

Against All Odds: 20 Years of PBL in the Philippines

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Since 1994, eight (8) medical schools were documented to have adopted Problem-Based Learning as an educational approach in the Philippines and by 2014, five (5) are still in PBL while three (3) decided, after few years of implementation, to shift back to the traditional curriculum. What can we learn from the experiences of these schools? This study looked into the factors that influenced schools' decision to adopt then abandon, or continue using PBL. A survey was conducted among administrators of the eight (8) medical schools using a questionnaire that asked both close and open ended questions. Quantitative data were analyzed using Excel while response to open ended questions were analyzed using Nvivo 10. Results show that there is a strong relationship between age of school, total student population and length of PBL implementation. Results also show that preparedness in all aspects of PBL implementation, can offset the impact of school's age and student population due to more positive attitude of administrators, faculty, and students toward innovation and change. While graduates' performance in the National Licensure Examination (NLE) for Physician is the most often cited reason for abandoning or not embracing PBL, results have shown that there is no difference in NLE performance between graduates of post-PBL and PBL schools. Graduates of PBL schools actually performed better overall compared to the rest of the non PBL schools. Experiences of the eight (8) schools highlighted the importance of implementing PBL right the first time and for the right reasons. Overall, schools that opted to continue with PBL proved to their Philippine medical school counterparts, that PBL works and deserves another look especially with the upcoming national implementation of Outcome-Based Education. On the traditional schools that opted to go back to traditional curriculum, they brought back with them the best of small-group and case-based learning.

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INTRODUCTION

PBL is considered as one of the most significant innovation in health professions education. It is described as “an instructional method characterized by the use of patient problems as a context for students to learn problem-solving skills and acquire knowledge about basic and clinical sciences (Albanese & Mitchell, 1993).” But it is also important to emphasize that PBL is not just about students solving patient problems. According to Maudsley (1999) “PBL is both method and philosophy with the purpose of promoting efficient knowledge handling and transfer in a stimulating context.”

PBL officially landed in the Philippines in 1994 when two medical schools reformatted their medical education curriculum to PBL. In a period of 20 years, about eight (8) (After the data collection, the author came to know that 2-3 more schools may have actually adopted PBL as approach in implementing their respective Doctor of Medicine program.) schools were fully documented to have embraced PBL. In the same span of years, five (5) maintained their PBL curriculum and three (3) eventually decided to abandon PBL all together, shifting back to traditional curriculum after several years of implementation. While anecdotes were shared with respect to PBL implementation in the Philippines, the author have not come across any literature in the same area. The author believes that the experiences of these eight (8) schools can provide important lessons on how to implement and sustain PBL curriculum in the Philippine context.

The aim of this study is provide a general picture of PBL implementation from 1994 to 2014. Specifically, the study would like to 1) identify the factors that influenced schools’ decision to

continue or abandon PBL, 2) identify problems encountered during PBL implementation and the interventions used to address these problems, 3) compare performance of graduates of PBL schools to graduates of other medical schools in the National Licensure Examination, and 4) recommend strategies on how to further strengthen of PBL implementation in the country.

MATERIALS AND METHODS

A PBL status e-survey form containing close and open ended questions was sent to the dean of all eight (8) medical schools known to have utilized PBL as their approach in medical education from 1994 – 2014, with a 100% return rate. To mask the identity of participating schools, names are coded and data on actual year of founding and start of PBL were removed in the report. Quantitative data were encoded using Excel[®] while answers to open ended questions were encoded using Word[®]. No attempt was made to clarify responses to open ended questions. Excel[®] was used to calculate descriptive statistics, correlation coefficient and in generating scatter plots. To determine response patterns for open ended questions, matrix coding queries were done using NVivo[®] (NVivo is software that supports qualitative and mixed methods research.) 10 for Windows.

RESULTS

Status of PBL schools in the Philippines

Out of the eight (8) medical schools included in this study, four (4) are still using PBL (mean of 14.74 years), three (3) returned to traditional curriculum (mean of 7 years), and one (1) is on its first year of operation as a duly recognized medical school. In terms of age, four of the continuing

Table 1. List of PBL schools according to age when PBL started, and Total years of PBL implementation.

School Code	Age of School @ start of PBL	Total Years of PBL Implementation	\bar{x} total years of PBL implementation
Post PBL 3	> 50 yeas	3 years	\bar{x} # years under PBL = 7 years
Post PBL 1	49	8 years	
Post PBL 2	42	10 years	
PBL 2	44	14 years	\bar{x} # years under PBL = 14.74 years
PBL 3	27	13 years	
PBL 4	20	12 years	
PBL 1	10	20 years	
PBL 5	Year 1	1 year	Not included in the calculation

schools are relatively young (range of 10-44 years) while the three post PBL schools have been in operation longer than 40 years.

A Pearson product-moment correlation coefficient was computed to assess the relationship between the age of school and years of PBL implementation. Result shows that there is a strong negative correlation between the two variables, $r = -0.80069$. A scatterplot summarizes the results (Figure 1).

In terms of student population, the four continuing schools have a total student population (first to fourth year) ranging from 249 to 638 with a mean of 411.25, while the three post PBL schools have a total student population ranging from 356 to 1967 with a mean of 1,174 (see Table 2).

A Pearson product-moment correlation coefficient was computed to determine the relationship between the size of student population and years of PBL implementation. Result shows that there is a strong negative correlation between the two variables, $r = -0.7491$. A scatterplot summarizes the results (Figure 2).

Reasons for embracing PBL

Results show that the two groups have marked differences on the circumstances that led to the

shift towards PBL (Table 3). Two schools that have returned back to traditional curriculum gave related reasons, either internal or external influence. One respondent said they were just convinced by the Association of Philippine Medical Colleges (APMC) to quote: “*It was APMC who convinced (mandated) us to go to PBL <Post PBL 1>*,” while the other shared that the move to PBL was mainly due to influence of the dean to quote: “*Started PBL in 2001 upon the initiative of the former dean who was quite partial to PBL <Post PBL 3>*.”

On the other hand, those who have continued PBL shared more intrinsic reasons for doing PBL. One reason given was response to the global call for innovation and to be different: “*The clamor for innovative, integrative, globally competitive school of medicine. The CHEDs technical panel recommendation to be different from other schools <PBL 5>*”; *PBL as a learning strategy started at ___ in 2002 as a response to an increasing demand for innovative learning strategies in teaching medical students. The school deemed it necessary to embark on PBL as other schools have also considered the shift <PBL 3>*.”

For other continuing schools, the shift to PBL was a result of their being convinced of the effectiveness of PBL. “*The shift to a student-*

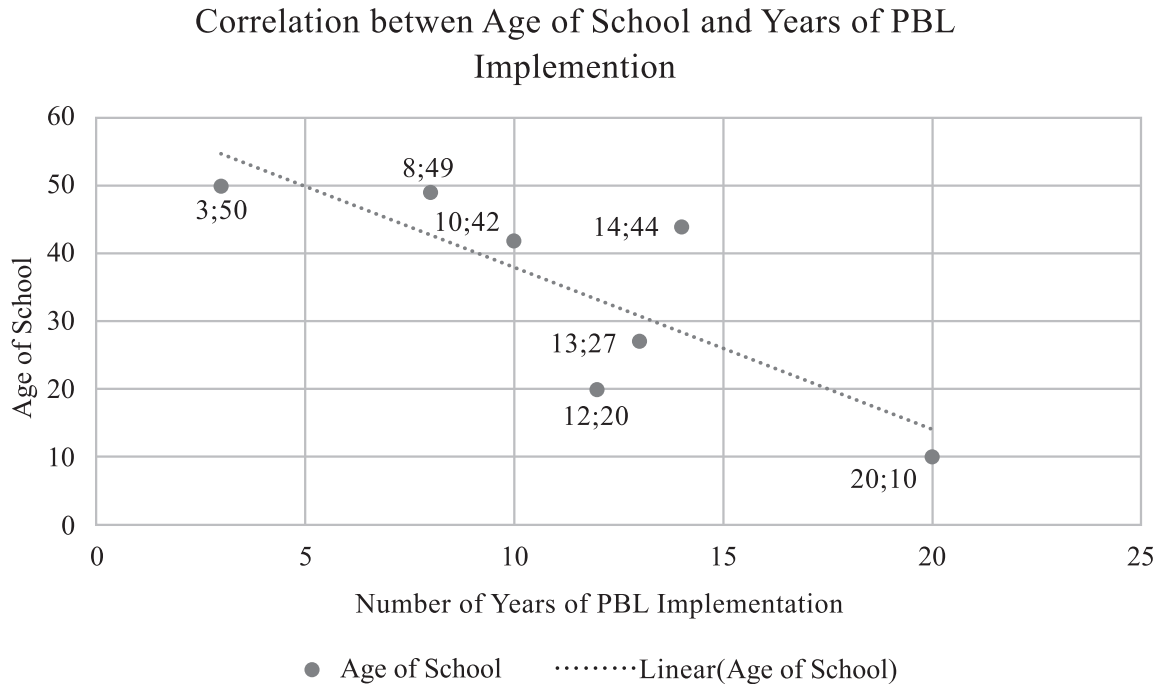


Figure 1. Scatter plot showing strong negative correlation between age of school and length of PBL implementation.

Table 2. Schools and total number of students for SY 2014-2015.

School Code	Number of Students by year level (SY 2014-2015)					Student Population range and mean
	First	Second	Third	Fourth	Total	
Post PBL 3	525	511	478	453	1967	Range: 356 – 1967 Total Mean: 1,174.33
Post PBL 1	110	90	100	53	356	
Post PBL 2	400	400	400	400	1200	Range: 249 – 638 Total Mean: 411.25
PBL 2	189	164	144	141	638	
PBL 3	134	69	63	75	341	Range: 249 – 638 Total Mean: 411.25
PBL 4	112	111	100	95	417	
PBL 1	59	63	61	66	249	Not included in calculation
PBL 5	62					

centered, problem based methodology was mainly because of the generic competencies that can be developed in the medical students; and more importantly PBL can foster in students to become self-directed learners and critical thinkers <PBL

2>.”

Still for other continuing schools, the shift was a strategic response to dwindling enrollment and difficulty in getting lecturers.

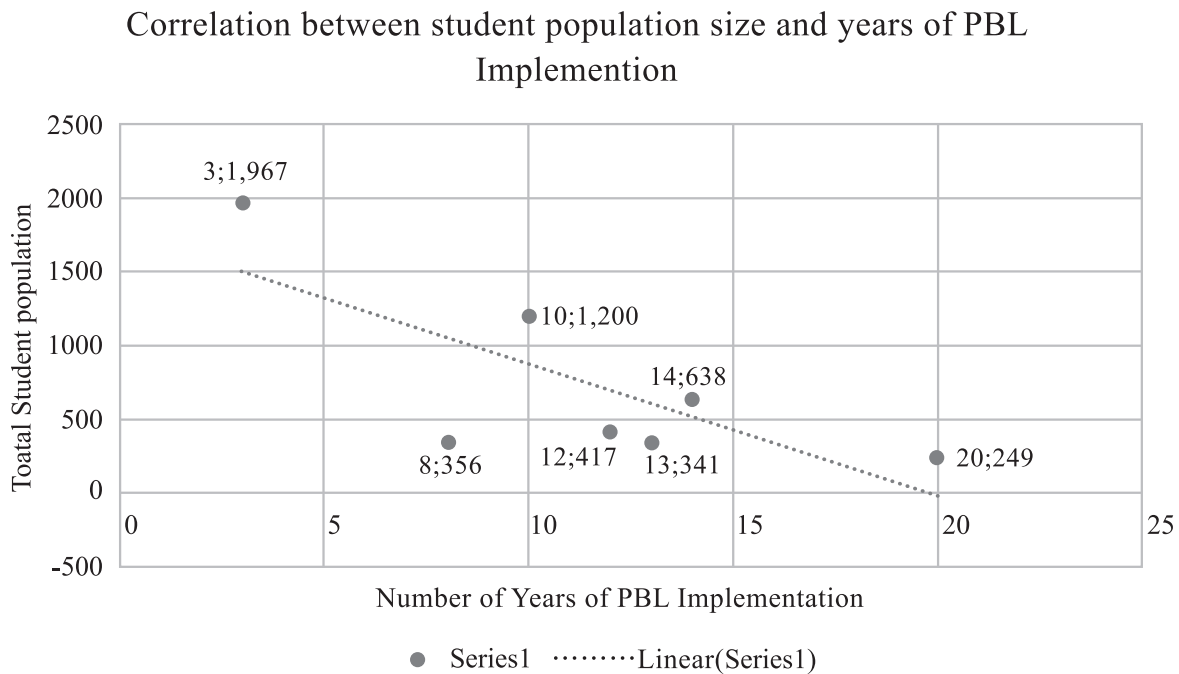


Figure 2. Scatter plot showing negative linear correlation between total school population and length of PBL implementation.

Table 3. Reasons for embracing PBL generated using NVivo® Matrix Coding Query

Reasons for Embracing PBL	Number of Citations by PBL Status	
	Ongoing	Back to Traditional
Response to call for innovation	2	0
Practical reasons	2	0
Convinced with PBL	1	0
APMC influenced	0	1
School Leadership partial to PBL	0	1

“The primary reason for the shift was the difficulty in getting lecturers for the different subjects and getting the lectures delivered on time. So students ended up studying the topics by themselves <PBL 1>,” and “there were two reasons at that time: there was a decline in the number of applicants, and there was difficulty in recruiting full-time faculty to

teach in the basic sciences <PBL 4>.”

Problems encountered during PBL implementation

Using matrix coding query, eight (8) problem areas were identified, five (5) of them by respondents from PBL schools and three (3) by respondents from post-PBL schools. The

Table 4. Problems encountered during PBL implantation generated using NVivo® Matrix coding query.

Problem Area/Category	Number of citations		Actual Responses
	PBL	Post PBL	
1. Faculty requirement	4	0	<i>“Lack of full time faculty.” <PBL 5></i> <i>“Lack/absence of tutors for PBL sessions.” <PBL 1></i> <i>“Labor intensive in terms of faculty requirements, trainings and workshops.” <PBL 3></i>
2. Faculty preparedness	3	0	<i>“Apprehension and inadequacy of certain faculty in facilitation skills.” <PBL 2></i> <i>“New tutors have difficulty adjusting to the technique.” <PBL 1></i> <i>“The most common problem encountered is late or absent facilitators or facilitators (mostly clinicians) who call in with emergencies at the last minute.” <PBL 4></i>
3. Preparation needed	3	0	<i>Module creation and evaluation.” <PBL 5></i> <i>The clinical aspect of the curriculum was not able to keep pace with the academic pace of PBL. <PBL 2></i> <i>Tedious preparation of tutorial materials, schedules and alignment of curriculum. <PBL 3></i>
4. Inadequacy of materials	1	0	<i>The inadequacy of learning materials and library resources. <PBL 2></i>
5. Physical set-up	1	0	<i>Constraints in the physical set up of the school. Lack of tutorial rooms. <PBL 2></i>
6. Preference of students	0	2	<i>“The students are not also doing their share of the deal.” <Post PBL 3></i> <i>“Students were clamoring for more lectures as in the traditional method” <Post PBL 3></i>
7. Assessment of outcomes	0	1	<i>The most common problem was the need to keep giving assessments every two weeks, with only one test containing 100 items that was a combination of items from several disciplines (e.g. anatomy, biochemistry and physiology).” <Post PBL 2></i>
8. Cooperation of faculty	0	1	<i>“noncooperation of a big portion of the faculty.” <Post PBL 3></i>
Total Citations	12	4	

most cited problems by PBL schools are faculty requirement, faculty preparedness, and need for more preparation. Post-PBL schools cited as problems students' preference for lecture, student assessment, and uncooperative faculty (Table 4).

Word frequency analysis using NVivo® of encoded responses to query about PBL implementation problems showed that faculty, faculty related items and students are the most frequently mentioned words (Figure 3).

Response to implementation problems

In terms of each school's respective response to identified PBL implementation problems, PBL schools have employed myriad of interventions including team teaching, physical re-engineering, continuous faculty recruitment and development, and even recycling of cases. Only one respondent from post-PBL answered the question and gave the blanket response *“we had to give it (PBL) up.”* Details of response are shown in Table 5.

Table 5. List of Interventions to address PBL implementation problems generated using NVivo Matrix Query function.

Interventions	PBL Status		
	PBL	Post PBL	Actual Response
Team teaching	3	0	“Some faculty act as reliever tutors.” <PBL 1> “Pairing with more seasoned tutors.” <PBL 1> “The module coordinator takes over the group discussion of the absent facilitator. We also maintain a pool of substitute facilitators in each year level and clinical department.” <PBL 4>
Physical re-engineering	3	0	“Redesigned the lecture rooms and laboratory room into several tutorial rooms. At the beginning the construction was temporary wherein a divider converted the classrooms into two tutorial rooms. Now the construction is permanent.” <PBL 2> “Conversion of the school premises to a Wi-Fi zone for all students and faculty. Purchase of the Clinical Key as a resource center for both faculty and students.” <PBL 2> “The clinical skills laboratory was constructed to provide a structured learning environment for clinical and attitudinal skills of our higher year students.” <PBL 2>
more faculty	2	0	“Still in the process of recruitment.” <PBL 5> “Had to add more faculty on a part-time capacity.” <PBL 3>
faculty development	2	0	Held annual seminars/workshops on facilitation. <PBL 2> “MEU had lectures/seminars/workshops on test construction, group dynamics, giving feedbacks, module making, OSCE and other clinical evaluation tools.” <PBL 2>
Regular Faculty reminders	1	0	“Reminding faculty to submit modules and examination question.” <PBL 5>
recycle cases	1	0	“Had to occasionally recycle some cases.” <PBL 3>
Give it up	0	1	“We had to give it up.” <Post PBL 1>

academic year I can attest that the curriculum is tough. Considering the bulk of topics that must be covered in a given period, this approach in the study of medicine can be very fast-paced and overwhelming at certain points. Sometimes, I find it frustrating to try to finish modules in one night and feel inadequate in the SGD of the following day. This approach can be very exhausting and challenging, but what is good about it is that it engages students to become self-directed learners. Furthermore, it trains and motivates students to become life-long learners as well.

Students in this curriculum are also more active in the learning process as compared to the passive listeners and note takers of the traditional set up.” <Student Continuing PBL 4>

Performance of graduates in National Licensure Examination for physicians

One major reason cited by schools for either continuing or discontinuing PBL is the performance of graduates in the National Licensure Examination (NLE) for physician.

Analysis of 10-year national licensure

Table 6. Reasons cited for discontinuing PBL as generated using NVivo® matrix coding query.

Major Reasons for Abandoning PBL	No. of citation	Actual responses
faculty related issues	3	Majority of the faculty members are not convinced of the shift to PBL <Post PBL 3> The faculty was not totally convinced of the benefits of PBL. There were faculty members who were making short-cuts in the SGDs and doing mini-lectures just to finished off the sessions. <Post PBL 1> We found it very difficult to implement PBL because faculty learned the traditional way, that was the 1st time students were introduced to PBL (their undergraduate studies were in the traditional way), and when students reached the 4th year level everybody was again traditional (no changes in the teaching methodologies in the 4th year, residents were traditional, faculty and consultants were traditional). <Post PBL 1>
Board examination format and graduates' performance	2	It appeared that the strategy did not work well as the performance in the Board Examination declined drastically compared to the years when traditional curriculum was implemented. <Post PBL 2> Only the 1st batch of graduates did well in the licensure examination. After the 1st batch, our performance deteriorated. <Post PBL 1> “Dr. _ mentioned at the time that the Medical Act of 1959 will be amended, so schools who were into PBL need not worry about going into modules instead of subjects. There will be changes in the approach of the licensure examinations. But it did not materialize. Our students had a hard time shifting from organ system module exam to subject based (module).” <Post PBL 1>
budgetary issues	1	The administration was worried of the big budget allotted for the SGDs. Instead of merely 1 lecturer to be paid, they had to pay for 10 faculty for the same 2 hours of lecture (equivalent to 2 hours of SGD). <Post PBL 1>

examination results (Table 8) revealed that while two of the post PBL schools performed very well, PBL schools have maintained a passing rate above the ten (10) year national average of 58.2% outperforming 30 other medical (traditional) schools. Chi-square calculation showed no significant difference ($p = 0.22$) in the NLE performance of post PBL and PBL in the same 10-year period.

The Future of PBL implementation

While the three schools that shifted back to traditional curriculum see no chance of reverting to

PBL in the near future, they nevertheless admitted incorporating in their current programs the “best feature of PBL like case discussion <Post PBL 2>” and “small group discussion <Post PBL 3>.”

Schools that opted to continue expressed satisfaction of their PBL implementation basically because they are achieving the results, “*So far, we are getting the results we want. Right now, we are embarking on a curriculum and general policies evaluation to determine where we can still improve <PBL 1>.*” One respondent describes these results as “*...improved thinking & problem-solving/decision making skills. Furthermore, their*

Table 7. Reasons cited for continuing PBL generated using NVivo® matrix coding query

Response Category	No. of Citation	Actual responses
Positive Board Performance	3	Also because of the consistently high passing rate in the Physician Licensure Examinations. <PBL 2> Primary reason is that we get good board exam passing rates. <PBL 1> Licensure examination results of our graduates were all very satisfactory. <PBL 4>
students becoming more independent	3	More importantly, the students learn how to study on their own so that a student’s curiosity becomes the driving force for learning. In addition, we have observed that critical thinking skill is improved. <PBL 1> We have decided to maintain this approach for several reasons; first, it is student centered rather than teacher-centered; <PBL 4> It (PBL) develops students to become independent learners. <PBL 4>
Better integration	2	Secondly, we get better integration of basic science and clinical science knowledge. <PBL 1> second, problems given to students are very similar to the problems that they will encounter in the community and in the hospitals; third, it enhances the community and decision-making skills of students. <PBL 4>
Positive feedback from faculty and students	1	Positive feedback from the graduates as well as from the faculty regarding the graduates’ performance as residents and practicing physicians. <PBL 2>
Proven effectiveness	1	PBL as a strategy has been proven by the College to be an effective learning approach for students. <PBL 3>

Table 8. Performance in the National Licensure Examination for Physicians from 2001-2010. Source: (Board of Medicine, 2014)

Schools and Status of PBL Implementation			
Continuing with PBL		Post PBL	
School	10-year average	School	10-year average
PBL 2	92.5%	Post PBL 3	90.4%
PBL 3	82.9%	Post PBL 2	90.4%
PBL 1	78.1%	Post PBL 1	38.9%
PBL 4	78.9%	Chi-square p = 0.22	

communication skills are very impressive. The licensure passing in the NLE has significantly improved, as well <PBL 3>.”

When asked whether there is ongoing discussion to leave PBL, all respondents from PBL schools answered in the negative and confirmed that PBL will continue and they see no reason for giving up PBL to quote one respondent “*although occasionally, the administration receives complaints of faculty burnout, the college sees no reason why PBL will have to be abandoned <PBL 3>.”* On the contrary, these schools plan to implement “*constant improvements especially in providing the students opportunities for real life learning situations such as increased clinical exposure, wet and dry laboratory, skills laboratory among a few.*” <PBL 2> and to be “*open to other newer innovative strategies that might be available in the future <PBL 3>.”*

DISCUSSION

Experiences of the eight (8) medical schools in this study provided important insights into PBL implementation in the Philippines. Results have shown that, at least two major institutional variables should be considered before doing a wholesale adoption of PBL. These two are school age and student population size. In this study, institutional age and student population show strong negative linear correlation with years of PBL implementation. In this context, it would be wise for older schools and schools with big student population to carefully consider all angles before adapting PBL. Compared to relatively young schools with also low student population, they have more entrenched curricular and instructional traditions that while difficult to change must need to be addressed. However, this research has also shown that the presence of a core of

faculty supportive of and equipped for PBL and not just supportive administrators, is essential for successful long-term implementation of PBL irrespective of school’s age or student population at the start of PBL implementation, making faculty preparation an essential step in the process of curriculum change (Azer S. A., 2011).

Together with NLE passing rate, budgetary concern is a major reason mentioned by one (1) post-PBL school respondent for going back to traditional curriculum, something that was never mentioned by PBL schools’ respondents. A study by Agamy and Asam (2011) has shown that implementing PBL is no more expensive than implementing the traditional curriculum. In this perspective, school administrators and faculty members, should focus their attention instead on how to improve PBL implementation rather than looking for reasons to abandon PBL altogether.

Results have shown that one school’s reason for abandoning PBL is another school’s reason for its continuous implementation. In this study, one of the most cited reason for either not embracing PBL or abandoning PBL all together is graduates’ performance in the NLE. Result show that PBL’s impact in NLE performance is actually more positive than believed as also shown in other studies ((Hoffman, Hosokawa, Blake, Headrick,, & Johnson, 2006) ; (Blake, Hosokawa, & Riley, 2000)).

It is clear, at least in this study, that in the course of PBL implementation, issues will always pop out, but as long as school leaders, faculty members, and students are committed to the philosophy and goals of PBL, PBLexit will be considered as the last option. In this study, the two groups of schools have a totally different mindset when looking at PBL implementation issues. Based on analysis of responses, post-PBL schools seem to have focused more on management implication

(budget and NLE performance, for example) while the continuing schools were looking more at the educational outcomes and used them as inspiration in continuing with what they started. This differing mindset impacted on each schools' response to implementation problems. Three of the schools decided eventually to abandon PBL while the other five (5) schools decided to continue with PBL and address the issues head on (Table 5). Results of this study further reinforced the importance of positive and less biased attitude as ingredient for successful PBL implementation (Schmidt, Muijtjens, Van der Vleuten, & Norman, 2012).

This study barely scratched the colorful history of PBL implementation in the country. A more detailed documentation of PBL implementation can surely shed more light and deepen the ongoing debate on whether to adopt, continue, or abandon PBL all together.

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