

A Study of PBL Learning Model for Develop Student's Communication and Working skill in Chonburi

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Abstract

This study is for investigate the procedure of Project base learning (PBL) in 11 Chonburi schools and compare achievement in English language between the PBL group and the traditional group. The objective of this study is investigating PBL system about diffusion of innovation process for transfer PBL in traditional schools, expectation from PBL apart of academic matter and procedure of PBL. The research instruments used in this study were interview form for Education Supervisor and Innovation distributor, reflections on English class and semi-structured interviews. The result of this study indicates that

1. Diffusion procedure divided into 3 phases; beginning, trial, and on process.
2. Expectation from PBL apart of academic matter there are 4 things; thinking, cooperation, emotion, and healthy.
3. The procedure of PBL has 4 steps; plan, create, reflect, and share. This form of learning called "PCSR learning model".
4. The achievement in English language through the PBL group is better than the traditional group and better than before. PBL makes students understand the lesson easily with positive attitude.

In conclusion, Total means score for English Communication for the PBL group (8.00) seemed higher than the control group (7.21). The PBL group also scored higher mean scores for English language, representation and explanation as compared to the control group. The PBL group also displayed a higher total mean score for teamwork (13.24) as

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compared to the control group (12.46). They were also awarded higher scores for working with others, attitude in group, and focus on the task and taking pride in their work. However, for quality of work, the control group's mean score was higher (2.67). It's mean students have changed in a good way, PBL is a new method of English teaching that made students more interested and more effectively with a positive attitude in English successful.

Keyword: Project base learning

Introduction

Since Independence, the English Education curriculum has undergone major reforms. A review of the education system in Thailand had been planned to meet the demands and challenges of globalization and the economy. A product approach was proposed in the teaching and learning process in all classrooms. A total review in the English curriculum emphasizes on several important aspects in English education which includes Communication and English for problem solving in dairy life.

In Chonburi schools, high performance in the examinations especially in the public examinations means everything. As this is the priority of parents and schools alike, teachers are very concerned with finishing the syllabus and drilling students the exam answers and questions. They are reluctant therefore to involve other approaches to the teaching and learning of English as it would take up too much time and are irrelevant to passing examinations. The chalk and talk method are dominant in explaining rules, definitions and memorize.

Chonburi province located at the east of Thailand, 93 Kilometers from Bangkok. The terrain is mostly plain. Some area in the north and the east of province is a steep hill, and the south and the west of province is a big plain. The soil is sandy and clay, it suitable for farming, plantations, fruits, and housing. The population is original people, the background of them quite well. There is less crime and can to support the growth from Bangkok involve housing under the good city plan. In addition, Chonburi has ecology resources such as

Bang-San (famous beach). However, there are culture and ancient history for learning. On account of Chonburi is similar to the rural community, but near Bangkok, the trial processes will start there because there are famous educational institutions such as Sripatum University, Burapa University, Kasetsart University. Moreover, this province is the area that has the most supervisor of education than another province too. All of this reason, Chonburi is a province that can complement the knowledge-based society as well.

This study was conducted to investigate procedures and learning tools of Project base learning (PBL) by observing and interviewing teacher from 11 Chonburi schools as they used PBL and willing to be volunteer. After that explore effects of English Performance and Affective Attributes in Learning glossary from Project base learning (PBL) as an alternative instructional strategy which could be introduced to Chonburi classrooms in the teaching and learning of multidisciplinary subject . Students taught in traditional English education environments are preoccupied by exercises, grammar rules, and that need to be learned, but are of limited use in unfamiliar situations such as solving real-life. In contrast to conventional English classroom environments, a PBL environment provides students with opportunities to develop their abilities to adapt and change methods to fit new situations. Further, students participating in PBL environments have greater opportunity to learn real Communication associated with seeking information from any resource such as Internet, International text book or journal, made a presentation in English, Memorize from working such as Used “software” for make animation.

Objectives

1. To investigate Project base learning (PBL) Model for Develop Student's Communication and Working skill
2. To compare achievement in English language between the PBL group and the traditional group in Chonburi. (11 Project base learning schools and 11 traditional school)

Literature Review

Constructionism theory was pioneered by Professor Seymour Papert of MIT. His research spanned more than 20 years and brought new insights into how children learn. Briefly, his conclusion is that children learn best when the topic is interesting. Papert said “good learners don’t come from better teaching, rather good learners come from a process of personal discovery through inquiry and the best way to provide that atmosphere is Project based Learning.”

Project-based learning is the teaching model used by the Problem base on the interest of the learner. They can create knowledge and activities which lead to problem solving challenges. After the learner solves the problem, they will have the thinking process to solve new problems independently. If student learn by doing based on understanding and interest, they have motivation and can use this learning behavior throughout life. As Grant (2009) mentioned, “...in learning long-term learning comes from learning through creation of a project...”

In educational research, many researchers have opinions on project-based learning, such as Bresnen (2004) has described about students can learning by doing and gain knowledge unconsciously “learning-by-absorption” While student make project, they can show and share knowledge or feeling and learn from the reflection together “learning-by-reflection” and Gulbahar and Tinmaz (2006) support that “The question or problem that they drive to get the concept and principles of the discipline, students will challenge to learn and build on skills such as creativity and problem solving skills”.

Procedure

Research procedure

This section discusses research procedures including the research stages, the construction of the research instruments for interviewing the Education Supervisor of Chonburi and Innovation distributor, and the reflection of instruction.

Research Stages

There are 4 stages involved in conducting this study. The details are as follows.

- Stage 1:** Researched into various documents and papers on Project-Based Learning and Constructionism theory by Seymour Papert.
- Stage 2:** The researcher interviewed the Education Supervisor of Chonburi and Innovation distributor to investigate expectation from Project base learning apart of academic matter diffusion of innovation process for transfer Project-Based Learning in traditional schools.
- Stage 3:** The researcher interviewed teachers and students from 11 Project-Based Learning volunteer schools about the Procedures of Project base learning when their schools changed from the traditional style to a Project-Based Learning style.
- Stage 4:** The data collected by bringing scores from pre-test and post-test feedback to all students from 11 Project-Based Learning schools and 11 Traditional schools. All students did the self-assessment where they agreed or disagreed about if PBL helped them to learn English with a more developed English performance.

Construction of the Research Instruments

This section describes the construction of the research instruments used in this study, which are the reflections on the instructions about Project-Based Learning.

Interview Education Supervisor and Innovation distributor

The interview is the main tool for investigating diffusion of innovation process to transfer Project-Based Learning in traditional schools. This study wanted more in depth information about the diffusion procedure on the use of Project-Based Learning in English class. The questions that were used for the interview asked about:

- Diffusion of innovation process for transfer PBL in traditional schools
- Diffusion Procedure
- Expectation from Project-Based Learning apart of academic matter
- Procedure of Project-Based Learning

The Reflection on the instruction

The instruments used in this study were the reflection on the instruction and the structured interview. The reflection was the tool for investigating the teachers' and the students' opinions towards the use of Project-Based Learning in English Language. The reflection was selected to use in this study because it was easy and free for the students and the teachers to tell their own opinions according to three open-ended questions.

Data Analysis

1. Analysis from interview Educational Supervisor and Innovation distributor
2. Analysis from interview teachers and students
3. Compare achievement in English language between Project-Based Learning group and Traditional group

Results

Project-Based Learning (PBL) system in 11 Chonburi schools

Diffusion of innovation process for transfer PBL in traditional schools

Long time ago they used to diffusion PBL to this area. PBL is an innovation as many people are looking for developing teaching management to be more effective. But they are limitation of accepting new innovation like PBL from all educators which is a very important obstacle for developing. It recognizes that there is new innovation meanwhile they are recognizing change. Even only the way of the classroom and media had change to be more child center, but it effect a lot for the teachers. They are frustrated with innovation so they deny doing that. Even though they are open mind for innovation. It sometimes does

not success. Educator that try to broadcast teaching innovation; found that there is only short interesting from people and then they will stop doing innovation and get back to their own style. Because of worker do not have ability to understand innovation to apply on the job. It needs effective strategy and process. These should link with target social. If there is a good plan in a right place, people will take innovation as internalization and make it benefit to social. But if they don't have good preparation with the plan, the result will not be fully benefited to society.

But right now Chonburi cans diffusion of PBL successes. So, therefore we have an idea to study the effective diffusion of PBL Innovation process why idea will make fully exception and reduce resistance from adopter.

Diffusion Procedure

Phase 1 Beginning

Process 1 Preparation

1.1 Preparing the suitable innovation for the target group by study about their management and the way that they work in each school and also the problem that they fine so we can improve it to be better.

1.2 Preparing schedule in each period and put the detail; all processes, too.

Process 2 Absorbing

2.1 Selecting Change Agent, inform them to choose the innovation that they have used before and present to their supervisor. It's the faithfulness innovation for them to get more confident first. After that we can ask for volunteer from this group. The representations need to understand innovation and have power to make a decision or create something new at school.

2.2 Plan to do public relation (PR) by using faithfulness Diffusion of Innovation by selecting the innovation from the representation group present to target group; teacher. The team will work cooperate with Change Agent, representation group, to make a good

relationship with the teachers as many as they can because if they get use to each other it will helps to do Diffusion of Innovation.

2.3 Making an effective Communication to let people know how important of change, principle and benefit of using innovation in their teaching. Change Agent will collect information about problem in teaching and how innovation can solve this problem. More than that, Change Agent will encourage them and set up the training for them to have more understanding. This process can call instruction process which means the power that Change Agent can do with good relationship among the group.

2.4 Providing the training about teaching innovation to the target group to make better understanding. The researcher and Change Agent run the training and observe participant's behavior for selecting the outstanding participation with leadership. The representation will help us to broadcast innovation to the other if they agree with that. Although for the follower, we need to motivate them to get interested in innovation. For the one that resist innovation, the researcher needs to focus on them and do not let them to make the others confuse.

Process 3 Build up the acknowledgement

3.1 Set up the Change Agent team who has trained before and has possibility to use innovation. They have leadership, so we invite and inform them to lead the change first.

3.2 Preparing innovation together and finding member of the team. The group will brainstorm how to improve the innovation that they get from model school and related with their style so they can participate with that. Change Agent will look after the process, not to change the principle and objective of that activity.

3.3 Plan the Diffusion of Innovation with the team.

3.4 Set Change Agent team to communicate with target group in 2 ways communication; giving opinion or suggestion to make the innovation related to the environment. Moreover to build up the participation for the user. This process follows the participation structure.

In all steps, the researcher collects the information to analyst and prepare for the problem that may occur in the future.

Phase 2 Trial

- Level 1 Planning about the activity together.
- Level 2 Collecting information about innovation which makes it more easy to use and the detail of teaching management.
- Level 3 Set up the effective storage for user. They can approach to the information easily, quickly and effectively.
- Level 4 Preparing good atmosphere to support learning and make it related when using innovation
- Level 5 Following the plan by using our resource that we prepare first and resource outside as supported.
- Level 6 Supported like management or other people will assist the target group as much as they can include motivation as well.
- Level 7 Evaluate all process and give the user consult continuing so they can improve their plan to be better.

Phase 3 On Process or continuing process

This process happens after evaluate the result of teaching already and use this result to motivate the others to continue using innovation. Besides that, Change Agent and team will feed back with the user for developing innovation to be better. In phrase 2 and phrase 3, the team will support user by Innovation Clinic which is giving the suggestion, develop plan to be more effective, coaching, training and problem solving. After finishing last process, there is Best Practice Sharing activity for the user so it will benefit them and can be the model for the next time too.

4.1.2 Procedure of Project-Based Learning

Procedure of PBL in Chonburi School has 4 steps include Plan, Create, Reflect and Share. This form of learning called "PCRS Learning Model". This procedure will start with

plan; action follows the planned, reflection after finish working and sharing knowledge or learns something. PCRS learning Model shown in picture below

Plan:

Step 1: Brainstorming - starting from student's interesting. Before starting school, student brainstorm and share their idea in the big group. After that, they will group the related topic together and set up members in the group. This will make project to be more effective because the student learn in their interesting topic and related topic from their friends as well.

Step 2: Integration - teacher apply academic into project. Teacher will link curriculum in each subject like science, math or language which are from Education Ministry in project. Technology can help a lot in this section. More than that, the school will invite professor in each field (that related to project topic) to share with the kids. We also take the students to field trip in real field.

Step 3: Planning - Students and facilitators plan together. They will come up with the daily plan in all 12 weeks so student will imagine what will happen in all semester. (*DSIL divide the year into 3 semesters, each semester will learn one project.*) Facilitator role is assist student in their leaning, guide them the essential knowledge, asking what they want to know more and link students knowledge together. After that, the students will write their Mind Map to plan their time in whole semester. These processes make the student to have ownership and enthusiasm to work successfully.

Create:

Step 4: Action - Learning by doing. It starts from searching information from many materials for example books or internet. Firstly, students should know the source of information. After getting information, students do the experiment, analysis result and construct new knowledge or product. Learning with professor and from the real field makes better standing for the students. It does not only learn from information or theory but also

useful information to construct new knowledge. New knowledge that students get will link with their experience under morality base idea. Finally kids will have wisdom. After getting information, students will share their new knowledge to friends. In this process facilitators can correct the information or give them suggestion. If there still something more to add in, let them start from the first step again, finding more information or doing experiment. Until they have completed all objective, then the facilitator can move on to step 5. We call these processes as PDCA (Plan Do Check Act) which often use in business area to continuing learning. The students record information and result in all activities for development their skill, both Thai and English. Finally they come up with the correct presentation.

Reflection:

Step 5: Summarizing and recording - Summarizing and recording from the activity. Students summarize and record it in essay, portfolio and mind map. These can help them in create new knowledge by themselves.

Sharing:

Step 6: Exhibition - Preparing for exhibition to show about their learning; the objective of this step is to present the project to parents and others. Exhibition is happened in the end of semester. Students are plan about their presentation and manage it by themselves.

Step 7: Modification - Modify Action; this step means apply the knowledge from this project to develop student's leaning in next project which will learn deeply and harder. The learning loop will start from step 1 to step 8 many times and will develop to be students' habit; life – long learning. This theory will link with Peter M. Senge from Sloan School – MIT which said “learning is Spiral Model; each round will create new knowledge continuing.

Compare achievement in English language between the Project-Based Learning group and the Traditional group in Chonburi

This study finding reports in detail the results of the analysis of both quantitative and qualitative data acquired during the experiment. All the data that were gathered were

analyzed using Statistics Package for Social Science (SPSS) and the results of independent t-test analysis there was no significant difference ($t(51) = -1.70, p < .05$) for mean relative condition efficiency index between the PBL group and the Control group. It is concluded that the PBL instructional strategy was just as efficient as the CT instructional strategy.

Raw data for this analysis was obtained through a questionnaire administered to the students after the post test at the end of the experiment. The results of this analysis were described in terms of percentages, means and standard deviations. Each answer for the statement in the questionnaire was measured using the Likert scales. These statements reflected favorable and unfavorable preferences. Subjects responded on a five-point scale: "most favorable", "favorable", "less favorable", "not favorable" and "most unfavorable". Values from 1 to 5 were assigned on the scales. A score of 5 on the Likert scale was treated as the most favorable of the response. A mean score of greater than or equal to 3.0 was considered a positive perspective or attitude whereas a mean score less than 3.0 is associated with a negative perception or attitude.

Also raw data for this analysis was obtained from a rubric which was evaluated by the teacher throughout the experiment. A rubric is an instrument for organizing and interpreting descriptive data gathered from observations of student performance. Scores on a scale of 1 to 4 attached to each level of a rubric were given through group work and presentation. Due to time constraints, the overall scores given to the group will reflect the individuals in the group as well. In this study, scores on a scale of 1 to 4 attached to each level of a rubric provided an objective basis for assigning grades. The score 4 would indicate the most outstanding characteristic or trait that was observed. The researcher gave scores on each student's use of PCRS, English Communication and teamwork based on group work during learning sessions and also during presentation.

Table1 Means and standard deviations on English Communication Working skills

Based on rubric

Achievement in English language	Means		Standard Deviations	
	PBL	CT	PBL	CT
English Communication skills				
1. Grammar	2.90	2.58	0.41	0.83
2. Conversation	2.62	2.46	0.56	0.83
3 Glossary	2.76	2.29	0.91	1.00
Total	8.00	7.21	1.55	2.42
Working skill	PBL	CT	PBL	CT
1 Working with others	2.48	2.17	0.57	0.76
2 Attitude in group	2.66	2.50	0.55	0.83
3 Focus on the task	2.62	2.50	0.56	0.83
4 Quality of work	2.59	2.67	0.73	1.01
5 Pride in work	2.62	2.50	0.56	0.83
Total	13.24	12.46	3.32	4.51

Total mean score for English Communication for the PBL group (8.00) seemed higher than the CT group (7.21). The PBL group also scored higher mean scores for English language, representation and explanation as compared to the CT group. The PBL group also displayed a higher total mean score for teamwork (13.24) as compared to the CT group (12.46). They were also awarded higher scores for working with others, attitude in group, and focus on the task and taking pride in their work. However, for quality of work, the CT group's mean score was higher (2.67) compared to the PBL group (2.59). The rubric indicated that the PBL group was better at using the PCRS as compared to the control group.

They also seemed to display better English Communication skills and showed stronger teamwork as compared to the control group.

Those skills such as working as a team and demonstrating effective Communication skills are learnt in order to solve a problem. Other studies also showed that PBL students work well in teams and small groups gained other skills such as working in teams and being more involved in the learning and that a PBL classroom provided students with high level of interaction for peer learning, peer teaching and group presentation. The reason why PBL students in this study showed stronger teamwork as compared to the CT group was because they had to work in groups from the beginning of the lesson. They had to learn to be active problem solvers, contributors and participants in group discussions. Through collaborative work with their peers, they assumed responsibilities and self-definition associated with learning interdependently. They also had to learn to rely on their group members, English resources, notes and materials provided as more important sources of authority and knowledge as the teacher's role was only as a facilitator and gave minimal guidance on how to learn communication. This study strived to ascertain the effects of PBL on English performance and instructional efficiency. It also compared the affective products of learning between PBL and the conventional teaching strategy. The findings of this study are consistent with findings from other literature. The numerous positive effects of PBL such as becoming better Communicator, demonstrating effective verbal and written Communication skills and being able to work collaboratively were also shown in this study. From this study, it can be contended that the PBL group used the PCRS more effectively, displayed better English Communication skills and showed stronger teamwork

Conclusion

This study was carried out in order to investigate Project base learning (PBL) system in 11 Chonburi schools about diffusion of innovation process for transfer Project base learning in traditional schools, study expectation from Project base learning apart of

academic matter, and procedure of Project base learning. Furthermore, this study was carried out in order to compare achievement in English language between the PBL group and the traditional group in Chonburi. The result is diffusion procedure divided into 3 phases. In phase 1: beginning, there are 3 processes which are preparation, absorbing, and building the knowledge. In phase 2: trial, there are 7 levels which are planning, collecting information, setting the effective storage for user, preparing good atmosphere to supporting learning, following the plan, supported them, and evaluate all process. In phase 3: on process, with expectation from PBL apart of academic matter there are 4 things thinking, cooperation, emotion, and healthy. As for procedure of PBL, there are 4 steps; plan, create, reflect, and share. This form of learning called "*PCSR learning model*". Planning is steps of brainstorming, integration, and planning, Create is step of action, meaning learning by doing, Reflection is a step of summarizing and recording from the activity, and Sharing is a step of exhibition which allows students to show about their learning and modification in means there of modified action.

The achievement in English language through the PBL group in Chonburi is better than the traditional group and better than before; using PBL system in English learning enhances the performance of students. The researchers find that PBL makes students understand the lesson easily and have good attitude more than the old instruction method. One of student from PBL group

Suggestion

this is known as PBL is a method which allows student to learn about a subject by exposing them to multiple problems. So they will be able to construct their understanding of the subject through these problems. This kind of learning can be very effective for mathematics where students try to solve the problems in many different ways which allow the student's brain to be stimulated There are different types of instructional strategies to make PBL more effective and try to create all the learning activities for the learner to be

related to a larger task. This is important because it allows student to see the connection to the activities that can be applied to many aspect of life. As a result, the learner will find the materials and activities they are doing useful. Which the learner needs to be supported to feel that they are beginning to have ownership of the overall problem an authentic task should be designed for the learner. This means that the task and the learner cognitive ability have to match with the problems to make learning valuable. More over wisdom based learning model also allow reflection on the content being learned so the learner can think through the process of what they have learned and encourage the learners to test ideas against different views in different context. That're the reason why we should integrate PBL in some class of traditional school.

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