. Like for example, Armand, who was the secretary, did work, he wrote everything down, but for example, we wanted to decide who was going to be the moderator, and we asked Ricardo, he said sure, but we weren't sure exactly what he was supposed to do. Everyone worked but the roles were kind of like not there”.

6. What difficulties arose during your solving of the problem?

"First, the budget, because we imagined something big and expensive, then we realized we didn't have that much money so we had to go for something less expensive and lower the quality of what you want to get. Second, finding some things was hard, for example, cheap laptops that were efficient. That kind of stuff”.

7. Was there respect and tolerance among the members of the group?

"Yes, there was no problem with that”.

8. Did everyone respect the agreements of the group?

"Yes. There were discussion about what we were going to do and we came to a conclusion and everyone respected it”.

9. Did you feel the problem was related to an issue that you and your classmates can relate to or are interested in?

"Yeah, maybe because, first of all, most jobs out there are working in an office and it's already well-known that it's boring, so everyone wants to have fun doing that kind of job so yeah it's something we can relate to. And the ecological aspect
that is becoming a problem and everything now is ecological, so yeah, we could relate to it”.

10. Do you feel like your writing abilities improved with the collaborative writing of the final report? How?
“Yeah, because, especially when correcting some mistakes of others and when we were checking the report, we were thinking of other words, and what would be correct grammatically in a sentence”.

11. Had you done this type of writing before? If yes, describe.
“I think I have but not exactly like this, more like writing a story, but not like this”.

12. Did the research help the writing of the final report? How?
“Yeah, a lot. Especially for the fun work place, because something that might be fun for you is not exactly fun for the others, so if you start searching you might find some fun activities, let’s say, for people that work in an office and you say yeah this sounds fun so it really helps in the design”.

13. Did the research help you expand your vocabulary in English?
“Yeah, with all the office supplies the names of everything”.

14. Did the research expose you to complex grammatical structures in English? If yes, did you try to mimic these structures in your written report?
“Well yeah because when we’re talking about fun work places you find lots of business terms, and when you are looking for office supplies, you look at the descriptions of the chairs and desks for example”.

15. Did you and your team proofread and edit the final written work? Explain.
“Yeah, and we did it collaboratively”.

16. Did you feel there was adequate time given for the completion of the activity?
“Yes, the extra day was necessary and it was nice because, it helped with the work because with the investigating, for example, everyone found different kind of chairs so you had to compare and it took time”.

17. Do you feel like the activity promoted critical thinking? How?
“Yeah. First, for the creativity for how you are going to put those things in the office and then for the ecological aspects of those things. You could think that you wanted a stapler, for example, but staplers waste, so you start thinking about a stapler that doesn’t use staples, you start thinking of ecological items that don’t have ecological options. So yeah”. 
18. Do you think that by doing this activity you were exposed to a real life problem?

"Yes".

19. If you could work with PBL again would you do it?

"Yes, lots of times".

20. What recommendations would you make about improving the activity and the English class?

"It would be nice to have a day for investigating less in the computer and more in the real world. For example going to Office Depot and asking for real office supplies that are ecological, so you can actually see those things and not only have the idea that the internet gives you. For example, in your team you see in the computer an ecological chair, but you actually go to Office Depot and you see that they don't seem very ecological yourself, so you don't just go with the idea the internet gives you, because that's what many people are doing nowadays, they just say it's ecological and really it's not. Seeing some real-life evidence would be nice. It would be fun to go to an Office Depot and ask for stuff".

"I liked the activity, it was fun. I liked the option. The other option seemed too boring".
Appendix N

Semi-structured Interview for the Students about the PBL Activity
Transcription Student 2

Date: February 2, 2011  Time: 11:58 am
Place: Tecnológico de Monterrey, High School, Mexico State campus
Interviewer: Andrea Richardson
Interviewee: Student 2
Age: 16  Sex: M  Position: Student

Purpose: The interview is part of a research project in a Master’s Thesis. The purpose of this interview is to get to know the students’ opinion of the PBL activity for the purpose of improving critical thinking skills with writing tasks in English language courses at the Tecnológico de Monterrey Mexico State Campus.

The contents of this interview are strictly confidential.

1. Did you enjoy working with the Problem-based learning project? Y/N Explain your answer

"Actually yes, I did enjoy it very much. What I didn’t enjoy was the topic”.

2. What did you like most about working with PBL?

"What I liked most was that I have experience living in Canada so I knew which store was the best to buy everything”.

3. Did you like working in a group? Why or why not?

"Yes. It was nice to meet other people that I don’t really know and also that they have different ideas that complement my ideas”.

4. What did you not like about the activity?

"The topic, I would have preferred the one about the immigrants. I don’t think that providing furniture for an office is so interesting”.

186
5. Did all the members of your group comply with their role and function in the group to fulfill the requirements of the task?

"Actually, no. We didn't have like roles. What we did was work all together and if anyone had a doubt, anyone could answer that. Actually I think that the roles were more significant if we had a larger assignment. What we did was designate the items to search for, and everyone was happy".

6. What difficulties arose during your solving of the problem?

"We didn't know what to include. It was a little bit subjective, because we didn't know what was going to work. It included a lot of areas to consider".

7. Was there respect and tolerance among the members of the group?

"Yes, it was pretty good".

8. Did everyone respect the agreements of the group?

"Yes".

9. Did you feel the problem was related to an issue that you and your classmates can relate to or are interested in?

"I think that my classmates are interested in those issues and you could use what you leaned here in other problems, but I don't like the topic".

10. Do you feel like your writing abilities improved with the collaborative writing of the final report? How?

"Yes, adapting to another style of writing".

11. Had you done this type of writing before? If yes, describe.

"No".

12. Did the research help the writing of the final report? How?

"Yes, it helped is to include stuff that we don't know and how to call them. Also the use of more technical words".

13. Did the research help you expand your vocabulary in English?

"Yes".

14. Did the research expose you to complex grammatical structures in English? If yes, did you try to mimic these structures in your written report?

"Yes, and I tried to use the same structures".

15. Did you and your team proofread and edit the final written work? Explain.

"Yes, we all checked the grammar".

16. Did you feel there was adequate time given for the completion of the activity?
"Yes, I think there was more than enough time. I would have preferred less time because I like working under pressure".

17. Do you feel like the activity promoted critical thinking? How?
"Yes, by debating the things you needed for the office".

18. Do you think that by doing this activity you were exposed to a real life problem?
"Yes".

19. If you could work with PBL again would you do it?
"Yes I would do it with a different topic and by investigating not only in the internet, by doing real life like making calls or something".

20. What recommendations would you make about improving the activity and the English class?
"Actually like having more real life stuff like in a market".

"Be more prepared with the budget, also keep in mind the things that you will need like the taxes, be more thorough with the outline to be more realistic".
Appendix O

Semi-structured Interview for the Students about the PBL Activity
Transcription Student 3

Date: February 2, 2011  Time: 11:02am
Place: Preparatoria, Tecnológico de Monterrey, Mexico State Campus, Andrea Richardson’s office
Interviewer: Andrea Richardson
Interviewee: Student 3
Age: 16  Sex: F  Position: student

Purpose: The interview is part of a research project in a Master’s Thesis. The purpose of this interview is to get to know the students’ opinion of the PBL activity for the purpose of improving critical thinking skills with writing tasks in English language courses at the Tecnológico de Monterrey Mexico State Campus.

The contents of this interview are strictly confidential.

1. Did you enjoy working with the Problem-based learning project? Y/N Explain your answer
   “It was interesting to see all the problems that we have in the environment and try to find a solution, well not a solution but try to help in that aspect, because for example in trying to look for the ecological furniture it was a good part to help the environment. Yes I enjoyed it”.

2. What did you like most about working with PBL?
   “Working in teams”.

3. Did you like working in a group? Why or why not?
   “Yes. It’s a way to relate with other people and to know them”.

4. What did you not like about the activity?
   “To search for the prices. It was difficult”.

189
5. Did all the members of your group comply with their role and function in the group to fulfill the requirements of the task?

"They did the parts that they have assigned from the beginning. Sometimes, for example, I was the secretary, and I also have the option to participate and to give my ideas so I wasn’t only writing all the time”.

6. What difficulties arose during your solving of the problem?

"The prices because I wanted to buy the more expensive furniture and we also wanted to save money”.

7. Was there respect and tolerance among the members of the group?

"Yes, all of us were listening to the others”.

8. Did everyone respect the agreements of the group?

"Yes. It was difficult but yes. Haha”.

9. Did you feel the problem was related to an issue that you and your classmates can relate to or are interested in?

"For me yes. For the others more or less”.

10. Do you feel like your writing abilities improved with the collaborative writing of the final report? How?

"Yes. Also in the process because we have to search for example the vocabulary of the furniture”.

11. Had you done this type of writing before? If yes, describe.

"Yes, for my mother because she doesn’t speak English so I have to help her”.

12. Did the research help the writing of the final report? How?

"Yes because when we were looking for the furniture and discussing about the problem, for example the materials and all that, it helps us to define why we are buying that thing”.

13. Did the research help you expand your vocabulary in English?

"Yes, as I explained for the previous question”.

14. Did the research expose you to complex grammatical structures in English? If yes, did you try to mimic these structures in your written report?

"No”.

15. Did you and your team proofread and edit the final written work? Explain.

"Yes, all the team participated”.

16. Did you feel there was adequate time given for the completion of the activity?

"Yes, it was enough”.
17. Do you feel like the activity promoted critical thinking? How?

"Yes, because we have to search and also respect the opinions of the others and with the opinions of the others you have to search the reasons and explain them".

18. Do you think that by doing this activity you were exposed to a real life problem?

"Yes".

19. If you could work with PBL again would you do it?

"Yes. I liked it".

20. What recommendations would you make about improving the activity and the English class?

"I think it was ok. It's fine I like the class. In the activity maybe teams of 3 for having more participation".
# Appendix P

Table of Frequencies for the Grades of the Student’s Written Work  
(Final PBL Report)

<table>
<thead>
<tr>
<th>Written work</th>
<th>Frequency</th>
<th>Accumulated frequencies</th>
<th>% of frequencies</th>
<th>Frequencies accumulated</th>
</tr>
</thead>
<tbody>
<tr>
<td>90</td>
<td>1</td>
<td>1</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>95</td>
<td>1</td>
<td>2</td>
<td>25</td>
<td>50</td>
</tr>
<tr>
<td>97</td>
<td>1</td>
<td>3</td>
<td>25</td>
<td>75</td>
</tr>
<tr>
<td>100</td>
<td>1</td>
<td>4</td>
<td>25</td>
<td>100</td>
</tr>
</tbody>
</table>
Appendix Q

Peer Evaluation Proposal for Future PBL Activities

<table>
<thead>
<tr>
<th></th>
<th>Totally agree</th>
<th>Agree</th>
<th>Neither agree nor disagree</th>
<th>Disagree</th>
<th>Totally disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Attended all team meetings and contributed to the activities</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
</tr>
<tr>
<td>2. Met deadlines established by the team</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
</tr>
<tr>
<td>3. Participated actively</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
</tr>
<tr>
<td>4. Offered thoughtful ideas</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
</tr>
<tr>
<td>5. Helped keep team organized and progressing towards the completion of the goal</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
</tr>
<tr>
<td>6. Showed respect and tolerance for other team members</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
</tr>
<tr>
<td>7. Demonstrated a positive attitude towards the team and the task</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
</tr>
<tr>
<td>8. Encouraged other team members to contribute to discussion</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
</tr>
<tr>
<td>9. Did his/her share of the work to help solve the problem.</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
</tr>
<tr>
<td>10. Listened to the ideas of other team members</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
</tr>
<tr>
<td>11. Performed role designated by the team (during the PBL stages).</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
</tr>
</tbody>
</table>
Appendix R

Assignment B from the Written Work of the PBL Activity
Problem statement
We want an eco friendly and fun workplace that stimulates people to develop nicely in their workplace, obviously this workplace must be affordable, and show that it is possible to work and have fun while helping the environment.

Introduction
Green Industries is a graph design company that beyond contributing with great ideas, worries about the planet and the people that live in it, by propitiating a friendly and ecological atmosphere in many ways. This politics are shown in every aspect of the organization: the staff, the products, and even the workplace.

Our idea of the ideal working place according to the Green Industries politics is a space where all the workers can gather all together in order to have better communication with each other and improve every idea that arises. We want our employees to feel comfortable with the office, and not like caged animals. Another fun aspect is the “wall of fame” which is basically a section of the whiteboard where employees can write praising or funny ideas about their partners. We also designed the office so that any worker can have a nice view of the mountains to the north of the city. Employees just need to turn around and see through the giant window that replaces the north wall of the room to have a nice moment of nature appreciation.

Physical description
The office is divided in a reception, boardroom, restroom, meeting room, and a central working place.

In the last one, all the designers have their own space, which mainly consist of a desktop, pens, pencils, paper, and a Mac book, as it is necessary to have computers with great graphics design. This individual space is to allow the workers feel comfortable by having their own liberty, but not isolating themselves from others, a perfect reason for not having partition walls. Also a portion of this room is destined to collaborative work, this part consists of a big table for the designers to draw, a multi printer, a phone and a blackboard where every idea is show to everyone in order to make everybody able to express one’s point of view. The principal goal of this room is to integrate each member to make them feel part of a team by having respectful opinions about their works. Additionally, any worker can enter this room if he/she wants more privacy or is busy attending a client.

Another fraction of the office is the meeting room; a free space where all the members can spend their free time coexisting out of the working pressure. This space was thought to permit every worker to relax, so it has to be comfortable. Simple, but homely, the meeting room has a big sofa, a coffee machine, a radio, a microwave, a lot of plants and cozy decoration.

According to our principles, we worry about the planet, that’s why we implement ecological alternatives such as solar panels, this to provide all the energy we use, including heating the office. Also, every element we use in the office is eco friendly; paper, pens, pencils, colors, paint, scissors and even the floor is ecological. The entire office has a friendly and ecological style provided by the colors and different natural elements.

This is a list of the office supplies and furniture that will be used:

<table>
<thead>
<tr>
<th>Object</th>
<th>Quantity</th>
<th>Single Price</th>
<th>Total Price</th>
</tr>
</thead>
</table>

195
<table>
<thead>
<tr>
<th>Furniture</th>
<th>Quantity</th>
<th>Price 1</th>
<th>Price 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desk</td>
<td>4</td>
<td>$20</td>
<td>$80</td>
</tr>
<tr>
<td>Chair</td>
<td>4</td>
<td>$17</td>
<td>$68</td>
</tr>
<tr>
<td>Toilet</td>
<td>1</td>
<td>$300</td>
<td>$300</td>
</tr>
<tr>
<td>Sink</td>
<td>1</td>
<td>$20</td>
<td>$20</td>
</tr>
<tr>
<td>Mirror (20ft²)</td>
<td>1</td>
<td>$9</td>
<td>$9</td>
</tr>
<tr>
<td>Sofa Set</td>
<td>1</td>
<td>$1320</td>
<td>$1320</td>
</tr>
<tr>
<td>Whiteboard</td>
<td>1</td>
<td>$40</td>
<td>$40</td>
</tr>
<tr>
<td>Machines/Gadgets</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Macbook</td>
<td>4</td>
<td>$433.4</td>
<td>$1733.6</td>
</tr>
<tr>
<td>Solar Panels (50ft²)</td>
<td>5</td>
<td>$600</td>
<td>$3000</td>
</tr>
<tr>
<td>Phones</td>
<td>4</td>
<td>$22</td>
<td>$88</td>
</tr>
<tr>
<td>Coffee Machine</td>
<td>1</td>
<td>$54.41</td>
<td>$54.41</td>
</tr>
<tr>
<td>Water Dispenser</td>
<td>2</td>
<td>$5</td>
<td>$10</td>
</tr>
<tr>
<td>Multifunctional Printer</td>
<td>1</td>
<td>$30</td>
<td>$30</td>
</tr>
<tr>
<td>Energy Saving Refrigerator</td>
<td>1</td>
<td>$400</td>
<td>$400</td>
</tr>
<tr>
<td>Other Objects</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waterfall Crystal Panels</td>
<td>2</td>
<td>$1500</td>
<td>$3000</td>
</tr>
<tr>
<td>(48ft²)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ficus Tree Plants</td>
<td>4</td>
<td>$57</td>
<td>$228</td>
</tr>
<tr>
<td>Coffee Mugs</td>
<td>6</td>
<td>$71</td>
<td>$4.26</td>
</tr>
<tr>
<td>Paint (1L)</td>
<td>50</td>
<td>$8</td>
<td>$400</td>
</tr>
<tr>
<td>Cork Board</td>
<td>1</td>
<td>$16.27</td>
<td>$16.27</td>
</tr>
<tr>
<td>Office Supplies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pencils</td>
<td>100</td>
<td>$0.30</td>
<td>$30</td>
</tr>
<tr>
<td>Pens</td>
<td>12</td>
<td>$0.60</td>
<td>$7.20</td>
</tr>
<tr>
<td>Stapler</td>
<td>2</td>
<td>$8.50</td>
<td>$17</td>
</tr>
<tr>
<td>Scissors</td>
<td>2</td>
<td>$12</td>
<td>$24</td>
</tr>
<tr>
<td>Trash Cans</td>
<td>2</td>
<td>$4</td>
<td>$4</td>
</tr>
<tr>
<td>Dry-erase marker kit (4 pcs.)</td>
<td>1</td>
<td>$3.99</td>
<td>$3.99</td>
</tr>
</tbody>
</table>

Total $10887.73
Reasons for using those furniture/supplies:

Generally, we wanted to find the cheapest basic furniture, because every worker will have one and the price is multiplied by four. Nevertheless, we didn’t forget the ecological aspect or risked quality while making our decision. One of our priorities for the chairs and desks were the wheels. As explained before, we wanted workers to interact with each other in an empty room, where they could move freely. Wheels definitely helped with this getting achieved. This takes us to the next basic object, computers. Since we didn’t want lots of circuitry in the room and people moving freely, we decided the laptops would be necessary. Searching for cheap laptops was probably the hardest part because we didn’t want to give out workers cheap and useless computers, but we finally found affordable macbooks. Since we imagined our office to be the kind of place where graphic designers would like to work, macbooks suited perfectly.

The next big thing was the toilet, which wasn’t really necessary, but we felt that we needed a more ecologic toilet. The same idea goes to the sink, which generally wastes lots of water. Additionally, we really focused in saving energy with our coffee machine, multifunction printer, and refrigerator. All of them are eco-friendly, including the coffee mugs.

We also added solar panels and a water dispenser, to help us recycle both energy and water. Normally this two things could be consider inferior in terms of quantity of energy/water that they provide, but since the office would just be used by four people, this problem shouldn’t exist.

Finally, since we had some money left, we added an indoor waterfall and some plants. This is merely to suit the environment and make our employees feel comfortable with their workplace. Any other thing that wasn’t described meticulously in this section of the report was still an eco-friendly variant of that item/furniture/machine, like paint or pencils.

Graphic representation of the office:

Sources
Personal reflections

- The project had a short process in which we first had to discussed how do we imagine the office would be decorated, made a list of all the things we knew and we didn't know about the task, then we began to search for all the supplies and furniture we needed to make a list that helped us to know how much money was left for other things and then begin to write. To achieve the goal of this project we had to work all together, we divide the work to make it easier. We like this activity because it was fun and we have to give many ideas and put it all together, so we had to agree and be organized. It helped us to improve our English in certain way because we have to discussed about every single thing we found to add to the list and we practice our writing, we have to make an outline of the work to have a general idea.

- The activity was a very original idea which helped break the usual written work atmosphere. Personally, I enjoyed the teamwork a lot, even if it kind of hard to agree with a specific point of view sometimes. This activity definitely helped me improve my English, since talking with each other is something that is not done much in a classroom. It also helped with the development of description skills, since you really needed to explain yourself clearly to be understood. Critical thinking was also a skill that I felt everyone developed during the activity. There were many specific requirements for most objects, so thinking how and which objects to choose helped to analyze every aspect of that item critically. Generally, this was a very fun activity and in my opinion, helped more than the usual quiz or team assignment.

- In this world the necessity of ecological solutions is growing in very fast steps, because the people are beginning to worry about the damages that the humanity is doing to planet earth. Designing an ecological workplace is very good way helping the environment, after looking for prices and availability of ecological products we realize that is not too expensive to have a green office. Also a very important point that I see in this work is the way how the idea of a workplace is changing, because the traditional type of office is getting obsolete against the new type, which is more open and dynamic.

- Personally, I think the activity we did in class about furnishing an office helped me to improve, not much in language, but in step-by-step, critical and analytical thinking instead. The reason of this may be that I've been to English-speaking countries, and have interacted with real life environments that involve the extensive use of this language. I think the activity needed more structure and previous planning, as some requirements were added as we did the job. These kind of projects, if
planned and structured correctly, have the potential to exploit some of the language abilities we don't use when we are in a classroom.

- The office activity was very useful to practice the speak english language. I enjoy it so much, but I discover it's difficult the team work because there exist a lot of opinions and because is a team, all of this points of view have to be listen and taking in count. Even we are school friends, we were able to agree and be capable to organize in order to make a functional and eco friendly office
Appendix S

Assignment C from the Written Work of the PBL Activity

Maria José Infanzón Valdivieso
Flor Fernanda García Hernández
Alejandra Ivonne Sotres Guerrero
Luis Rodrigo Carbajal Nogués
Jose Antonio Moreno Fernández
Furnishing an office in North Vancouver to be a green and efficient option to a new environmental organization to work seemed to be a very difficult task, especially because everything had to be done under a budget of fifteen thousand Canadian dollars. Most of the products are too expensive but searching in the right places will make the difference between the success and the failure of this project. For having an easier task, we decided to divide the furnishing in different areas; furniture, technology, office supplies and other kind of supplies. The following lines show the result of our investigation and how we think the office should be; it shows the reason of why we chose the articles and some pictures of them.

The best options for the furniture of the office were found at Ikea. Ikea is a Swedish store established in 1946. Along their history they have followed their Swedish heritage. They are one of the most important furniture stores in the world and they also have an environmental friendly policy. Ikea is well known for making smart products that even a child could assemble. All the things that are sold in Ikea have a special propose and were designed by specialists in the subject of design and efficiency. So, having stuff form the Ikea in the office could be very useful for incrementing the productivity in the office without harming the environment.

First of all, we choose to have a sensation of open sky to the office; this means that we don’t want the typical office with boxes and closed spaces. The distribution of the office helps to see and enjoy the mountains of North Vancouver. The beautiful sight of the nature is the best and the most eco-friendly window cover. The concept of the design of the office is to manage white colors with a contrast of black and red in order to give tranquility and courage to the people that are working in there. The first thing you will see when arriving to our pent-house will be the reception desk and a waiting area. Then after soaring above the reception, you will see the four desks of the employees.
There are two large windows at the back of the office. This gives a sense of a wide space and comfort. Near the window there is a big table where the people could enjoy their coffees while watching the snowy mountains of Vancouver. There is a meeting room with a circular table and four chairs; this area also has a sight of the mountains of Vancouver.

The desk, the table and the sofas for the reception were chosen from Ikea. The options that we consider to include in the budget are *Beddinge* (sofas), *Expedit* (table), and *Micke* (desk). This type of furniture was chosen because it is proved that are the most resistant furniture for this type of spaces; as it is proved in the Ikea stores with their testing machine. Also we decided to include those pieces because they are full of the Swedish design and they were made in a process that did not pollute the environment.

For the personal space, we decided to give a uniform desk, chair, cabinet, and archivist for every person in the office. Then there are certain facilities that help each person to make more personal their spaces by including photographs, small belongings, and natural flowers or plants. This will create a harmonious individualistic space in which very person will feel confident to give his best to the office. The options we chose were: *Jonas* as the desk, *Nominell* as the chair, *Akurum* as the cabinets, and *Lingo* as the archivists. Those options where the cheapest and the most efficient ones. Talking about *Nominell*, it is a chair known by its comfort and liability. It has also won awards for its design. The *Jonas* desk is a cheap option and also it is green because for building it there is used some recycled wood. It is light and it is very easy to assemble. The cabinet and the archivists gave some design properties to the office, especially by the drawings they have painted. They are an eco-friendly option because they are made from a plastic that is not as dangerous as the normal plastic.
Finally talking about the meeting room, we decided to include a big circular table in which every person could see everyone and interact efficiently to make the best team decisions. The table we chose came with their own chairs in a budget. They interact with a brown color scheme to give the office a nice touch with the outside environment. This table also is very easy to assemble and it is design to resist everything; so probably it will last a lot of years. This will help the environment by not making more trash.

Changing the topic of the office to technologies, we thought this would be very difficult because a lot of the actual devices and computers are not eco-friendly at all. But after some arduous research, we found great pieces of engineering that could fit perfectly with the project. But this does not mean that we would just be talking about computers or devices, we are also showing telephones and lamps.

If we start by mentioning the computers, we need to prove why we chose going for Apple. The answer to this question is very simple. The cover of the new MacBook is made with just a single piece of aluminum; which is one of the metals that pollute the least. Then it has the LCD screen that saves up 30% more energy than other screens. This notebook works with the new NVidia Graphic card that is the greener in the world. The materials and the process of making the new MacBook are the best for the environment and pollute 70% less than others laptops, this information came directly from the Apple headquarters. This portable computer has the EP Gold recognition, which certifies that the product is environmental friendly. The designer crew of Apple also said that they improved the package, for getting more of these laptops in an airplane, so they could spend less gas for exporting the product. So that is why we chose the MacBook, because is the greener laptop you can buy in the market, and also is very easy and it is worth the price.
For the printer we bought the HP C410, because it is an all-in printer so it has fax, copies, and scanner, it can also print photos. The ink that these printer uses is fully biodegradable, so it does not damage the environment, and we also save money and energy by just buying one piece that can do all the tasks instead of buying a lot of devices. The telephones were very complicated to find because the ones that are ecological are very expensive, but we came up with a package of four from Panasonic (KXTG4033B x3) that are not very expensive but they used 50% less energy than other phones.

To end the part of the technologies we needed to buy lamps, so we checked in IKEA and we found a very cheap lamp called Glansa that is completely ecological, this lamp use LEDs that consume 80% less energy than other lamps, but also lasts as much 20 times more than a normal light bulb. We also bought the Alanh that works with the same energy and saves the same. For the table lamps, we chose the Sunnan, which are green energy lamps because they are solar powered.

The supplies that an office requires to make a good performance are essential. Although workers mostly use computers, they also need things such as paper for printing their documents, make copies, draw, make outlines, or write data while talking on phone. Pens and pencils for sign or write, eraser and liquid paper to erase or correct some mistakes that workers will probably do; stapler and clips to bring order to the files and give format to important sheets, etc.
We found a website: www.staples.ca that contains different products and a variety of prices to choose office supplies. We opt for the best options judging by price, quality and quantity. The paper we bought is 30% recycled; helping the friendly environment we are looking for. We pick out packages that will last more time because they contain more products like in the case of pencils, erasers, pens, paperclips, highlighters, scissors, and sharpeners.

The supplies we chose are the best for the workers and will provide them amenity.

For the washroom we chose this is why we chose the following products:

**Bar soap**
We chose the Olay bar soap 100g because it is cheaper than the other soaps. Also it takes care of the hands; this means it keeps the skin softer. This soap has no paraben preservatives and a lot of detergents. On the other side, the Mirurgia Maja is so similar to the Olay bay in ingredients. The reason we did not choose it is because it is more expensive than the Olay bar. This is maybe because of the brand.

**Hand dryer**
We needed something to dry the hands. First we thought that a hand dryer would be the best option because it saves paper but then we noticed that the hand dryer would waste light. That is why we chose a towel because it saves paper, electricity and it can be washed with other clothes to save water and detergent. Also if we buy a hand dryer, we will waste money and with the towel we save it.
Toilet paper
We chose the Cotonelle Fresh Flushable Moist Wipes because it has six rolls for $3.99. It is cheaper than the Seventh Generation Bathroom Tissue which costs $6.25 and also has six rolls. We think that there is no paper that pollutes more or that helps the environment. We believe that a good and efficient toilet paper is the one that is more resistant to the water so when people use it, they use less paper and they pollute less.

Mirror
When we were choosing the mirror we thought that a good one could the one that is medium size, not lavish and not expensive. That is why we chose Noresund as the mirror because its design is beautiful and appropriate for our needs. Also it is not as lavish as others, this helps to save our natural sources like iron, wood and more. And in price is very good because it just costs $29.99. So it is beautiful, cheap and not lavish.

Toilet seat
For this article we had some troubles because we did not know the difference between one and another. We thought that the color or the design were not very important because you have not to be lavish when you go to the washroom. Finally we decided that the Bolmen was the best option. First because it is cheap and we just have to pay $5.99 for it. Also it has a nice color and it seems comfortable. Another feature is that it seems not to need a lot of manufacture which helps the environment and saves our natural sources.
There are other requirements that are not related to furniture or supplies, but are necessary to the wellness at the place of work. Because people would arrive early to office, we consider coffee. A coffee machine will be expensive and also it will waste electricity. The best option that we found is not buying it. We thought that is important to buy coffee in a place that cares about environment; so we found Tim Hortons. The employees will have a special travel mug and a Tim card in order to go to Tim Hortons for having coffee. A Tim Hortons coffee shop is located on every corner. Having a walk will help every employee to relax and to think different about the issues the office will have. The Tim card will have a twenty dollar credit so the employees could get the coffee they want and also some Tim bits. Having the travel mug will help the environment because they will not create more garbage. And it also helps to have a special discount on the coffee.

The radio or entertainment stuff will be replaced by internet stuff. The radio and the television can be listened in the computer without wasting more electricity. Another point important to consider, is that every electronic device will have an environmental friendly electrical regulator. The regulator will turn down the electrical devices when no one requires them. This is in order to save energy.

All the decorative stuff is made of recyclable wastes. The purpose isn’t just to make a prettier office; it’s also to intensify the necessity of care about the world, about our world. Having recycle stuff as decoration will give the visitors a great sight about our office and our green mentality to heal our world.
Efficiency... is considering everything; environmental, design, innovative and practical solutions to the issues that could be presented in the future to the office.

Conclusion

After a hard work, our team decided what we really think was the best option to fulfill the strict requirements of the task. Sharing the experience and the knowledge between the members of the group helped the team to get a more united work and to gain the best experience to choose the best options for our eco-friendly office.

The supplies that were listed were chose after an intense debate between the team members.

References:
## Budget

<table>
<thead>
<tr>
<th>Article</th>
<th>Type</th>
<th>Retail Store</th>
<th>Quantity</th>
<th>Cost per Unit</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jonas</td>
<td>Desk</td>
<td>Ikea</td>
<td>4</td>
<td>179.00</td>
<td>716.00</td>
</tr>
<tr>
<td>Nominell</td>
<td>Chair</td>
<td>Ikea</td>
<td>4</td>
<td>199.00</td>
<td>796.00</td>
</tr>
<tr>
<td>Akurum</td>
<td>Cabinet</td>
<td>Ikea</td>
<td>4</td>
<td>126.00</td>
<td>504.00</td>
</tr>
<tr>
<td>Lingo</td>
<td>Archivist</td>
<td>Ikea</td>
<td>4</td>
<td>3.49</td>
<td>13.96</td>
</tr>
<tr>
<td>Beddinge</td>
<td>Sofa</td>
<td>Ikea</td>
<td>2</td>
<td>399.00</td>
<td>798.00</td>
</tr>
<tr>
<td>Micke</td>
<td>Desk</td>
<td>Ikea</td>
<td>1</td>
<td>99.99</td>
<td>99.99</td>
</tr>
<tr>
<td>Expedit</td>
<td>Table</td>
<td>Ikea</td>
<td>1</td>
<td>109.00</td>
<td>109.00</td>
</tr>
<tr>
<td>Ingo Black</td>
<td>Coffe Table</td>
<td>Ikea</td>
<td>1</td>
<td>59.90</td>
<td>59.90</td>
</tr>
<tr>
<td>Fusion</td>
<td>Meeting Table</td>
<td>Ikea</td>
<td>1</td>
<td>449.99</td>
<td>449.99</td>
</tr>
<tr>
<td>MacBook Pro</td>
<td>Computer</td>
<td>Future Shop</td>
<td>4</td>
<td>1549.00</td>
<td>6196.00</td>
</tr>
<tr>
<td>HP C410A</td>
<td>All in one printer</td>
<td>Future Shop</td>
<td>1</td>
<td>287.99</td>
<td>287.99</td>
</tr>
<tr>
<td>Panasonic KXTG4033Bx3</td>
<td>Telephone</td>
<td>Future Shop</td>
<td>4</td>
<td>89.99</td>
<td>359.96</td>
</tr>
<tr>
<td>Glansa</td>
<td>Ceiling Lamp</td>
<td>Ikea</td>
<td>6</td>
<td>39.99</td>
<td>239.94</td>
</tr>
<tr>
<td>Sunnan</td>
<td>Desk Lamp</td>
<td>Ikea</td>
<td>4</td>
<td>19.99</td>
<td>79.96</td>
</tr>
<tr>
<td>30% Recycled</td>
<td>Paper</td>
<td>Staples</td>
<td>1</td>
<td>59.96</td>
<td>59.96</td>
</tr>
<tr>
<td>Atalntis Ballpoint</td>
<td>Pens</td>
<td>Staples</td>
<td>2</td>
<td>10.76</td>
<td>21.56</td>
</tr>
<tr>
<td>Paper Canadian Natural Wood</td>
<td>Pencils</td>
<td>Staples</td>
<td>1</td>
<td>3.43</td>
<td>3.43</td>
</tr>
<tr>
<td>Mechanical Pencil</td>
<td>Eraser</td>
<td>Staples</td>
<td>1</td>
<td>2.32</td>
<td>2.32</td>
</tr>
<tr>
<td>Staple Vynil Coated</td>
<td>Paperclips</td>
<td>Staples</td>
<td>1</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Article</td>
<td>Type</td>
<td>Retail Store</td>
<td>Quantity</td>
<td>Cost per Unit</td>
<td>Total Cost</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-----------------</td>
<td>-----------------</td>
<td>----------</td>
<td>---------------</td>
<td>------------</td>
</tr>
<tr>
<td>Blunt Tip Kias</td>
<td>Scissors</td>
<td>Staples</td>
<td>1</td>
<td>4.99</td>
<td>4.99</td>
</tr>
<tr>
<td>Desktop stapler</td>
<td>Stapler</td>
<td>Staples</td>
<td>1</td>
<td>5.00</td>
<td>5.00</td>
</tr>
<tr>
<td>Oops! Retractable</td>
<td>Liquid Paper</td>
<td>Staples</td>
<td>1</td>
<td>6.26</td>
<td>6.26</td>
</tr>
<tr>
<td>Penstyle 6 pack</td>
<td>Highlighter</td>
<td>Staples</td>
<td>1</td>
<td>3.84</td>
<td>3.84</td>
</tr>
<tr>
<td>Invisible Tape</td>
<td>Tape</td>
<td>Staples</td>
<td>1</td>
<td>5.70</td>
<td>5.70</td>
</tr>
<tr>
<td>Staples Glue</td>
<td>Glue Stick</td>
<td>Staples</td>
<td>1</td>
<td>3.00</td>
<td>3.00</td>
</tr>
<tr>
<td>Tim Card</td>
<td>Coffee Credit</td>
<td>Tim Hortons</td>
<td>4</td>
<td>20.00</td>
<td>80.00</td>
</tr>
<tr>
<td>Travel-Mug</td>
<td>Coffee Mug</td>
<td>Tim Hortons</td>
<td>4</td>
<td>3.99</td>
<td>15.96</td>
</tr>
<tr>
<td>Fine Art</td>
<td>Wall paints</td>
<td>American Art</td>
<td>2</td>
<td>17.99</td>
<td>35.98</td>
</tr>
<tr>
<td>Olay bar soap 100g</td>
<td>Soap</td>
<td>No-Frills</td>
<td>1</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>GXT6 Canadian</td>
<td>Hand Dryer</td>
<td>Future Shop</td>
<td>1</td>
<td>379.00</td>
<td>379.00</td>
</tr>
<tr>
<td>Cottonelle Fresh Flushable</td>
<td>Most Wipes</td>
<td>No-Frills</td>
<td>2</td>
<td>3.99</td>
<td>7.98</td>
</tr>
<tr>
<td>Noresund</td>
<td>Mirror</td>
<td>Ikea</td>
<td>1</td>
<td>29.99</td>
<td>29.99</td>
</tr>
<tr>
<td>Bolmen</td>
<td>Toilet Seat</td>
<td>Ikea</td>
<td>1</td>
<td>5.99</td>
<td>5.99</td>
</tr>
</tbody>
</table>

| Number of articles   | 69 | Grand Total | 13380.65 |

* The Prices are in Canadian Dollars
Thoughts about the project

Maria José

I have always thought that the best way to improve your English skills is practicing them. This activity gives me the opportunity to practice them through 4 days. Its impossible not to say that this activity successfully complete its purpose, it makes me talk and think in English. It doesn’t matter how much you know about grammar, spelling, etc.; if you don’t demonstrate them or put them in practice. This activity makes us put in practice all the things learned in class. This activity improve our, my English.

José Antonio

The decision of choosing this materials for the office was taken by all of the integrants in the team. We decided the technological aspects based on how the devices saved energy. For example the lamps were very important in the conservation of the planet. After all we decided to buy some things that will help the environment inside the office, but also they were eco-friendly. By taking these decisions we are trying to save the planet and also helping a lot of people that are worried for the place were they live.

Flor Fernanda

I like the topic of this activity. My team had a grat organization and everyone worked hard looking for information. The idea of putting data in Excel provide us a better performance and made the work easier. I think the final results were good and achieved the goal of the project.
We had many thing in the team that other teams that other thing didn't have. Our vision of how the things were managed in a new office in Canada helped us to achieve our goals with less effort and in a better shape. Working together as a team helped us to know each other and to learn that we can trust in people you didn't have talked to. In my personal opinion, we as a team gain a lot of experience and new thought about how the thing how to be managed. This kinds of assignments are great, but we should have use other kind of topics.

In this collaborative work I learnt that there are many ways of having beautiful things without spending too much money. Also I noticed that sometimes people just look for lavish items and do not realize that these things pollute and waste a lot of natural resources. So now I know that there are beautiful cheap things that do not need a lot of natural resources. Another thing I learnt was that in an office the furniture has to be simple and comfortable because those are your materials of working and if you buy something beautiful but uncomfortable, it will be useless. So there have to be a relation between the working material like furniture, the people around you and yourself.
References


216


Nikitina, L. (2010). Addressing pedagogical dilemmas in a constructivist language learning experience, [Versión electrónica], Journal of the Scholarship of Teaching and Learning, 10(2), 10-106.


Tecnológico de Monterrey, high school objectives. Retrieved on October 12 of 2010 from: https://serviciosva.itesm.mx/PlanesEstudio/Consultas/Planes/ConsultaPlanEstudio.aspx?form=PLANESTUDIO&contenido=perfilgresado&modovista=area&Idioma=ESP&claveprograma=PBB07&UnaCol=SI&VerReq=&VerEqui=&IdTipoArea=&IdMateriaPuente=219


