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Applying Problem Based Learning (PBL) and Team Based Learning (TBL) to University Level English Instruction in Japan:

Notes on Theory and Practice

Andrew A. Painter

Along with the exciting launch of the new "School of Interdisciplinary Science and Innovation" in 2018, many here at Kyushu University are rethinking established and entrenched ways of teaching, including the teaching of English as a Foreign Language (EFL). This paper sketches out the main pedagogical characteristics of Problem Based Learning (PBL) and Team Based Learning (TBL), both of which are prominently featured in the official curriculum for the new program here at Kyushu University, and gives some suggestions on how these frameworks could best be applied to a more learner-centered, communicative approach to language education at the undergraduate level. It is this author's belief that the emphases on group learning, individual accountability, and tangible communication skills mastered through active and creative problem solving—key characteristics shared by both PBL and TBL—promise to have positive ramifications that will extend far beyond the walls of our classrooms.

Starting with a problem:

Problem Based Learning is now over forty years young, making it one of those rare pedagogical paradigms that has managed to maintain its influence for decades. PBL first came into prominence in the 1970's in the field of medicine where, for obvious reasons, the quality of student education could have life or death consequences. Often described as the "legacy" of Howard S. Barrows (Walker, et. al. 2015), PBL began as a means to reform a top-down hierarchical discipline that required huge stocks of knowledge, much memorization and, years later, skilled performance in problematic, high pressure situations. Bar-

rows' fundamental insight was that by bringing the knowledge acquisition and problem solving phases into closer proximity, both could be improved. Rather than teaching a large corpus of disembodied facts and data first and then expecting students to make connections as needed at some later time, PBL instead starts with an emphasis on the kinds of actual problems doctors face in practice and uses these to motivate and inform individual and group study. Instead of one-way lecturing at students to fill their heads with facts, then, PBL motivates groups of students to communicate, learn together, and work cooperatively to conceptualize problems and to arrive at a consensus. PBL is thus a constructivist approach to education, in which students learn through building up their own understandings. In the process of coming to a solution, students also learn how to become better communicators.

PBL techniques have continued to grow in popularity not only in the medical field, but also in other academic areas including the natural sciences, social sciences, law, and business. Somewhat surprisingly, there has been less attention paid to PBL in language education. While perhaps part of the reason for this neglect is that many teachers do not see language learning as a matter of studying "problems" so much as a process of individual cognitive enrichment; nonetheless, there are in fact many important analogies between the situation of medical education and language learning, and taken together these suggest that PBL may have much to offer to language teaching. The first similarity between the predicament of med students and language students is that half measures will never work. What I mean by this is that a doctor who learns just enough to barely get his MD and no more is, by definition, a bad doctor. Similarly, a language student who learns just enough of a foreign language to do basic greetings has failed to really learn the target language. Successful doctors and fluent foreign language speakers succeed because they push themselves beyond the minimum—they aim for mastery. Becoming fluent in another language or becoming a good doctor requires huge amounts of time and effort and cognitive labor; only the most motivated will reach their goal.

Furthermore, both language learners and med students have already done

several years of background study in their subjects before they enter the university PBL classroom. In Japan, for example, university freshmen have done at least six years of English study before entering college. Med school students have usually graduated from pre-med programs. Still, no matter how large their stocks of knowledge may be, these students are acutely aware that they still have much to learn. Both medical and natural language corpuses are dauntingly expansive. Not only that, but in both cases, knowledge alone is next to useless if it is simply memorized: the key point is how students operationalize what they learn in a variety of real-world situations. In the language of PBL pedagogy, what you know is not as important as what you can actually do.

Next, and crucially in this connection, both future doctors and speakers of foreign languages are in the business of communication. Just as language students aim to achieve fluency in their target language, doctors know that the ability to communicate with both colleagues and patients is a key skill they need to cultivate to be successful. This languaging connection runs even deeper, however, and it is not by chance that the earliest usages of the term 'semiosis' were based not in linguistics or semiotics but instead in Greek medicine, where doctors some two millennia ago read meaningful signs and 'symptoms' to diagnose underlying disease (Sebeok 47). In this way, language learners and doctors alike find themselves surrounded by signs, symbols, and meanings that they need to become fluent in manipulating and interpreting. The size and complexity of the learning task can be daunting, and inevitably some students lose their motivation in the face of the challenge. This is where PBL comes in.

While there is some debate over the effectiveness of PBL compared to more traditional methods of instruction strictly in terms of learning outcomes, it is widely agreed that PBL is a powerful way to motivate students both individually and in groups (Walker, et. al. 2015). Students themselves overwhelmingly report that the participatory, learner autonomous aspects of PBL stimulate them to work enthusiastically on their studies. This motivational aspect of PBL, I suspect, is perhaps the single most important contribution that it can make to improving L2 education in Japan, where students are already culturally inclined towards work-

ing cooperatively in groups from an early age. By putting group work and consensus building at the center of the educational project, PBL has the potential to raise participation rates and learning outcomes in Japanese university language classes. Students in PBL courses spend the majority of their time working together while in class, but they are also expected to do research and preparation on their own when away from school. If a student fails to do his part, it will have a negative effect on overall group performance. Because peers hold each other accountable for doing the necessary work, it is not the job of the instructor to play policeman or disciplinarian—instead, the teacher functions as a tutor who offers suggestions and guidance when necessary, without making final decisions for each group. Students in these kinds of classes generally appreciate the autonomy they have to work in their own way, and many comment that they actually end up spending more time working on PBL courses than on their more traditional classes. (Lee 2017) In this way, without being forced into it by their instructors, most become active learners who are increasingly proactive in their studies.

A final advantage of PBL pedagogy for language learning classrooms is the deep and constant emphasis on communicative interaction that is one of its defining features. Any hands-on language teacher has probably led students through pair work and group exercises like those specified in typical ESL textbooks. Most often a model conversation is presented in the text, and then students use this as a guide when doing information gap, question and answer, or more open-ended, simulated conversations. While the most motivated students may put much energy into these activities, average college students tend to just go through the motions, rarely striving for actual communication or fluency. The focus on working together to solve messy, complex real world problems ("Ill formed problems") in PBL changes everything, because now students really need to communicate and come to shared understandings in order to get the main work of the semester done. If students manage to do this work completely in the target language, they will be well ahead of traditional classrooms in terms of language immersion and usage. Because the complex problems and answers worked on by groups in PBL have considerably more weight than the simple fill in the blank

exercises in textbooks, students can get a much more realistic experience of purposeful communication in the target language.

What are the fuzzy, ill-formed problems central to the PBL pedagogy like? While the standards and guidelines for formulating good problems and projects in PBL have changed little over the years, one of the latest "gold standard" models has identified several design elements that characterize best practices in PBL. According to Lamer and Mergendoller, PBL focuses on key knowledge, understandings, and skills that are "authentic, challenging, …[and require] sustained inquiry." Furthermore, ideally these problems and topics will involve "student choice, repeated critique and revision", and will result in understandings that are communicated in some kind of "public products" (such as group presentations, film screenings, etc.) that transcend the limits of the classroom. (2015 pp.2-3) While this is just one formulation of PBL pedagogy, it gives a good idea of how ambitious the approach is and how much preparation and thinking need to go into any PBL curriculum.

Problems with PBL:

Applying PBL to language learning in university classrooms is not without difficulty. Extensive planning and research are required of instructors who need to match their courses carefully to student abilities. For example, as alluded to in passing in the last section, it is not always the case that students will "work completely in the target language" when doing group work. Especially in the case of lower level students who lack confidence and speaking ability, there is always the danger that groups will start working in L1 in order to save time or increase efficiency. Many Japanese language students dread making mistakes when speaking, so it is crucial that—at least in PBL classes—instructors make it clear from the beginning that perfect speech production is not the main goal nor is it the criterion for student grading. Students should be encouraged to use the L2 in a "rough and ready" fashion to get the job of communication and problem solving done. (www.dylan-project.org) Keeping the students in the target language is of fundamental importance in the case of using PBL for EFL courses.

Another potential sticking point in implementing a PBL language learning program has to do with the complexity of the 'ill-formed' problems at the heart of this approach. Because students will spend weeks or months working on the problems they need to solve, it is important that these problems cannot be overly simple, nor can their solutions be obvious. Faced with such problems, students will naturally wonder how they will be evaluated and graded for their work. Also, the inherent complexity and multidimensionality of these problems means that talking about them in a meaningful way will require more than rudimentary language production and comprehension skills in the target language. This requirement may preclude students at lower levels of language proficiency from being able to successfully learn and contribute in PBL language courses. (This is less the case with Team Based Learning—TBL—which is discussed in the final section of this paper.) Therefore, it is probably the case that PBL language courses will work better with advanced students, for example those who have just returned from overseas exchange study trips, than with lower level pupils.

Also, especially in countries like Japan where many students have had little experience or contact with native speakers of the target language, it is often the case that they find real value in top-down drills like pronunciation practice, question and answer, speech modeling, listening comprehension, and other traditional teaching techniques that are usually excluded from PBL classrooms. Partly for these reasons, it seems doubtful that PBL alone can give enough stimulus and structure to students to develop all of the areas of language learning that they will need to work on. In practice, most university level foreign language curricula will need to combine PBL (and TBL) techniques with other kinds of course work.

Team Based Learning (TBL)— a more structured approach to group learning:

Team Based Learning shares the same acronym with the much older "Task Based Learning," but they are completely different approaches to education. For example, the familiar summer vacation homework projects assigned for Japanese grade school (writing a journal, making a poster, growing flowers at home, etc.) are cases of Task Based Learning and are usually done individually, outside

of school. Team Based Learning (TBL), on the other hand, is done in groups, in the classroom, and under the supervision of the instructor who leads and facilitates the activity. TBL shares many general features with PBL and they are both sometimes used in combination in medical schools to build a curriculum, but they are by no means identical. Here I want to focus on some of the important differences that make TBL more useful, in many ways, than PBL for most foreign language learning applications.

First of all, TBL is more tightly structured than PBL, and the teacher plays a larger role in the educational process. Where in most PBL classes students themselves come up with the problems and questions they will focus their research on, in TBL the teacher prepares mandatory reading assignments, quizzes, and "applications" (activities) that will structure much of what goes on in class. As a result, the student "teams" in TBL classrooms will all be working on the same problems at the same time. This makes it easier for the instructor to monitor and direct student progress, and it also makes it possible for groups to communicate with other groups at various stages throughout the course. This simultaneity adds an interesting dynamic to the TBL learning process, fostering both curiosity about how other groups are dealing with the tasks at hand as well as good-natured competition to outdo each other. Naturally, this dynamic also promotes teamwork at the group level and drives individual students to work harder to support the success of their team. By having all of the teams present their answers to the entire class at each stage, students also gain valuable experience in presenting their ideas in English to their peers.

Secondly, the problems ("applications") dealt with in TBL are smaller, less complex, more focused and less time consuming than those in PBL. This makes them accessible to lower-level students and also makes them easier to schedule in the course of the semester. While TBL uses more compact kinds of problems, these applications should still be realistic, relevant, and thought provoking to students. In place of the fuzzy, ill-formed problems that characterize PBL, TBL applications are designed to force teams to make concrete choices and to be ready to justify those choices both verbally and in writing. What is more, like in

PBL, groups are encouraged to come up with imaginative extensions of their concepts and to share these with the entire class. For example, in a recent TBL workshop I participated in at Kyushu University each team was equipped with a whiteboard where they could sketch out graphic explanations to explain their answers to the applications under study. At a given point in the class period, the teacher had all of the students stand up and circulate around the room to compare their ideas with those of their peers. Quite naturally, members from different teams found themselves in conversations about their ideas and the graphical output of the various teams. Clearly, this kind of organized sharing can foster a variety of communicative interactions that are perfect for language learning classrooms.

Thirdly, unlike in PBL, TBL uses testing as a central part of the educational process. This 'Readiness Assurance Process' (RAP) consists of a straightforward test (based on pre-assigned homework readings) which is first taken by individuals before being done again immediately after, but this time as a group. Students on each team are encouraged to discuss their own ideas and to come up with a consensus as to what the official team answer should be. (This stage of the TBL process is extremely interactive, and is great for dynamic language production in EFL courses.) At this point in the RAP, groups report to the entire class and are able to compare their answers with those of other teams. In this way, students build rapport as they learn through experience how by working together they can improve both their learning and output.

This stage in the TBL process also gives the instructor insights into what areas of the homework might need further reinforcement or expansion to keep the class moving forward. A final interesting point about the RAP stage of TBL is that teams that get the wrong answer but feel there are extenuating circumstances (such as ambiguity in the question or problems with the so-called right answer) are able to file written appeals with the instructor. Later, the instructor can use these appeals to extend discussion in class, and at his or her discretion full or partial credit can be given to the team that filed the appeal. In this way, again, TBL is full of opportunities for interaction that will keep students on topic and motivated.

After the RAP phase of TBL is completed, students and their teams should be well prepared for the main activity: the "application" of what they have learned to a set of structured problems that have been prepared by the instructor. Whereas in PBL students are free to go in any direction they see fit to solve their ill formed problems, in TBL the applications are explicitly organized to force teams to make a series of choices that lead to a final solution or answer to the application. The stress on binary choice making—yes or no, up or down, black or white—makes the application stage relatively easy for even foreign language students to follow and participate in. Again, the fact that applications can be tailored to each educational situation is very useful for EFL classes: if students are at a more basic level in their studies, applications can be made smaller in scale and easier to answer. No matter what kind of application is used, once groups have solved this stage and come up with an answer, again they will share their final product with the class. Here again is more practice in presenting information in the target language. What is more, the members of each team will be given specific roles to play as they work on the applications. These include: resource manager, secretary, group ambassador, designer, and more. Students can be rotated through these positions at different times so that they all get experience in doing the different roles and the challenges that come with them.

Finally, after all the teams have reported their final answers to the entire class and free discussion has been held, it is important that the instructor does a debriefing based upon the work done by the entire class. This debriefing can either be done immediately following the class discussion or, especially in the case of larger classes and more complex application problems, at the following class session so that the teacher has more time to evaluate and respond to the creative output of the various teams. The debriefing is crucially important because it gives a further opportunity for students to reflect on what they have learned, what skills they were able to deploy, and what they still need to improve. Student self evaluations and peer evaluations are also submitted during the debriefing stage. In the case of language learning classes in particular, it seems reasonable to expect that teachers who have been mostly holding back from explicit instruction while playing a more tutorial role can use the debriefing session to give more

explicit instruction and practice to students so that they can pick up new patterns and vocabulary to try out in future TBL sessions.

Problems with TBL:

As explained in the section above, TBL is more tightly structured than PBL and more teacher-directed. Both of these features make it more workable in most language teaching settings, but there are potential problems that stem from these same features. Because the readings, the tests, and the applications have all been preselected by the instructor, students will not enjoy the same sense of discovery or ownership that comes about in successful PBL scenarios. Also, if the RAT tests or the applications are not well written and well matched to the interests and levels of the students, there is a possibility that they will not capture their interest or maximum effort. Moreover, TBL is less flexible than PBL, and this may be an issue with more advanced students who are looking to do their own exploratory work.

On a different level, in some ways the position of the instructor is more complicated in TBL than in PBL. In PBL the tutor is a neutral, helpful, counseling figure who mostly stays out of the way and lets students think for themselves. In TBL, however, the teacher plays all of these same roles but must also direct student interactions more often, must tell teams and students who got things "right" and who got them "wrong," and must either accept or reject appeals from different teams. There is a real danger in TBL that students will fall into a pattern of just working to please the teacher and to pass each stage of the process rather than achieving true autonomy and maximal group interaction. I would recommend that teachers get experience and confidence by leading smaller TBL sessions within more traditional style courses first before going ahead to devote entire semesters to TBL or PBL exclusively.

Combining PBL and TBL in the language classroom:

Finally, it makes sense to take the best features of both PBL and TBL in combination with more familiar language teaching techniques to create a more hybrid approach especially tailored for the EFL classroom. (Dolmans, et. al 2015) Progressing along a spectrum from highly structured and teacher-centered

towards less structured and more student-centered, one could imagine a language/content hybrid course beginning with lectures and exercises directed by the instructor that include practicing useful phrases and patterns for stating one's opinion in a group, asking for clarification, and coming to agreement, before moving on to readings and background discussions related to a common thematic area, followed by TBL style team-based RAT, then focused applications including presentations of group work to the entire class, and then finally—inspired by these foundational activities—a PBL break out section of the class where groups come up with their own problems and generate creative, original presentations to share at the end of the semester, perhaps in some more public forum that transcends the limits of the class itself.

To make such a hybrid course possible, it would be best if classes could extend beyond the usual 60 to 90 minute sessions so that students could do drills, practice conversations, hold group discussions, listen to lectures or watch audio visual resources, and do class-wide sharing sessions all with time to spare. Dedicated students and well-prepared teachers willing to take a chance on doing something new in the class room, it goes without saying, are necessary elements for such a project to ever get off the ground. Real innovation is just around the corner; I am looking forward to the exciting educational journey just ahead.

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