Problem-Based Learning:
A possible approach to language education?

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Abstract

Problem-Based Learning, PBL, as we know it today has its roots in Canada in the early 1970's. Historically, it has been used mainly within medicine and business. Especially during the last decade, however, has this sometimes controversial methodology gained increasing popularity in several academic disciplines. It is now more and more widely applied to subjects such as physics and biology, but also (to a lesser degree) to history and geography.

Nonetheless, one major field seems to have remained relatively unaffected: the humanities, and specifically languages. This document attempts to address the question of how PBL could be applied to language education, discussing what could be gained from this, as well as the major problems involved and possible solutions to them.

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1   Introduction

Today, Problem-Based Learning is widely recognised as an effective methodology. Its advantages are well documented: students are known to develop greater communicative, thinking and problem-solving skills with PBL than with regular lecture-based education. PBL often also excels in making the relationship between various concepts within a subject more clear, and has with success been used in interdisciplinary courses, thanks to the way in which it encourages broad research.

How, then, is this accomplished? The fundamental idea of PBL is to introduce new concepts by using complex real-world problems, to use problems to "motivate, focus, and initiate student learning" [Duc96], rather than, as in traditional education – or even other forms of group-based or student-centered methodologies – presenting the students with problems first *after* explaining a certain concept. By doing this, students are required to learn actively, and not only passively.

Almost half a century ago, Bloom constructed a model of cognitive levels, as shown in the table below. He describes six different cognitive levels, and gives examples of student activities that characterise each level. [Blo56] Well-made PBL problems will encourage students to work at the higher levels of analysis, synthesis and evaluation, whereas common textbook problems leave the students working at the two, or possibly three, lowest levels. There, memorisation dominates over the comprehension, questioning and critical thinking that are all essential characteristics of PBL.

Problem-Based Learning is, however, not uncontroversial. It is often eyed critically by many teachers who are used to – and successful with – lecture-based instruction. Even those who approve of PBL are sometimes reluctant to implement it because of the tremendous amount of work involved in fundamentally restructuring a course. It must also be conceded that some students actually prefer traditional methods of instruction to problem-based ones – in some cases it even goes beyond being merely a question of personal preference; it is a question of which forms of learning a person is "cut out for".

This has been illustrated by several researchers, including Golay, who describes how some students have a *learning pattern* that, for examples, favours independent group work, while others may have a learning pattern that requires detailed instructions and well-defined, well-guided assignments from a teacher. [Gol82]

In most cases, however, the merits of a PBL approach are such that an attempt is definitely warranted. At least in the fields of science, social studies, business and

Cognitive Level	Student Activity
Evaluation	Making a judgment based on a pre-established set of criteria.
Synthesis	Producing something new or original from component parts.
Analysis	Breaking material down into its component parts to see interrelationships / hierarchy of ideas.
Application	Using a concept or principle to solve a problem.
Comprehension	Explaining/interpreting the meaning of material.
Knowledge	Remembering facts, terms, concepts, definitions, principles.

Table 1: Bloom's cognitive levels

medicine – this we have seen. The question is: will it work at all if applied to language education?

2   PBL and Language Learning

Learning a language is, for apparent reasons, very different from learning anything else; normally language is a tool when learning – not the actual subject of it. This difference has several implications from the point of view of PBL. For example, it results in the need for an entirely different view on the *facts vs. understanding* issue. When learning a language, understanding is of course paramount – it is what languages are about. Despite this, learning raw facts (eg. in the form of vocabulary) plays a larger part than in many other subjects.

How should one, then, go about giving the students enough of these "raw facts" without violating the PBL principle of not feeding the students knowledge without context? One of the main objections to Problem-Based Learning has, after all, been that courses taught in that way cover less actual content than traditional lecture-based ones. Though it has been said that the concepts of PBL can be applied to any academic discipline, languages obviously constitute a large challenge. The advantages are nonetheless many.

2.1   Advantages

Before discussing the possible advantages of a problem-based language course, it is necessary to note that the lack of previous research in this field make it very hard to know to what extent known positive effects of PBL in, for example, a biology classroom will also be visible in a language classroom. It should also be remembered, however, that though some anticipated effects may fail to appear, others may take their place.

As mentioned in the introduction, one of the main virtues of PBL is that it displays a significant advantage over traditional methods in how the communicative skills of the students are improved. The general ability of social interaction is also positively affected. These are, most will agree, two central factors in language learning. By building a language course around assignments that require students to act, interact and communicate it is hopefully possible to mimic some of the aspects of learning a language "on site", ie. in a country where it is actually spoken. Seeing how learning a language in such an environment is generally much more effective than teaching the language exclusively as a foreign language, this is something that would hopefully be beneficial.

To further increase these effects, one could employ the practice of letting senior students, who have attended the course before and have good command of the language, act as *peer tutors* to the students. This method has for a number of years been employed in a number of PBL courses at the University of Delaware, USA, where it was rated very highly by both students and tutors. [A+96]

Another large advantage of PBL is that it encourages students to gain a deeper sense of understanding. Superficial learning is often a problem in language education, for example when students, instead of acquiring a sense of when and how to use which vocabulary, learn all the words they will need for the exam next week and then promptly forget them.

In a PBL classroom this is combatted by always introducing the vocabulary in a real-world situation, rather than as words on a list, and by activating the student; students are not passive receivers of knowledge, but are instead required to actively acquire the knowledge. The feeling of being an integral part of their group also motivates students to learn in a way that the prospect of a final examination rarely manages to do.

2.2   Creating Problems - the Main Problem

The central concept of PBL is, of course, problems. As the number of resource books with PBL problems is disappearingly small, it is nearly always necessary for instructors wishing to employ PBL to construct their own problems. It is this task of constructing suitable problems that often poses the greatest challenge. It is however imperative that the problems are interesting, challenging and relevant to the students' reality, or their educational value will be seriously decreased and the previously discussed advantages will definitely not be as apparent.

What, then, characterises a good PBL problem? This question was briefly dealt with in the introduction, and what was said there are the key points. First of all, the problem must engage the students' interest; it must motivate them to independently search for more knowledge. It must require – and allow – students to relate the new concepts being introduced to previous knowledge. Students should also have to make judgments and decisions based on given facts or logical conclusions and to justify these. In addition, a good PBL problem should emphasise the importance of group work, by not being open for a "divide and conquer" approach, where group members can divide subtasks between each other rather than work together. Finally, it is important to remember that the problems must be related to the real world.

What makes it exceptionally difficult to construct such problems for a language course? In business or medicine, it is easy to take a real problem from a real situation. In science, scientific journals and the like often constitute a good source of problems. In the field of languages, however, there are neither obvious "real situations" nor journals describing recent developments that can be used when constructing problems. The difficulty lies in finding a plausible context for the problem.

As finding such contexts is extremely hard if one tries to create *pure* language problems – and as the possibilities would then be bound to be exhausted relatively soon – a more realistic approach would be to combine language teaching with the teaching of other subjects, subjects where language plays an important role. Two examples of how this can be done are given in section 3.

Whether this would be an effective approach or not remains to see; as previously stated, no such studies are known to the author of this text, and no attempt to draw any conclusions on this matter on a purely theoretical basis will be made.

2.3   Other Difficulties and How to Approach Them

Some of the largest problems that are likely to occur in a PBL language classroom are those of group dynamics. Since working in groups is central to PBL, it is important that the groups function in a satisfactory way. The things that can go wrong in a group are rather many, as most teachers who have tried that approach will know.

However, it is beyond the scope of this document to discuss group dynamics on a general level, or even on a level specific to PBL (a good summary of possible group-related difficulties in a PBL class can be found in "Dan tries Problem-Based Learning:

A case study" [Whi96]). Instead, it will concentrate on the additional difficulties caused by the nature of the subject of languages.

A problem that language teachers often face is that of the students communicating with each other in their native language (or another to them common foreign language, such as English) more than they actually need to. In a PBL environment this would be a very real, and very big problem, as communicating in the language being studied would be the central idea of PBL-based language education, and failing to fulfill that demand would greatly decrease, if not entirely eliminate, the profits of using PBL at all.

In enforcing this requirement, one does however meet another problem. If the students' command of the language is not sufficient for the task at hand, creativity and enthusiasm will naturally drop and give way to frustration and disappointment. Where is the point of balance? That is a question that probably has to be answered individually for each group. It is another example of how PBL demands much more from the instructor than traditional methods of teaching.

These and related problems imply that PBL may not be a very good approach at basic levels – at least not in the form presented here.

2.4   Designing a Syllabus

It is with the above discussed issues in mind that one must design the syllabus of a PBL language course. Something that most teachers who at one point or another have tried PBL agree on is that it usually takes two or three attempts at a certain course before things start working as they were intended to; one will always run into problems and conflicts that were not – and that sometimes could not have been – anticipated.

In setting up a PBL syllabus for the first time, language teachers should therefore to whatever extent possible read the documentation of others' attempts at PBL, in languages as well as other subjects, and discuss the matter with colleagues that have tried PBL before. Thus they will hopefully be able to avoid some of the most common problems.

Among the points brought up, there are two that it might be worth mentioning again, as they are of interest and importance during the planning stage of the course: First, the idea of peer tutors. This might very well turn out to be the best possible solution to several problems. However, these tutors should, as explained, be students who have previously attended the course in question. Therefore, this approach is possible only when the course has already existed for some time.

Second, The possibility of cooperating with other, non-language faculty and running a "joint venture" course, integrating the two subjects. This will help students both to make connections between different disciplines and to see real applications of the language they are learning. It will also open greater possibilities for the instructors, as the source material they will have access to will be significantly larger.

One choice that has to be made when designing a PBL course is whether to change only parts of an existing course – creating a form of "hybrid" course – or to start from scratch and do everything the PBL way. Opinions differ as to which approach is the best; both have their vices and virtues. A popular approach is, however, to do a "soft start" by gradually introducing PBL elements and later, after evaluating that method, trying a more complete makeover. A comparison of experiences from the two approaches will often show which is the most suitable.

A concept that is very important when working with PBL, something that will be seen in all PBL problems (including the examples in the next section) is the concept

of *learning issues*, ie. the question of what knowledge and information and which concepts and sources are relevant for a certain problem. It should be pointed out that, especially when teaching students with no previous PBL experience, time must be allocated and quite some effort must be spent helping the students understand how they can evaluate their skills and knowledge and how to look for, and then use, different sources.

As a closing note on the subject of designing syllabi and planning courses, the importance of proper evaluation is emphasised. Only by asking students (and possible peer tutors) how *they* felt about the various choices made by the instructor can the latter hope to improve the course and keep it evolving.

3   Sample Problems

These are three sample problems, or rather problem outlines, that might be used in a PBL environment. The problems are incomplete, as they can be held general only to a certain extent, after which they need to be tailored to the language that is being taught. The problems can be presented either in the students' native language or in the language they are learning. In most cases, the latter alternative is preferable. All the problems have been constructed in order to introduce a certain vocabulary and to address at least one other topic in the language.

The first problem is rather general in its nature, and is not directly connected to any other subject. Besides for the vocabulary, it aims at training the students to write descriptive and classifying texts, as well as using prepositions (and related grammatical topics).

Problem two can be used in groups that have some sort of interest in law, though it is perhaps not detailed enough for actual law students or law professionals. It brings up the issues of formal language and letter writing.

Finally comes a problem that relates to history and that is best used in groups with a genuine interest in that subject. Narrative writing, informal letter writing and informing speech is practiced.

One question that can be seen throughout all three problems is the classical PBL question of learning issues: What knowledge do you already have that can help you solve the problem? What knowledge do you lack that is necessary for the completion of the assignment? Where can you find this knowledge?

3.1   "The Dreamhouse" – A General Problem

You have decided to build your dreamhouse in [country][1]. You have started looking at maps and photos of different locations and you have brought home huge piles of furniture catalogues. Despite the challenge that you know is implied by such a decision, you have decided that you will design the house of your dreams from the ground up before asking an all-in-one contractor to draw up the proper plans, build it and furnish it.

When describing what you have in mind to the architect, it is important that you are very precise. He needs to know what you want each room to look like – where doors and windows are, and also what furniture, appliances, etc. that you want there. Be as detailed as possible.

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[1]This, of course, refers to a country in which the studied language is spoken.

As for the location, you are having problems making up your mind. You have therefore decided to ask the contractor for advice. Describe four or five different locations that you have in mind, comparing them to each other. Bring out what you think are the advantages and disadvantages of each location.

Before starting the assignment, discuss the following in your group: What vocabulary will be involved? What aspects of the language are important? What do you need to learn to be able to complete the assignment? Which sources might be useful?

3.2 "Under Arrest" – Language and Law

You are a group of students living in [country][1]. Harry, one of your friends from back home has just visited you. You have been on constant city sightseeing for three days. However, the day after his departure you receive a phone call from him. Harry has been arrested by the local police in a city in the other end of the country. He doesn't understand what he is being accused of and asks you to help him. Apparently, Harry has managed to convince the police to fax information about the situation to you. You will find that information on page two.[2]

What is Harry accused of? Why do you think the police arrested him? What other information would you need to understand fully what has happened and why? What would you do next? Describe and give full motivations for your answers. When you are done, ask for part two.

(Part two) The next day, you receive another fax:

> *This fax is from the defense attorney that has been assigned to Harry, requesting the recipient to write back, giving information about Harry's whereabouts and activities during the 48 hours immediately preceding his arrest. The attorney also asks for any arguments you can think of favouring a release under bail.[3]*

Before starting the assignment, discuss the following in your group: What vocabulary will be involved? What aspects of the language are important? What aspects of the legal system are important? What do you need to learn to be able to complete the assignment?

When you are done, ask for part three.

(Part three) Finally, Harry is released and allowed to return home. Curious to learn more about what actually happened, you decide to pay the defense attorney a visit. Write a dialog between one or more of you and the attorney, explaining the case.

Before starting the assignment, discuss the same issues as in the previous part in your group.

3.3 "The Letter" – Investigative History

As students of history, you often search through libraries and archives, looking for information that might be relevant to your research. One day, you come across this hand-written document at the bottom of a pile in a dark corner of a library:

> *The document is a personal letter. It was written by someone at some point in history (who, when, why, etc. will depend on the language studied).*

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[2]The fax has not been included here, as that, too, would probably also be best if tailored to a certain country

[3]Of course, a "real" fax should be included here as well.

This mustn't be a certain historical person (such as Winston Churchill), but might well be somebody who was in a certain situation (such as a soldier in the Russian army during World War I).

The letter is written in such a way that it is possible to deduce when it might have been written, by whom, to whom, etc. As such, it may be a description of an event, a request, a general letter with a bit of everything, or anything that is relevant to the person and situation.

In an ideal situation, the letter is authentic. Otherwise, one suitable for the assignment must be created.

Who might have written this letter? When? Where? Give motivations! Where could you find information to help you answer these questions? When you are done, ask for part two.

(Part two) You decide that this letter is exactly what you were looking for as a theme for your upcoming term paper. As an introduction, you choose to write the story of the author of the letter. Do this based on the information given in the letter. Select an appropriate timeframe and level of detail. When the information in the letter is insufficient, use other relevant sources.

Before starting, discuss the following questions: Which information in the letter is important for your story? What other information do you need? Where can you find it?

When you are done, ask for part three.

(Part three) As another part of your paper, you have decided to write a fictitious, but plausible and historically accurate, reply to the letter.

Before starting, discuss the following: Who, more precisely, are you, the recipient? What is your relation to the author of the letter? What issues not brought up by the author of the letter are you likely to cover in your reply? Why?

When you are done, ask for part four.

(Part four) A few months later, an enthusiastic history teacher at a local high school contacts your group, telling you that he found your papers very interesting and that he'd like you to give a speech on the subject to his class.

Prepare this speech. Each member of the group should approach the theme from a slightly different angle. How is up to you.

4   Conclusion

Definite conclusions are hard to draw in a hypothetical document, such as this one. The first, and foremost, conclusion is therefore that the value and correctness of ideas and theories laid forth here can be verified – or refuted – only by trying them out.

It can also be concluded that applying PBL to language education would constitute a formidable challenge to whoever might choose to attempt it. It is tempting to say that PBL is better suited for disciplines close to the real world and everyday life. However, this would be highly paradoxical, as few things can be considered more real and everyday for humans than language.

Nevertheless, it would not seem too radical to suggest that PBL might indeed be beneficial in a language classroom, especially if integrated with other, non-language disciplines. Besides for general PBL-related concerns mentioned before, the main questions that need to be answered are:

- At which skill level should PBL be introduced?

- With which other subjects/courses could the PBL language course be integrated?

- Which sources for problems are available?

Finding answers to these questions, designing a PBL syllabus for a language course and trying it out in the real world will hopefully bring an answer to the main question of this document: Can Problem-Based Learning be used as an alternative approach to language education?

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Several of these documents are available through the University of Delaware's PBL website at http://www.udel.edu/pbl/