Instructional Case—Hypo Corporation Problem-Based-Learning/ Case Studies Method, A Review and Application

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The purpose of this article, the second in this series of five articles, is to present an overview of the educational strategy of Problem-Based-Learning (PBL) coupled with a review of published articles concerning PBL as it pertains to Accounting and to present, generally, an overview of the Case Studies method. Finally, the application of Problem-Based-Learning to the Hypo Corporation case will be discussed. The third and fourth articles are quasi-experimental studies of student perceptions of the Hypo Corporation case with the fifth article presenting the recommended solutions to the case.

"Paradoxically, Fuller suggests students do more learning when teachers do less teaching (Chalmers and Fuller, 1996)". (Milne and McConnell, 2001, p. 69).

INTRODUCTION

The Advisory Committee on the Auditing Profession (ACAP) of the Department of the Treasury of the United States of America has recommended that:

> the "Pathways Commission 'consider the potential role of a postgraduate professional school model to enhance the quality and sustainability of a vibrant accounting and auditing profession,'" (Pathways Commission, 2012, p. 18).

Such a model would be analogous to other professional schools such as medicine and law. Such a model would require the establishment of a core set of competencies including a "Foundational Body of Knowledge" (Pathways Commission, 2012, p. 131), skills and attributes. The Pathways Commission has stated that such a goal is premature at present pending further study. Implicit in the recommendation is the need for the establishment of a viable Pedagogy (Lin et. al., 2005 p. 152) for accounting similar to Problem-Based-Learning with clinicals for medicine and legal case studies with the socratic method of instruction for the study of law. In accounting it appears that academia is gravitating towards the use of Problem-Based-Learning with the use of the Case Studies method. Moreover, in Canada, the Uniform Final Examination (UFE) for licensure is purely a Case Studies method examination.

The balance of this article will:

1) present an overview of the educational strategy of Problem-Based-Learning,

2) review published articles concerning PBL and accounting,
3) identify the advantages of the Case Studies method, and
4) distinguish PBL from case-based learning.

Finally, the application of Problem-Based-Learning/Case Studies method to the Hypo Corporation case will be discussed followed by a conclusion.

PROBLEM –BASED-LEARNING (PBL)

PBL: Historically

It has been stated that Problem-Based-Learning (PBL) is: "focused, experiential learning organized around the investigation, explanation, and resolution of meaningful problems (Barrows, 2000; Torp and Sage, 2002)." (Hmelo-Silver, 2004, p. 236). PBL with its theoretical "traditions" based upon the works of Kilpatrick (1918, 1921) and Dewey (1938) (Hmelo-Silver, 2004, p.236) was first employed in the education of medical professionals at Case Western Reserve in Cleveland, Ohio, U.S.A. and McMaster University, Hamilton, Ontario, Canada. (Hanson, 2006). PBL has also been used in the sciences at the University of Delaware, U.S.A. (http://www.udel.edu/pbl/) and in undergraduate marketing and management courses at the University of Maastricht, the Netherlands. More recently, PBL has been utilized in Leadership development at the King Fahd University of Petroleum & Minerals, Dhahram, Saudi Arabia (Yeo, 2006) and in software engineering (Dunlap, 2005). Most of the studies concerning the advantages of Problem-Based Learning have been conducted in the medical education field (Hmelo-Silver, 2004, p. 249; Fortin and Legault, 2010, p. 97). Given the fact that there are few studies documenting the advantages of PBL in accounting education (Fortin and Legault, 2010, p. 97) it appears that accounting educators are now starting to realize, study and document the advantages of PBL. Moreover, the University of Delaware has established a web-site as a Clearinghouse (refereed) for what they are calling "PBL unfolding problems". (Cottell, 2010).

PBL: Generally

"Psychological research and theory suggests that by having students learn through the experience of solving problems, they can learn both content and thinking strategies" (Hmelo-Silver, 2004, p. 235). Problem-Based-Learning is, generally, a cyclical six-step process as shown in Figure 1. It has been stated that:

> "In this cycle, also known as the PBL tutorial process, the students are presented with a problem scenario [usually a case]. They formulate and analyze the problem by identifying the relevant facts from the scenario. This fact-identification step helps students represent the problem. As students understand the problem better, they generate hypotheses about possible solutions. An important part of this cycle is identifying knowledge deficiencies relative to the problem. These knowledge deficiencies become what are known as the learning issues that students research during their self-directed learning (SDL). Following SDL, students apply their new knowledge and evaluate their hypotheses in light of what they have learned. At the completion of each problem, students reflect on the abstract knowledge gained. The teacher [facilitator] helps students learn cognitive skills needed for the problem solving and collaboration." (Hmelo-Silver, 2004, p. 236-237).

FIGURE 1: PBL

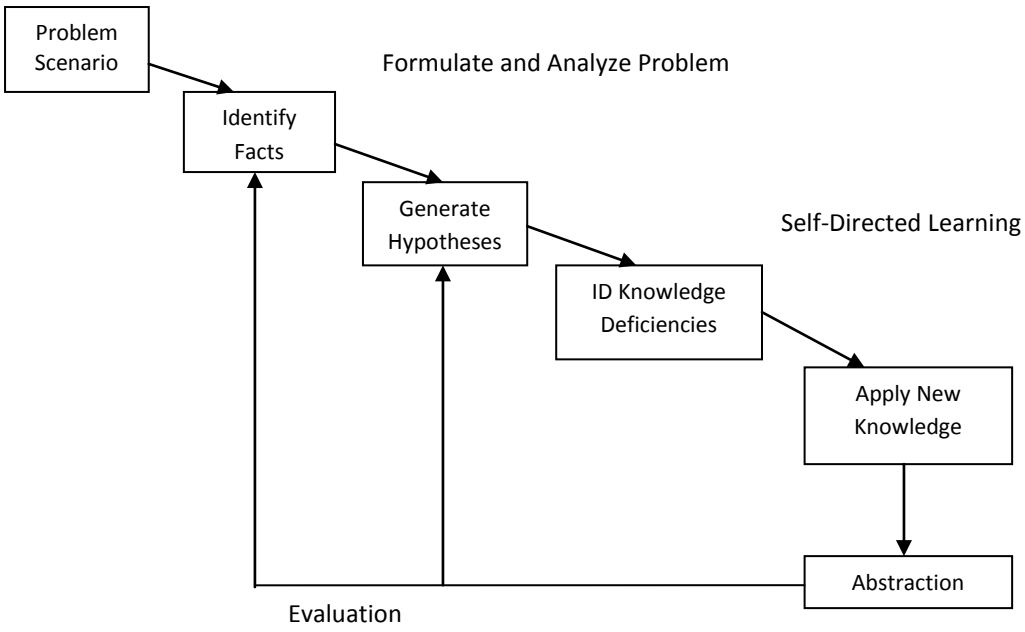

Fig. 1: The problem-based learning cycle. Adopted from Hmelo-Silver, 2004, p. 237.

Johnstone and Biggs suggest that "PBL methods should be implemented only after technical accounting knowledge has been acquired." (Johnstone and Biggs, 1998, p. 407). They further recommend that those teaching using PBL in the classroom "should possess expert technical knowledge of the subject area." (Johnstone and Biggs, 1998, p. 407). Moreover, it has also been said that in PBL, "students work in small collaborative groups"(Hmelo-Silver, 2004, p 236) thus, the tutorial process with the instructor/teacher acting as a facilitator that possesses the requisite technical knowledge. The recommendation that PBL should only be implemented after the students have acquired previous accounting knowledge was made in order to insure that the students "do not develop inappropriately organized knowledge structures." (Fortin and Legault, 2010, p. 97).

PBL: Collaboration (Team Work)

Concerning working in small collaborative groups, the quasi-experimental study of PBL conducted by Breton (1999) used a group size of five to 12 members and noted that:

> "Different authors do not necessarily agree on the optimal size of such groups. For example, we can find conflicting recommendations in the literature: West (1992) – from 5 to 7 students; Moust et al. (1989) – 10 students; Pregent (1990) – from 5 to 15 students; Schmidt (1983) – from 8 to 12 students." (Breton, 1999, p. 7).

PBL: The Problem

Furthermore, two other aspects of PBL need to be addressed as follows: 1) the nature of the problem and 2) the aspect of reflection within PBL. It has been said concerning the problem that:

> "To foster flexible thinking, problems need to be complex, ill-structured, and open-ended; to support intrinsic motivation, they must also be realistic and resonate with the

> students' experiences. … The problems should also promote conjecture and argumentation. Problem solutions should be complex enough to require many interrelated pieces and should motivate students' need to know and learn." (Hmelo-Silver, 2004, p. 244).

Also, see the discussion concerning types of problems/cases below citing Knechel (1992).

Next, it has been written that: "[w]ith PBL, learning is initiated with a complex problem that often requires students to use thinking skills of a higher order than those necessary to solve typical end-of-chapter problems." (Hansen, 2006, p. 221). Although this may be technically correct regarding PBL, such a statement implies a diminution of the educational benefits of problem solving, in general, and the use of textbook problems and exercises, Lecture-based cases, Case-based lectures and Modified case-based methods, given Barrows' taxonomy (cited below). The recommendations by Johnstone and Biggs (1998) appears appropriate, that being:

> "PBL methods could be implemented only partially in some classes" and that "[i]mplementation during the fifth year may be in a more aggressive manner because students at this level have the knowledge base and maturity necessary to achieve in a PBL setting." (Johnstone and Biggs, 1998, p. 424).

PBL: Reflection

Concerning the aspect of reflection, it has been stated that:

> "This reflection should help learners understand the relationship between their learning and problem-solving goals. … Reflection helps students (a) relate their new knowledge to their prior understanding, (b) mindful abstract knowledge, and (c) understand how their learning and problem-solving strategies might be reapplied. … At the completion of a problem, students reflect on what they have learned, how well they collaborated with the group, and how effectively they directed their learning. As students make inferences that tie the general concepts and skills to the specifics of the problem that they are working on, they should construct a more coherent understanding (Chi et al., 1989). … Reflection should increase the probability of transfer (Salomon and Perkins, 1989)." (Hmelo-Silver, 2004, p. 247).

Moreover, Johnstone and Biggs recommend that the students should be "explicitly taught" appropriate problem-solving skills when they state:

> "[t]herefore, introducing accounting students to these skills [explanation, counter-explanation, analogical reasoning, and cognitive elaboration] and educating students about how these skills apply in realistic situations is appropriate." (Johnstone and Biggs, 1998, p. 416).

Many of the recommendations by Johnstone and Biggs appear to be based upon the writings of Barrows (1986) when they present Borrows' "Table 1 A taxonomy of problem-based learning methods, Description of PBL implementation alternatives" and "Table 2 A taxonomy of problem-based learning methods, Taxonomy and associated levels of educational achievement." (Johnstone and Biggs, 1998, p. 409-410). Barrows' "Table 1. A taxonomy of problem-based learning methods …" is reproduced below as Appendix A. From "Lecture-based cases" to a "Reiterative problem-based method" variations are possible. This furthers supports Adler and Milne's (1997) statement that educational strategies can be implemented to varying degrees.

PBL: Goals of PBL

The goals or advantages of Problem-Based Learning are as follows:

> "1) construct an extensive and flexible knowledge base;
> 2) develop effective problem-solving skills;
> 3) develop self-directed, lifelong learning skills;
> 4) become effective collaborators; and
> 5) become intrinsically motivated to learn." (Hmelo-Silver, 2004, p. 240).

For a full elaboration of the goals see: Hmelo-Silver (2004). Furthermore, it has been stated that:

> "One of the strongest arguments in support of PBL, however, is not the skills it develops in students but rather that it provides a learning experience that is much akin to the way cognitive psychologists suggest people successfully acquire, retain and recall knowledge. (Norman and Schmidt, 1992)." (Milne and McConnell, 2001, p. 61).

PROBLEM-BASED-LEARNING AND ACCOUNTING

The few documented studies concerning the application of Problem-Base Learning in accounting education are presented below which are Edmonds et al. (2003), Heagy and Lehman (2005), Adler and Milne (1997), Breton (1999) and Cottel(2010).

Introductory Accounting

"Edmonds et al. (2003) used PBL in an introductory accounting course and provide anecdotal evidence that it helped develop critical and creative thinking, decision-making, communication, and leadership skills." (Fortin and Legault, 2010, p. 97).

Accounting Information Systems

Heagy and Lehman (2005) compared the performance of graduate and undergraduate students in a PBL setting versus a "traditional lecture/activities" format and "found that both groups scored similarly in basic knowledge examinations." (Fortin and Legualt, 2010, p. 97).

Managerial Accounting

Adler and Milne (1997, p. 202) undertook a study using a questionnaire based upon the lifelong-learning work of Candy and Crebert (1991a, 1991b) with the purpose of "to measure the extent to which those attributes considered desirable for competent accounting professionals and lifelong learners were being developed by course methods." The approach taken by Adler and Milne was to survey the "students about how our [their] course versus another (other) similar level course(s) contribute(s) to developing their lifelong learning skills and attitudes." (Adler and Milne, 1997, p. 202). Perceptions of the students were referenced against those of potential employers of their graduates. The questionnaire comprised 18 questions pertaining to lifelong-learning attributes and 10 questions pertaining to employment-related attributes with an additional 17 items/questions added by the authors pertaining to knowledge-based attributes. A comparison between three control courses which used a conventional lecture-tutorial method versus a course which used a "seminar facilitation process" method was undertaken for the 45 attributes under study. (Adler and Milne, 1997, p. 202). All of the courses were senior level courses.

> Of the 45 attributes "investigated, students found ability to work as a team member, need for flexibility and adaptability, understanding how different firms require different subject outcomes, finding and assessing information, desire for self-improvement, and oral communication skills to be particularly enhanced with work on and presentation of a PBL case study." (Fortin and Legualt, 2010, p. 97).

Accounting Theory

Breton (1999) studied the effects of the PBL method of instruction in comparison to the traditional lecture method along with assignments and examinations for two classes in accounting theory at the University of Quebec-Montreal, Canada. The findings of the study revealed that the "PBL group outperformed the lecture group on a theoretical question and on a case, but not on a technical question." (Fortin and Legualt, 2010, p. 97). Moreover, Breton reported that "[a]nother interesting finding was the perception of the PBL group to have acquired better and longer lasting knowledge" (Breton, 1999, p. 1) specifically stating that the results "suggest that students in the experimental [PBL] group have developed greater ability to remember and re-use what they learned." (Breton, 1999, p. 10). Breton identifies a three phrase, 10 step approach for PBL adapted from Bilodeau et al. (1996). (Breton, 1999, p. 4).

Intermediate Accounting

The only published case/study found relating to the use of PBL concerning an Intermediate Accounting course is Cottell (2010), Shreffler Stores Accounting Issues Related to Consumer Receivables, Asset Impairment, and Discontinued Operations: A Problem-Based Learning Unfolding Problem. The case/study is in actuality a quasi-study of student perceptions of what the author calls a Problem-Based-Learning Unfolding Problem. The accounting topics covered are receivables, impairments of different kinds of assets and discontinued operations. Cottell states that he has used the case, successfully, in a senior-level financial accounting course.
The author states:

> "Essentially, a PBL unfolding problem differs from the traditional classroom problem or case in that the problem itself does not contain sufficient information for the student to solve it. In the initial stage, the problem has a vague and broad requirement. As students wrestle with the accounting issue, they must determine what information they must obtain to fulfill the requirement. The problem "unfolds" as students are given additional information that allows them to engage the problem at an increasingly concrete level. As the students work together on the several stages of the problem, they simultaneously learn both course-related concepts and problem-solving skills." (Cottell, 2010, p. 782).

The case is divided into 9 phases with detailed directions (student requirements) for each phase. The context of the case is the acquisition of a subsidiary, mismanagement of receivables (the company's credit card portfolio), restructuring the credit policies and the eventual decision to sell the subsidiary. The author presents a "Pertinent, Known Information" worksheet for the students' use which is actually a modified "PBL whiteboard". (see: Hmelo-Silver, 2004, p. 243). The author states that he has used the case in a senior-level financial accounting course where the receivables portion of the case was designed as a review. The case was assigned on a group basis with the author having identified 14 learning objectives for the case. A "simple survey" was conducted "to garner [the students] reaction to the problem." (Cottell, 2010, p. 784). Moreover, besides PBL(unfolding) the author's only discussion of the pedagogical approach was his reference to cooperative learning structures citing Cottell and Millis (1993), Johnson et al. (1991) and Millis and Cottell (1998). The results of the survey were favorable with the author drawing the following conclusion:

> "Students find Problem-Based Learning (PBL) to be an enjoyable and meaningful learning experience. Several students have expressed to me how "fast" class goes in a PBL environment. I attribute this to the fact that they are actively engaged with the material rather than being passive recipients of information. The Shreffler Stores PBL unfolding problem engages student attention with its integrative, real-world nature and promises their active learning of accounting concepts." (Cottell, 2010, p. 785).

This author cites the Shreffler Stores case here because, in this author's opinion, not only is the case a good example for the acquisition and application of new knowledge if used in an Intermediate Accounting I course for the accounting issues presented but also for the purpose of introducing the students to the Problem-Based Learning approach in keeping with the recommendations of Johnstone and Biggs (1998) [that the students be explicitly taught appropriate problem-solving skills]. The only PBL attribute that is missing in the case is the "reflection in PBL." (Hmelo-Silver, 2004, p. 247). With the addition of preparing written summaries at the completion of the case, steps 9 and 10 in Bilodeau's application of PBL (Breton, 1999, p. 4), the student(s) would be exposed to the relationships amongst problem-solving, identifying knowledge deficiencies, self-directed learning and their reasoning strategies employed coupled with their collaboration skills. Thus, such an assignment would facilitate the development of lifelong learning skills and provide a foundation for the use of PBL in later accounting courses not to mention the enhancement of their writing skills and other "soft skills". (Bolt-Lee and Foster, 2002, p.35). A listing of other Problem-Based Learning Unfolding Problems/cases is presented in Appendix B, below.

THE CASE STUDIES METHOD: ADVANTAGES

It has been stated that:

> "The case method's effectiveness has been proven to help students acquire and apply professional knowledge, particularly when accounting procedures relate to a variety of *hypothetical* settings as well as to real-world business situations." (Fortin and Legault, 2010, p. 95).

The authors, Fortin and Legault, provide no citation to substantiate their assertion, however, this author believes that the accounting academic profession can take "academic notice" as to its validity[1]. The advantages of using the case method are as follows, adapted from Arguero Montano at al. (2004) which cites as its source Hassell et al. (1998):

ADVANTAGES OF CASE STUDIES

Argyris (1980)	Easton (1992)	Libby (1991)
--Hearing others' views. --Confronting differences. --Making decisions. --Becoming aware of the complexity of reality. --Realizing that there are rarely 'right or wrong' answers (since cases are incomplete, and so are real-life situations).	Improvement of content learning. Development of the following skills: --Analytical --Application --Creative --Decision-making --Communication --Social –-Self-analysis. Change of attitudes.	-Affective level -Motivation -Interest in material -Development of confidence. -Skill development -Oral and written communication -Group interaction. -Cognitive level –Development of problem-solving skills -Ability to deal with ambiguity -Understanding of the real world.

Libby (1991) refers to the use of the case method in accounting education whereas Argyris (1980) refers to its application in management development. Moreover, Hassell et al. (1998) refers to the use of cases in a Financial Decision Making (FDM) module at Sheffield Hallam University (England) and examines the operation and assessment of the module based upon students' perspective while Sheffield

Hallam University was "semesteriz[ing]" their curriculum. Their FDM module approach received a Coopers & Lybrand Partnership Award.

Furthermore, Knechel (1992) identifies three types of cases/problems, not mutually exclusive, as follows:

1) "Quantitative" cases which are mechanical and computational in nature and appear to be application oriented;
2) "Interpretational" cases which are contextual in nature requiring students to evaluate relevant factors that may lead to a specific decision possibly with limited information; and
3) "Decision-Oriented" cases which require "actual decision-making" where the scenario calls for identifying alternatives, evaluation of information and defending a specific decision. (Knechel, 1992, p.212).

Next, it has been stated that:

> "A second set of arguments supporting the use of case studies is based on the notion that the practical application of communication, problem-solving and team-working skills appears to induce better understanding of subject content. Bonner (1999) specifically, identifies cases as an appropriate method to develop complex cognitive skills. Thus, in order to work through case studies, students must elevate themselves to higher levels of learning and comprehension; driving them towards the upper levels of Bloom's taxonomy (analysis, synthesis, and evaluation). The practice of communication skills facilitates the assimilation of technical content (Zinsser, 1988, p. 16), requires the students to understand the problem (Hirsch and Collins, 1998) and demands a careful reflection on the concepts to be applied (O'Connor and Ruchala, 1998)." (Arquero Montano et al., 2004, p. 193).

The article by Bonner posits a framework for the selection of teaching methods based on Gagne's Taxonomy of Learning Objectives. (Gagne, 1968, 1984; and Gagne and Medsker, 1996). However, Bonner acknowledges that "[a]lthough Gagne's taxonomy is useful, it is not as widely applied in accounting as is Bloom's taxonomy (Bloom et al. 1956)." (Bonner, 1999, p. 16). Bonner provides a reconciliation of Anderson's (1976, 1990), Cagne's and Bloom's (Bloom et al., 1956) Taxonomies[2].

The first set of arguments identified by Arquero Montano et al. (2004) is that the use of case studies will increase student motivation because of a perceived functionality of knowledge and, thusly, adopt a deep learning style citing the works of Martin (1991) and Ausubel (1968). The issues of motivation and deep versus surface learning styles are beyond the scope of this paper.

Most published articles/studies concerning the case studies method have dealt with how the case method enhances the development of non-technical skills in our students. Fortin and Legault (2010) summarized it best when they stated:

> "In summary, according to the literature review, students find case studies most beneficial for developing their analytical and problem-solving skills; improving their oral and written communication skills; integrating knowledge; developing their abilities to work in groups, face real-world problems and consider multiple perspectives; as well as for developing or improving their awareness of multiple solutions." (Fortin and Legault, 2010, p. 96-97).

Financial Cases (Selected)

Most of the published cases in financial accounting are topic specific with minimal recognition of the integrative nature within financial accounting. However, one case is noteworthy that being the Reporting Earnings at Summer Technology-A Capstone Case Involving Intermediate Accounting Topics (Kohlbeck,

2005). Although the case covers the topics of investments, leases, pensions and deferred taxes with a contingent liability, the case appears to have ethical issues as its central thrust. This is apparent when the author states that a key learning objective is: "to discuss ethical issues in an accounting setting to raise awareness and to encourage students to do the 'right thing'." (Kohlbeck, 2005, p. 207). The case is framed in an earnings management context. Moreover, the author acknowledges a central advantage of the case could be a review of course material for an Intermediate Accounting course when he states:

> "The case can, therefore, be utilized as a wrap-up where students perform a review of previous material, which gives the instructor an opportunity to bring the topics together in order to provide more cohesive summary of the material." (Kohlbeck, 2005, p. 207).

The article/case write-up does not address the educational pedagogy employed nor is there an in-depth discussion of the various ethical models along the lines of Ethics In Business: A Perspective (Cooke, no date) and The Ethics of Organizational Politics (Cavanagh et al., 1981). Nor does the author discuss Kohlberg's (1981, 1984) six stages of moral judgment. The author's only mention of ethics is his reference to Cases In Accounting Ethics And Professionalism by Steven M. Mintz (1997) in the reference section of the article. The case does present excellent examples of accounting working papers in support of the topical calculations. Also, in a post-Enron environment, the case will make the students aware of ethical issues. Finally, the case has the potential to identify the integrative nature of the selected financial accounting topics presented.

DISTINGUISHING PROBLEM-BASED LEARNING FROM CASE-BASED LEARNING

Milne and McConnell (2001, p. 66) state:
"However, according to Barrows and Tamblyn (1980, p. 18, our emphasis) there is one factor that clearly distinguishes PBL:

> The problem is encountered *first* in the learning process as a focus or stimulus for the application of problem solving reasoning skills, as well as for the search for or study of information or knowledge needed to understand the mechanisms responsible for the problem and how it might be resolved. The problem is not offered as an example of the relevance of prior learning or as an exercise for applying information already learned in a subject-based approach.
>
> With PBL the problem [case] is deliberately intended to act as a catalyst to promote the acquisition of new knowledge, and unlike traditional problem-solving tutorial approaches, it is critically important that students should not have sufficient prior knowledge to be able to solve the problem right away." (Milne and McConnell, 2001, p. 66).

Milne and McConnell go on to highlight the fact that PBL "may also follow" the acquisition of new knowledge "as a means to get students to apply their new-found knowledge." (Milne and McConnell, 2001, p. 66). They also reiterate the position of Stinson and Milter (1996, p. 36-37) who are "adamant" about the distinction but so note that the distinction mainly concerns the nature of the problem. (Milne and McConnell, 2001, p. 67). This further supports Adler's and Milne's proposition that learning strategies may be implemented to varying degrees. (Adler and Milne, 1997, p. 195, cited above). It is realistic to envision a problem/case that will not only require the students to apply existing knowledge but, also, to have elements which require the students to search for, study or acquire new knowledge.

Finally, Milne and McConnell (2001, p. 67) acknowledge: "[t]he subtle distinction between the two approaches, then, is the manner in which the material is used in the educative process, rather than any necessary differences between the material themselves." They also note that "skills to plan [ones] own

work" was a desirable attribute of graduates (Milne and McConnell, 2001, p. 68). Such was found to be important from surveys of employers of business and medical graduates at their own university.

APPLICATION OF THE HYPO CASE: PBL AND THE CASE METHOD

In order for the students to solve the Hypo case, students will have to: first, identify the problems inherent in the case; second, analyze the problem by comparing how the company recorded the transaction versus what the accounting and reporting standards require and, at the same time, review and apply any related theories; third, make the necessary correcting entries and forth, assess whether or not the item in question has an impact upon other items such as deferred taxes, earnings-per-share, the cash flow statement, comprehensive income and disclosure requirements (i.e. see: Figure 1, above; Hmelo-Silver, 2004). Next, the students will have to document their work for the MAP requirement and to identify any underlying contentious issues. The two areas of significance in the Hypo case are deferred taxes and the pending litigation. The pending litigation is ambiguous on purpose such that the students will have to decide whether or not to reverse-out the company's accrual of a possible loss. This element, although not the same cause of action, is analogous to the Texaco *vs.* Pennzoil case when the case was first instituted (see: Texaco Inc. Annual Report for 1985 and the history of the lawsuit). Moreover, the students will have to contend with the apparent contradiction between what management has implied by recording a loss and what the company's attorneys are saying. The ambiguity here supports Libby's assertion that one of the advantages of using Case Studies (cognitive level) is "ability to deal with ambiguity." (Libby, 1991, see above).

Throughout the process the students will have to recall what they already know and identify what learning deficiencies they have before they embark upon their self-directed learning (SDL) phase (Hmelo-Silver, 2004, p. 236). Because of the interrelationships within financial accounting, this process is reiterative in nature. Thus, the students are not only applying what they have learned but also, at the same time, are discovering new knowledge (see: discussion above on Distinguishing Problem-Based-learning from case-based learning). This is the Reiterative Problem-Based-Learning model (Barrows, 1986; see: Appendix A, below). The step of "generat[ing] hypotheses" (Hmelo-Silver, 2004) is, basically, 1) does an accounting and reporting standard apply, 2) was the accounting standard correctly applied and 3) does the item in question impact other financial accounting topical areas. Next, the aspect of reflection in PBL is accomplished by 1) requiring the students to write the footnotes to the financial statements, 2) requiring the students to write the MAP (Matters for the Attention of the Partner) and 3) undertaking the student survey. By having the students write the footnotes to the financial statements they are not only taking ownership (Zinsser, 1988, p. 16) of their work product but also enhancing their general writing skills (Mohrweis, 1991) and increasing their technical writing skills (Hirsch and Collins, 1988). Also, by having the students write on a subject they should be enhancing their understanding of the content material (Stout et al., 1991). Students' perceptions of the writing portion of the case were not tested as a part of the survey because of the works of the authors mentioned. Next, with the requirement of writing the MAP, the students are given the opportunity to truly reflect upon the tasks undertaken which should benefit their lifelong learning skills.

Given the "length and comprehensiveness" of the case (Afling, 2007), students' will have to practice good time management skills and, depending upon the weighting of the case towards their final grade, may have to practice good stress management coping strategies. By having the students complete the case, they should be acquiring self-efficacy or, simply, showing that they can accomplish the work tasks. This supports Libby's assertion that using case studies should enhance the student's "affective level" of the "development of confidence" (Libby, 1991, cited above).

Furthermore, knowing that most students have never seen an actual Board of Directors resolution, a simple resolution was added to the case in support of the Discontinued Operations. Finally, given the context of the case (a compilation) with the given facts that key individuals are not present, learning objective number 5 was added so that the students might start to become aware of communications

between the accountant and the client. This fact coupled with the sale-lease-back subsequent event was included so that the students might start to develop a critical eye for possible ethical "red flags".

Moreover, a good example of the application of this process is the convertible debt. Here the company recorded the issuance of the debt at its present value given the difference between the coupon rate and its effective yield (8% vs. 10%). The notes to the case identify that interest expense was recorded at the coupon rate. As such, interest expense has to be corrected to the effective interest rate method. Also, because the bonds have a conversion feature and IFRS's require that the conversion feature be segregated out into an equity account, a correcting entry is needed. Here there is a difference between U.S. GAAP and IFRS. In the US no bifurcation between debt and equity is recognized. Also, the effective interest rate method would be based solely upon the interest rate implied from the actual cash proceeds from the issuance of the bonds. Under IFRSs the effective interest rate used for the calculation of interest expense would be the effective interest rate without the conversion feature (16%). Because of the difference between GAAP interest expense and the actual cash outflow, one must assess the impact, if any, upon Deferred Income Taxes. It was assumed that there was no impact for the Suggested Solution. Throughout the case simplifying assumptions are noted primarily in the area of taxation for the students benefit knowing that most students at this level have not had an Advanced Taxation course. Moreover, at the time of creating the Hypo case, 1986, major changes were made in the tax law in the U.S. (the Tax Reform Act of 1986). Also, the students will have to remember the impact that a convertible debt instrument will have upon the Earnings Per Share calculations. Moreover, in applying theory, one can identify the contentious issue between debt and equity here. If a portion of the debt is to be reclassified as equity, should not then a portion of the interest payments be reclassified as a dividend distribution. Interest expense is tax deductible whereas a dividend distribution is not in the U. S.

Finally, to be technically correct to the PBL tutorial process, the case should be undertaken on a group basis. (Hmelo-Silver, 2004, p. 236). This was not done in order to avoid the problems inherent with group dynamics and the issue of grading the group versus grading only the individual.

CONCLUSION

First, the Case Studies method of instruction has been around for decades in Business and Accounting education with its advantages and effectiveness well documented in the literature. Second, the educational strategy of Problem-Base-Learning, although not new, is now being employed in accounting education and it appears that accounting academia is gravitating towards its use. The goals and advantages of Problem-Base-Learning identified above will be most beneficial to our students for their eventual professional practice. Such an approach also can create a solid foundation for accounting education as the Profession moves towards the establishment of Professional Schools in Accounting. The first article in this series of five articles presented the accounting educative process in the United States and Canada with the identification of a Void in the process. Also, a hypothetical case to fulfill the Void was presented. This article demonstrated the application of Problem-Base-Learning and the Case Studies method to the hypothetical case, Hypo Corporation. The third and fourth articles will present a quasi-experimental study of student perceptions of the case with the fifth article presenting the recommended solution to the case.

ENDNOTES

1. In the practice of law there is a concept called Judicial Notice and Judicial Knowledge. Judicial Notice is defined as:

   > "The act by which a court, in conducting a trial, of framing its decision, will of its own motion and without the production of evidence, recognize and truth of certain facts, having a bearing on the controversy at bar, which, from their nature, are not properly the subject of testimony, or which are universally regarded as established by common notoriety, e.g., the laws of the state, international law, historical events, the constitution and course of nature, main geographical features, etc. The cognizance of certain facts which judges and jurors may properly take and act upon without proof, because they already know them. Fed. Evid. Rule 201." (Black's Law

Dictionary, 5th Edition).

Judicial Knowledge is defined as:

> "knowledge of that which is so notorious that everybody, including judges, knows it, and hence need not be proven. Ex parte Ferguson, 112 Tex. Cr. R. 152; 15 S.W. 2nd 650, 652." (Black's Law Dictionary, 5th Edition).

It is this author's opinion that such a concept could be utilized here.

2. The author is aware of the revised Bloom's Taxonomy (see: A Revision of Bloom's Taxonomy: An Overview by Krathwohl, 2002). Because of its wide acceptance, the original Bloom's Taxonomy has been used herein. The author mentions this Revision because of the implied congruence between the stated objective that "problem-solving ability [is one of] the most important attributes of graduates " (Adler and Milne, 1997, p. 194) and Krathwohl's statement:

> "*Problem solving* and *critical thinking* were two other terms commonly used by teachers that were considered for inclusion in the revision. But unlike *understand*, there seemed to be no popular usage that could be matched to a single category. Therefore, to be categorized in the Taxonomy, one must determine the intended specific meaning of *problem solving* and *critical thinking* from the context in which they are being used." (Krathwohl, 2002, p. 218).

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APPENDIX A
A TAXONOMY OF PROBLEM-BASED-LEARNING METHODS
DESCRIPTION OF PBL IMPLEMENTATION ALTERNATIVES

Implementation Type	Description
Lecture-based cases	Short cases are used to illustrate points made during the lecture.
Case-based lectures	Students review a longer but well-structured case that contains all necessary factual information prior to the lecture. These cases are then used to illustrate points made during the lecture.
Case method	Students review a more complex case, but one that contains all necessary factual information, prior to lecture. The instructor facilitates a discussion of the case and then the students interactively discuss the case in small groups.
Modified case based method	Students review a complex case in which an initial representation of the problem is provided, but additional relevant information must be acquired by the student from outside research. Students work in small groups and the instructor provides little or no lecture, acting only as a tutor to ensure that the students' understanding of the case is correct. This is the most common form of PBL found in medical schools.
Problem-based method	Students review a complex case, often in the form of a simulated interaction among participants. Students also acquire additional relevant information from outside research. The instructor plays a more active role than in the modified case-base method, reviewing technical knowledge that applies to the present case.
Reiterative problem-based method	The same as the problem-based method, but students are asked to re-evaluate the case after completion and complete the following two additional steps. First, they evaluate the information resources they used in solving the case to see if other information or other information search strategies would have been more appropriate. Second, they evaluate their knowledge of the case as well as the problem solving skills they used to complete it.

Adapted from Barrows (1986). (Johnstone and Biggs, 1998, p. 409).

APPENDIX B
PBL UNFOLDING PROBLEMS/CASES

Derivatives:
"Gearding Construction Company: Accounting for Derivatives—Interest Rate Swaps—A PBL Unfolding Problem." Problem-Based Learning Clearinghouse, http://www.udel.edu/pblc, item #1608926226103. Retrievable from: https://primus.nss.udel.edu/Pbl/. 2005.

Marketable Equity Securities:
"Watson Enterprises: Accounting for Marketable Equity Securities—A PBL Unfolding Problem." Problem-Based Learning Clearinghouse, http://www.udel.edu/pblc, item #111597942717. Retrievable from: https://primus.nss.udel.edu/Pbl/viewIndex.jsp?id=111597942717. 2003.

Pension Accounting:
"Blankley Corporation: Pension Accounting—A PBL Unfolding Problem." Problem-Based Learning Clearinghouse, http://www.udel.edu/pblc, item #89463073510. Retrievable from: https://primus.nss.udel.edu/Pbl/viewIndex.jsp?id=89463073510. 2003.

Long-Term Construction Contracts
"Dawn Treader Industries: Long-Term Construction Contracts—A PBL Unfolding Problem." Problem-Based Learning Clearinghouse, http://www.udel.edu/pblc, item #88764750700. Retrievable from: https://primus.nss.udel.edu/Pbl/viewIndex.jsp?id=88764750700. 2002.

Earnings Per Share:
"Ubbes Company: Earnings Per Share—A PBL Unfolding Problem." Problem-Based Learning Clearinghouse, http://www.udel.edu/pblc, item #67972620040. Retrievable from: https://primus.nss.udel.edu/Pbl/viewIndex.jsp?id=67972620040. 2002.

Deferred Taxes:
"Kinsey Publications, Inc.: Deferred Taxes—APBL Unfolding Problem." (with R.A. Bitter), Problem-Based Learning Clearinghouse, http://www.udel.edu/pblc, item #58610293531. Retrievable from: https://primus.nss.udel.edu/Pbl/viewIndex.jsp?id=58610293531. 2002.

Leases:
Cebu and Woodard: Leases—A PBL Unfolding Problem." Problem-Based Learning Clearinghouse, http://www.udel.edu./pblc, item #47730894854. Retrievable from: https://primus.nss.udel.edu/Pbl/viewIndex.jsp?id=47730894845. 2001.
Adapted from Cottell (2010, p. 785).