

# Problem-Based Learning in Public Administration: Teaching Ethics Online

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## Abstract

*This article describes Problem-Based Learning (PBL) as a teaching technique for web based courses. New research in cognitive development suggests that our current methods of teaching abstract concepts, such as those found in ethics courses in Public Administration, can be improved upon greatly. Though it is not a panacea for all the challenges of ethics education, PBL requires the learner to participate in a number of exercises that forces them to construct the concept in multiple dimensions. This new educational tool helps professors engage both the hearts and minds of students so that ethics education becomes a part of their new professional lives.*

## Introduction

Teachers of public sector professionals can use the **problem-based learning** (PBL) teaching technique with some very positive potential benefits. This is a technique of teaching that the field of medicine has widely practiced since the 1960s and public administration educators can easily adopt. For those with experience with case studies, the use of PBL is easy because of the similarity of the two approaches. The purpose of this article is to explain the PBL teaching technique and suggest that teachers in public administration might find it a powerful tool in teaching ethics in the traditional classroom but also in the virtual learning environment of an online course.

In traditional approaches to teaching ethics in public administration, students have a very difficult time bringing the lessons into their lives and retaining what was taught. Typically, students retain theoretical knowledge long enough to write a

paper or pass a test, but there is very little empirical evidence that ethics courses actually impact the behavior of students over the short and certainly not the long term (Williams, 2000). A possible reason is because the courses are typically not designed to change human behavior but rather simply to communicate concepts. Reflection and assimilation of the lessons are not easily done in fourteen weeks. Traditional approaches do not encourage students to question what they have learned nor to assimilate or integrate the lessons with previously acquired knowledge (Teo and Wong 2000). Thus, students' new knowledge remains external to them as individuals.

Researchers in cognitive development propose a variety of theories on how we learn, and in some cases pedagogies based on those theories (Changeux, 1985; Edleman, 1989; Gopnick, 1999; Squire, 1999). However, rather than looking at the differences in how people learn, we can look to the common elements in all of these theories. Learning can not happen without an active brain. The first salient fact of the physiology of the brain is its repeated use that stabilizes the neuron pathways of the brain. The second is continued use so that those pathways do not disintegrate. According to Robert N. Leamson (2001), Professor of Biology at the University of Massachusetts at Dartmouth, something is learned when it is both understood and remembered and these observations of brain biology have implications for how students study and how teachers teach. It is possible to remember words without understanding the concepts they imply, or to understand a concept when first encountering it but not be able to remember it in detail.

New imaging techniques demonstrate that different regions of the brain are active when the subject is struggling with an abstract concept then when they are memorizing a string of words. Therefore, it is possible to have memory without understanding. Without repeated use, understandings are weak because the neuron connections that enable understanding degenerate and the memory is lost (Leamson, 2001).

Assuming this biological explanation of learning, there are two essential elements required for learning. First is focused attention. As it is commonly called, concentration is at the biological level where the neuron connections in the brain try to "make sense" of a new idea. Second, once the brain makes the connection with the proverbial light going on for the learner, the subject needs to make repeated reconstruction of the concept for that particular circuit to become stable and capable of being reactivated or remembered.

Current practices in ethics education in public administration do not reflect an awareness of cognitive development. While we do not present PBL as a panacea for all the challenges of ethics education, it at least begins to address the issue of grappling with new and difficult abstract concepts and requires the learner to participate in a number of exercises that will repeat the construction of concept in multiple dimensions. Thus PBL accomplishes both the requirements for brain

function and cognitive development -- concentration and practice.

In three sections, this article explains this new educational tool, which helps the professor engage both the heart and mind of students in an ethics course so that ethics education becomes a part of their new professional lives. The first section explains PBL and how public administration educators can use it in the context of teaching ethics in public administration programs. The second section presents a practical illustration of how the PBL technique would work using a particular case study. The final section presents conclusions that spell out the advantages of PBL for ethics education, the educational realities that a teacher must understand to use PBL in ethics education, and some of the common reasons why PBL can be very challenging to a teacher/tutor.

## **Problem-Based Learning**

Problem-based learning changes the focus of the course curriculum from content centered to problem centered to provide a more realistic approach to learning. This shift creates an educational methodology which uses real world challenges, high order thinking skills, multi-disciplinary learning, independent thinking, team work, and communication skills (Neo and Neo, 2001; Tan, 2000). PBL uses something similar to the familiar case study that public administration educators have used with varying degrees of success for many decades. However, PBL educators must structure and use the case studies with a particular method of learning firmly in mind. The teacher wants the student to first encounter the problem. Next, the student should follow a systematic, student-centered inquiry process. The purpose behind PBL is to create in the student a positive attitude towards seeking knowledge. However, this approach to problem solving is not willy-nilly, it follows a prescribed method of researching which helps the student approach the problem in a fruitful manner. Schwartz, Mennin and Web (2001) note the teacher's purpose in PBL is to have the student work with the problem in the following manner:

- First encounter a problem "cold," without doing any preparatory study in the area of the problem,
- Interact with the other students in a small group to explore their existing knowledge as it relates to the problem,
- Form and test hypotheses about the underlying mechanism that might account for the problem up to their current levels of knowledge,
- Identify further learning needs for making progress with the problem,
- Undertake self-study between group meetings to satisfy the identified learning needs,
- Return to the group to integrate the newly gained knowledge and apply it to the problem,
- Repeat the earlier steps as necessary, and

- Reflect on the process and on the content that the students learned in this process of learning.

In PBL, the professor places the students into small groups with a faculty teacher/tutor. The role of the tutor is to facilitate the discussions but more significantly to bring the students back to reflect upon their learning that took place in their small group. The role of the tutor is not to provide a direct source of information for the group. The latter point is important because normally students using the case study method focus their minds on the what-ifs of the case. But the real purpose of the PBL is the larger lessons that happen in the small group process that are largely ignored in the process of focusing on the case problem.

To extend this contention further, the use of multimedia technologies for teaching and learning further develop the students' ability to become creative and critical thinkers, analyzers and problem solvers (Neo and Neo, 2001). This constructivist learning style directs the students to participate actively in their own learning process and construct their own knowledge (Jonassen, Peck and Wilson, 1999). In the context of modern teaching technology, PBL can use the tools found in such software platforms as Blackboard, or Web CT that use a discussion board. The professor can post the case material on the course web site, divide the class into groups of approximately six, set deadlines, and have the students discuss the case problem using the asynchronous discussion board forums. For each forum, the professor tells the class that one of them is the leader, another is the group reporter, and the others are discussants. The group has one week to explore and discuss the problem, which for traditional class students can begin in a computer lab during class time.

The leader encourages each group member to engage in the forum's first thread, which is to merely talk about the case problem with zero preparation. Then the leader asks each student to address the second thread by articulating what they know that can contribute to understanding the problem and how correctly to address the problem to help reach a solution. Making sure the students address the thread topics in the correct place is important but not essential. However, applying the correct order of threads should increase the student's critical awareness of what he or she needs to learn. The leader should ask each student to confront the third thread. Here the student needs to become a member of the group and act as a group member to propose a test hypothesis concerning the underlying mechanism that the group believes might account for the problem based on their current levels of knowledge.

As the PBL process continues, the fourth thread has the group members identify their own further information needs so that they can make better progress with solving the problem. At this point, independent research is essential. The fifth thread is for the group to report back the results of the self-study between and among group members to satisfy the identified learning needs. Once done, the

group reporter integrates the newly gained knowledge and suggests its application to the problem.

The group members review the report and decide if they are satisfied that their new knowledge will allow them to come to a useful and knowledgeable solution to the problem. If not, they must repeat the previous threads until such time as they are satisfied. Upon their group declaration of satisfaction, then each member states his or her reflections on the process and what content they learned with PBL in this case situation. The reporter takes the various posted comments and prepares a summary report for the teacher/tutor and the group.

The role of the teacher/tutor, who may or may not be the professor, is to monitor the discussion and interact with the group only when necessary. The teacher/tutor must make sure the group leader is doing his or her job correctly. If there are problems, the teacher/tutor can raise the question on the appropriate discussion thread or possibly by means of a direct email to the leader or group member, who is not acting consistently with PBL.

In a posting on the course web site, the teacher/tutor, under the guidance of the professor, needs to give the group a sense of forum deadlines, milestones, and assignments. Therefore, the teacher/tutor must post and update the forum schedule as necessary on the course web site. In student posting on each discussion board forum, each person needs to adequately address each thread and possibly even repeat the entire process regardless of the first deadlines. Handling exceptions to the schedule and posting those exceptions is part of the responsibility of the teacher/tutor.

The professor has the leader grade the group members based on a very detailed rubric posted for everyone to see on the course web site. Because there are six forums in each semester class, the roles in the group rotate and each member has the opportunity to be a leader, a reporter, and a discussant four times. If the group process works correctly, the role of the teacher/tutor is to monitor the learning situation and intervene when necessary to help the learning process. Ideally, there will be an almost zero need for the teacher/tutor to interact with the actual group discussion board effort. Realistically, some interventions are necessary to deal with learning problems, as discussed later.

PBL is a student centered learning process with the purpose to teach students life long self-learning skills. It is not banking education in which the teacher gives the information to the student and expects the student to merely repeat the key points back to the teacher at examination time. Instead, it is a form of liberating education in which the student is taught how to learn and how to apply that new knowledge, skill, or competency by using them in a practical situation (Freire, 1973 and 1993). Therefore, the professor must ensure that all the learning materials needed for the forum work is either posted on the web site, made available through external links or available in traditional formats in hand outs, text

books, and library materials. The students must do the research but the professor should make it possible for them to succeed.

Does PBL work? Does it really teach student what they need to know in a professional education environment? Fortunately, research (Albanese and Mitchell, 1993; Schmidt et al, 1987; Vernon and Blake, 1993) does exist that addresses those questions in the context of learning medicine by teaching with PBL over a period of forty plus years. According to Schwartz, Mennin and Web (2001), their results were:

- PBL students perform as well as or slightly less well than students from more traditional teaching of basic medical science
- PBL students were superior to their counterparts in respect to:
  - ✓ Being able to study for understanding rather than short recall
  - ✓ Long-term knowledge retention
  - ✓ Clinical performance
  - ✓ Knowledge of clinical sciences
  - ✓ Ratings by supervisors as postgraduates
  - ✓ Motivation for learning
  - ✓ Being more positive about their education
  - ✓ Perceiving less stress during their education
  - ✓ Knowing how to use resources for learning
- Faculty members teaching PBL students were more positive about their role and the teaching process
- The cost of PBL education is comparable to traditional classes of up to about 100 students.

Furthermore, student evaluations show that not only did the students do well academically; they also enjoyed the collaborative team approach to learning, and acquired some key competencies in technology (Neo and Neo, 2001).

## **An Illustration**

The previous section of the paper provides a useful understanding of PBL. This section addresses how a teacher would use this approach to teach ethics in the public sector. The assumption made is that professors would use PBL in the context of an ethics class in which the professor would first teach the student the basics of ethics during the first portion of the class and that the professor would use the PBL in the final 9 to 7 weeks in a fifteen week class. The professor could teach such a course in a hybrid web-based plus caulk and talk lecture method that used movable class room chairs to set up small in class groups. Alternatively, the professor could use a total web-based environment. In both situations, the student

would extensively use a platform like Blackboard or Web CT for the PBL discussion board forums, which this paper will explain later. The teacher would create six forums using ethics case studies designed to force the students to confront normal ethical problems found in the public sector environment but also cases that required a broad range of ethics knowledge.

What follows is an example of one of six forums in a semester class. This assumes the students know their role in the group, the essential milestones and deadlines of their forum, and the rubric used to grade their performance in the group. The professor would post the following words in the forum:

### **Small Town Fraud.**

Based on the report of the state auditor, the police just arrested a woman in her late forties that most people in the small town considered as one of their own with deep ties to the local church. She was the town clerk, who served in the role for over 27 years, and was deeply loved for her positive attitude about her job and her community. She had three daughters with the oldest being just married and 25 years of age. The whole town celebrated the wedding and was so proud of this single mom for raising such wonderful children.

She also embezzled the town's money over the past five years. She started with a few self loans from town money to herself when she was lacking money. She had first re-paid the self loans but over time she just could not do so. To her, the wedding of her daughter was important and expensive. It proved her undoing because hiding such a large amount of stolen money proved impossible and brought in the State Auditors who discovered her crime.

The mayor appointed a special task force to confront the problem of a trusted employee stealing town money and you are on that task force. What went wrong? From the point of view of the former town clerk, what should have happened to make this very real tragedy less likely to have occurred? From the point of view of the town and the leadership of the town, what should they have done to lessen the likelihood of this occurring? The mayor needs a report addressing those questions.

Your challenge for this forum is not to write the report. Rather, it is to define what knowledge you should collectively need to learn in order to properly write this report. Go beyond the knowledge of the case to the knowledge of ethics particularly important in preparing the requested report.

Notice the twist of the PBL approach. The answer is really not important in this approach. Instead, the teaching focus shifts to what the student should know to address properly the challenge of preparing the report. Thus, the major challenge for the teacher/tutor is keeping the students on focus and not discussing the content of the final report. This requires setting up the threads of the forum. The following table presents those possible threads:

Illustration One: Threads and Their Wording

THREADS	WORDING OF THREADS
First	From your perspective, as a student reading the case for the first time, discuss the case problem and what you need to know to start to address the report's assignment.
Second	Articulate what you know from this class and your experiences about ethics that can contribute to understanding the problem and how to correctly address the problem in order to reach a problem solution.
Third	Individually propose a test hypotheses concerning the underlying mechanism that you believe might account for the problem based on your current levels of knowledge. Next, as a group, decide on the test hypotheses.
Fourth	Identify your own group information needs so that you collectively can make better progress with solving the problem. You will need to do some independent self-study or research once you have identified that need.
Fifth	Report the results of your self-study between and among group members on this thread to satisfy the identified learning needs.
Sixth	Once you have completed the fifth thread, the group reporter must integrate the newly gained group knowledge and explain how the group would apply the knowledge to this problem. On this thread, report your reaction to the work of the reporter. Now, the group must review the reporter's work and decide if they are satisfied that their new knowledge level will allow them to address correctly the assigned problem.

Seventh	If the answer is yes and there is consensus on the yes answer, go on to thread eight. If the answer in thread six is that the new knowledge would <b>not</b> permit the group to address the assigned problem, then the group needs to repeat the earlier steps as necessary. In this thread, the group members need to vote yes or no and with one or more no votes meaning a no for the group.
Eighth	Each member states his or her reflections on the process and what content he or she learned personally with PBL in this case situation. After this is done, the reporter takes the various posted comments and prepares a summary report for the teacher/tutor and the group.

Notice the role of the reporter and how the threads build from one to the next. Realize also that the members of the group can also attach files to their comments as they involve themselves with the discussion board forum. The reporter needs to report at two points in the process: threads six and eight. In both situations, the purpose of the report is to pull together the views of the whole group. However, the larger educational purpose is to give the reporter the experience of summarizing and bring synthesis to the work of others.

Once the group finishes eighth threads and the reporter finishes the final report, the leader must provide an assessment of content, expression, and participation for each member of the group. This must be done using the teacher posted rubric. The leader needs to decide the grade using the details of the rubric (developed from Bauer and Anderson, 2000) that applies the following elements.

- 10 points for just providing one comment,
- 30 points for content,
- 30 points for experience, and
- 30 points for participation.

In awarding the 30 points for content, the leader uses the following guideline:

#### Illustration Two: Points Award for Content

Number of Points Awarded	Skills Demonstrated in the Forum
27 to 30	Demonstrates excellence in grasping the key concepts; positively critiques the work of others without being offensive; provides ample evidence of support for stated opinions; readily offers new interpretations and information of the discussed materials  Shows evidence of understanding most of the major concepts in the assigned class

21 to 26	materials; is able to agree or disagree when prompted; shows some skill in being able to support his or her opinions; offers an occasional divergent viewpoint from the group
15 to 20	Has demonstrated only a shallow grasp of the course material; offers inadequate levels of support for his or her ideas mentioned in the discussion
0 to 14	Shows no significant understanding of the material assigned.

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In awarding the 30 points for expression, the leader should use the following guideline:

#### Illustration Three: Points Awarded for Expression

Number of Points Awarded	Skills Demonstrated in the Forum
27 to 30	Uses complex, grammatically correct sentences on a regular basis; expresses ideas clearly, concisely, cogently without the use of the indefinite it or passive voice; presents ideas in a logical fashion using a clear thesis and development of thought; uses words that demonstrates a strong vocabulary; has rare misspelling; stays on topic and covers the full range of the topic
21 to 26	Sentences are generally grammatically correct; ideas are readily understood but does show signs of disorganization; some transition between concepts are missing; there are occasional misspelling, especially with homonyms not detected with spell checking.
15 to 20	Poor use of the language and garbles much of the message; only an occasional idea surfaces clearly; language is disjointed; there is overuse of the simple sentence and repetition of words; paragraphs are often unrelated to each other.
0 to 14	Writing is largely unintelligible.

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In awarding grades for the participation, the leader uses the following guidelines:

#### Illustration Four: Points Awarded for Participation

Number of Points Awarded	Skills Demonstrated in the Forum
27 to 30	Contributes with prompt, timely, relevant, self-initiated comments; gives postings freely on all aspects of the forum; no attempt is made to dominate the forum
21 to 26	Keeps up with the discussion; needs an occasional prompting to contribute; might participate in some discussions more than others
15 to 20	Participation is spotty; picks and choose topics to get involved in; offers short, perfunctory postings when prompted; takes limited initiative.
0 to 14	Rarely participates freely; makes short, irrelevant remarks.

When forum leaders submit their grade assessment, the teacher/tutor requires them to use the following table:

Illustration Five: Format to Submit Grades

Discussant	Minimum	Content	Expression	Participation	Total
Name					

When the leader grades the reporter, the leader must provide an assessment of promptness, content, and expression. In communicating the grade to the instructor, the leader should use the following guideline and mention the score for each element:

- 40 points for promptness,

- 30 points for content, and
- 30 points for expression.

In awarding the 40 points for promptness, the leader should use the following guideline:

Illustration Six: Points Awarded Reporter for Promptness

Number of Points Awarded	Skills Demonstrated in the Forum
31 to 40	Sent the assigned reports on time and was received by the leader on time
21 to 30	Sent the assigned report on time but the leader was not able to receive it in a timely manner
11 to 20	Sent but only late by 24 hours
0 to 10	Was not sent or late by more than 24 hours

In awarding the 30 points for content, the leader should use the following guideline:

Illustration Seven: Points Awarded Reporter for Content

Number of Points Awarded	Skills Demonstrated in the Forum
27 to 30	Demonstrates excellence in grasping the key concepts; accurately reflects the ideas and debate in the forum; provides ample evidence of the stated opinions; readily offers a simple but elegant interpretation of the forum discussion.

21 to 26	Shows evidence of understanding most of the forum discussion
15 to 20	Has demonstrated only a shallow grasp of what was said in the forum
0 to 14	Shows no significant understanding of the forum discussion

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In awarding the 30 points for expression, the leader should use the following guideline:

Illustration Eight: Points Awarded Reporter for Promptness

Number of Points Awarded	Skills Demonstrated in the Forum
27 to 30	Uses complex, grammatically correct sentences on a regular basis; expresses ideas clearly, concisely, cogently without the use of the indefinite it or passive voice; presents ideas in a logical fashion using a clear thesis and development of thought; uses words that demonstrates a strong vocabulary; has rare misspelling; stays on topic and covers the full range of the topic
21 to 26	Sentences are generally grammatically correct; ideas are readily understood but does show signs of disorganization; some transition between concepts are missing; there are occasional misspelling, especially with homonyms not detected with spell checking.
15 to 20	Poor use of the language and garbles much of the message; only an occasional idea surfaces clearly; language is disjointed; there is overuse of the simple sentence and repetition of words; paragraphs are often unrelated to each other.
0 to 14	Writing is largely unintelligible.

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When forum leaders submit their grade assessment for the reporter, they should provide the following information: the reporter's name, the forum name and date, the group name, and the assessment points for promptness, content, expression, and total points awarded. The reporter should send his or her complete report promptly to the teacher/tutor via the drop box, maintain a copy for his or her files, and sent the report to the group leader. Both the leader and reporter should send copies of their reports to the entire group. The leader must understand the need to only share a person's grade with that person and the teacher/tutor. The leader's report is important because students want to know their numerical assessment. Therefore, the leader's report needs to include the reason for

assessment so the group members have information that permits them to improve themselves in the future.

## **Conclusions**

The Committee on Learning Research and Education and Educational Practice (2001) cite three key findings in their published report. First, "Students come into the classroom with preconceptions about how the world works. If the teacher does not engage their initial understanding, students may fail to grasp new concepts and information that are taught, or they may learn them superficially for the purposes of a test but revert to their preconceptions outside the classroom" (Donavan et al., 2001:10). This is a particularly important finding for teaching ethics. Second, "to develop competence in an area of inquiry, students must: (a) have a deep foundation of factual knowledge, (b) understand facts and ideas in the context of a conceptual framework, and (c) organize knowledge in ways that facilitate retrieval and application" (Donavan et al., 2001:12). This affirms the earlier discussion on the biological reasoning on how people learn. Finally third, "a meta-cognitive approach to instruction can help students learn to take control of their own learning by defining learning goals and monitoring their progress in achieving them" (Donavan et al., 2001:13). These three findings of National Research Council's The Committee on Learning Research and Education and Educational Practice support and confirm the wisdom of the PBL teaching technique.

The advantages of the PBL teaching technique in the context of ethics education are important. Firstly, most students of ethics in public administration have a great deal of difficulty applying the concepts learned about ethics into practical situations they must face. What the PBL technique does is forces them to those connections and to search the theoretical literature for concepts applicable to the practical. Secondly, ethics tends to be uninteresting to many students because they simply cannot see how the topic might make a difference in their lives. PBL brings the subject alive and forces them to see the relevance of complex theory. Thirdly, the need to confront various perspectives in considering ethical problems is critical. The PBL experience forces them to learn how to work with a difficult subject as a member of a group. Fourthly, group efforts require people to take on more than one role: leader, reporter, and discussant. As described here, PBL helps the students to learn and master each role because of the rotation of assignments over six forums in the semester.

For PBL to be a useful tool in the context of ethics education for professionals, the teacher needs to appreciate some important realities. Although students, who wish to be professionals, feel they can deal with ethical challenges,

most are novices in terms of their understanding of the complex array of ethical information that is important to understand when they assess a practical situation. Most ethical issues are not black and white, but rather varying shades of gray depending on the situation and the context. There is no one-size-fits-all in finding solutions and applying remedies. Thus, PBL at least exposes them to the realization that they need a wide range of essential knowledge when confronting the challenges of ethics in the work place.

Knowledge about ethics is important but after a few weeks of teaching ethics theories and concepts, the teaching techniques should shift from knowledge transfer to PBL. Because use of the computer for class purposes is a new experience for some public administration students, a university trainer or the teacher/tutor needs to explain to students how to engage in a discussion board, how to think in the context of a PBL, and how to use the rubric as illustrated earlier. For example, the teacher would be wise to post examples of forum content to show students what is a “good, ok, or poor” performance in terms of the rubric. Many students typically just do not have a clear vision of how to proceed without that extra information.

Teachers/tutors will find that PBL is a teaching challenge (see Schwartz, Mennin and Web, 2001 for an in-depth treatment), especially when the teacher/tutor must intervene in the group dynamics of the discussion board forum. Such interventions require knowledge of the group and how to tailor the intervention for the learning problem in the group. As noted earlier, ideally and in most circumstances, the teacher/tutor wants the students to self learn but there are times where intervention maybe necessary. For example, if the group or leader does just not comprehend, then the teacher/tutor intervention is critical.

Often when first exposed to PBL, students are confused about self-directed learning. The teacher/tutor may need to spell out the concept several times with various examples for some students. Typically, getting students to integrate knowledge and learning is difficult and an active intervention that spells out how to do the integration maybe essential. Another problem is when the mature students take control of the group and thus rob the learning process for the less mature students. Again, an active intervention becomes essential, as the forum should be a total group experience. Another big challenge is when a good student does not learn as much as necessary because of the weak performance of the group. Here again, intervention is necessary and possibly a re-structuring of the groups might be the solution.

PBL is a complex teaching tool that the teacher/tutor must adapt to the group situation. For public administration teaching, it is a new tool that a teacher/tutor can find useful in ethics education to engage both the hearts and minds of the students with real life challenges. Because PBL embraces teaching responsibility, it is a powerful tool in teaching public administration.

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