The Performance of Backward Design Using Student-Centered Teaching Methods on the Bachelor of English Education Students, Roi Et Rajabhat University, Thailand

Saengchan Kalam\textsuperscript{a}, Kriangsak Srisombut\textsuperscript{b}, Prakong Yukalang\textsuperscript{c}

Roi Et Rajabhat University, Thailand, 
E-mail: \textsuperscript{a}chanpanya1917@gmail.com, \textsuperscript{b}pomkriangsak@yahoo.com, \textsuperscript{c}prakong.yu@gmail.com

Abstract. According to the Basic Education Core Curriculum B.E. 2551 (A.D. 2008) in Thailand defined the word instructional design as the teachers have to analyze school curriculum, standard, indicators and students ’expected outcome for designing lesson plan. The teachers’ responsibilities are decision whether suitable or improve in technique, materials, sources and evaluation for enhancing students ‘performance. Instructional design is an essential for teaching and learning procedure. Backward design is a process that educators use to design learning experiences and instructional techniques to achieve specific learning goals. For these reasons The Basic Education Core Curriculum B.E. 2008 had proposed the policy for applying it throughout the region in Thailand including English major students, faculty of education who’s role of pre-service teacher. They have to raise awareness in applying in this classroom. The objectives of this pilot research were to investigate the effectiveness of using learning centered techniques to enhance the performance of backward design, by using an effectiveness index (E.I.) and to study the extent of satisfaction of students using student-centered teaching methods to enhance the performance of backward design. The finding of this study indicates a high level of effectiveness in terms of student learning of student-centered teaching methods to enhance the performance of backward design. Although only a pilot study with a small sample, the findings of this research suggest that this methodology of instruction education students to enhance the performance of backward design. This may have significant implications for the teaching education student to understand techniques to design learning experience for their learners.

Keywords: Backward Design, Learner Centered Techniques

1. Introduction

The teachers’ competency of learning design using student-centered teaching methods is very important. The student-centered teaching methods mean the activities that suit for learning activation and student personal life. In the traditional approach to college teaching, most class time is spent with the professor lecturing and the students watching and listening. The students work individually on assignments, and cooperation is discouraged. \textit{Student-centered teaching methods} shift the focus of activity from the teacher to the learners. These methods include active learning, in which students solve problems, answer questions, formulate questions of their own, discuss, explain, debate, or brainstorm during class; cooperative learning, in which students work in teams on problems and projects under conditions that assure both positive interdependence and individual accountability; and inductive teaching and learning, in which students are first presented with challenges (questions or problems) and learn the course material in the context of addressing the challenges. Student-centered methods have repeatedly been shown to be superior to the traditional teacher-centered approach to instruction, a
conclusion that applies whether the assessed outcome is short-term mastery, long-term retention, or depth of understanding of course material, acquisition of critical thinking or creative problem-solving skills, formation of positive attitudes toward the subject being taught, or level of confidence in knowledge or skills. Teachers act as facilitator in classroom activities.

*Student-centered teaching methods* can be use to enhance the performance of *backward design* for education student. *Backward design* is a process that educators use to design learning experiences and instructional techniques to achieve specific learning goals. Backward design begins with the objectives of a unit or course—what students are expected to learn and be able to do—and then proceeds “backward” to create lessons that achieve those desired goals. Backward design helps teachers create courses and units that are focused on the goal (learning) rather than the process (teaching). Because “beginning with the end” is often a counterintuitive process, backward design gives teachers a structure they can follow when creating a curriculum and planning their instructional process.

Backward Design consists of three stages as follow; (Jay McTighe and Grant Wiggins, 2012)

**Stage 1**: Identify Desired Results; In the first stage of backward design, considering our goals, examine established content standards (national, state and province), and review curriculum expectations. Stage 1 focuses on “transfer of learning.” Essential companion questions are used to engage learners in thoughtful “meaning making” to help them develop and deepen their understanding of important ideas and processes that support such transfer.

**Stage 2**: Determine Assessment Evidence; The assessment evidence we need reflects the desired results identified in Stage 1. Thus, we consider in advance the assessment evidence needed to document and validate that the targeted learning has been achieved. Doing so invariably sharpens and focuses teaching. In Stage 2, we distinguish between two broad types of assessment—performance tasks and other evidence. The performance tasks ask students to apply their learning to a new and authentic situation as means of assessing their understanding and ability to transfer their learning. Identify six facets of understanding for assessment purposes. When someone truly understands, they

• Can explain concepts, principles, and processes by putting it their own words, teaching it to others, justifying their answers, and showing their reasoning.

• Can interpret by making sense of data, text, and experience through images, analogies, stories, and models.

• Can apply by effectively using and adapting what they know in new and complex contexts.

• Demonstrate perspective by seeing the big picture and recognizing different points of view.

• Display empathy by perceiving sensitively and walking in someone else’s shoes.

• Have self-knowledge by showing meta-cognitive awareness, using productive habits of mind, and reflecting on the meaning of the learning and experience. Keep the following two points in mind when assessing understanding through.

**Stage 3**: Plan Learning Experiences and Instruction; In Stage 3 of backward design, teachers plan the most appropriate lessons and learning activities to address the three different types of goals identified in Stage 1: transfer, meaning making, and acquisition.

Backward design considers on understanding that cannot simply be told; the learner has to actively construct meaning (or misconceptions and forgetfulness will ensue). Teaching for transfer means that learners are given opportunities to apply their learning to new situations and receive timely feedback on their performance to help them improve. Thus, the teacher’s role expands from solely a “sage on the stage” to a facilitator of meaning making and a coach giving feedback and advice about how to use content effectively. Backward design is the one kind of performance which student of education should learn and apply to use in instruction.

According to the Basic Education Core Curriculum B.E. 2551 (A.D. 2008) stated in the learning area that “in the present global society, learning foreign languages are very important and essential to daily life, as foreign languages served as an important tool for communicative, education, seeking knowledge, livelihood and creating understanding of cultures and visions of the world community. Foreign language enables learners to be aware of diversity of cultures and viewpoints in the world community, conductive to friendship and cooperation with various countries. They contribute to learners’ development by giving learners better understanding of themselves and others. The learners are thus able to learn and understand differences of languages and cultures, customs and traditions, thinking, society, economy,
politics and administration. They will be able to use foreign languages for communication as well as for easier and wider access to bodies of knowledge and will have vision in leading their lives. Learners enable to acquire favorable attitude towards foreign languages, the ability to use foreign languages for communicating in various situation, seeking knowledge, engaging in a livelihood and pursuing further education at higher levels. Learners will thus have knowledge and understanding of stories and cultural diversity of the world community, and will be able to creatively convey Thai concepts and culture to the global society. The main contents include: language for communication, language and culture, language and relationship with community and the world” (Ministry of Education, 2008: 210-211). Therefore, the Bachelor of Education Program in English in Roi Et Rajabhat University is aimed related to the Ministry of Education and the National Education Act of B.E. 2542(1999) at teaching bachelor students as a professional teacher with the excellence in English accepted from local areas and in the nation, developing personnel in the local areas and in the country to use English for communication, invoking youth to be aware of English reading habit, observing the good virtues according to the Thai culture (Education College, 2008). The bachelor of English education should know how to apply the English instructional design into the classroom. There are many ways to design in English teaching, such as using integrated approach, cooperative approach, communicative approach, as well as student-centered teaching methods. As mentioned earlier professional development in instructional design is an essential. It is because focus on student-centered is an aim for teacher in modern age. Backward design is considered as effective teaching because it integrated via various content area and learner centered.

2. Research Objectives

2.1 To study the effectiveness index (E.I.) of using student-centered teaching methods to enhance the performance of backward design;
2.2 To study the students’ satisfaction from using student-centered teaching methods to enhance the performance of backward design.

3. Hypotheses

3.1 The effectiveness index of using student-centered teaching methods to enhance the performance of backward design for the third year bachelor students of English Education in Roi Et Rajabhat University is more than 0.6;
3.2. The students’ satisfaction from using student-centered teaching methods to enhance the performance of backward design is at the satisfaction level or higher.

4. Methodology

The research procedures had been done as follows:
4.1 Research methodology. This research is the pre-experimental design in form of One Group Pretest-Posttest Design (Paisarn Worakham, 2012).
4.2 Sample. The sample of this research obtained from the purposive sampling technique was the third year bachelor students of English Education amount 52 students, the academic year 2016 in Roi Et Rajabhat University.
4.3 Research instruments consisted of three kinds as follows:
   4.3.1 Five lesson plans for enhancing the performance of backward design using student-centered teaching methods.
   4.3.2 Three instruments to test the performance of backward design using student-centered teaching methods.
4.3.3 Satisfaction Questionnaire with the student-centered teaching methods to enhance performance of backward design.

4.4. Research instrument constructions were as follows:

4.4.1 The lesson plans were constructed as follows:

1) Studying theories, concepts, principle from documents and researches concerning the construction of lesson plan for enhancing the performance of backward design using student-centered teaching methods.

2) Studying the Bachelor of Education Program in English (5 years) improved in 2013 under Education College, Roi Et Rajabhat University concerning goals, missions, and visions.

3) Drafting five lesson plans for 40 hours by the application.

4) Trying out the teaching plans that were approved by specialists with 40 students who are the fourth year bachelor students of Education Program in English as a way of checking the suitability of lesson plans.

5) Approving the lesson plans for better conducting activities in the classroom.

6) The complete teaching plans were ready in use for the experiment.

4.4.2 Three instruments to test the performance of backward design using student-centered teaching methods as mentioned in item 3.2 were administered with the third year bachelor students of Education Program in English under the Education College in Roi Et Rajabhat University. These instruments were the rubric scoring to assess the students’ learning competency; namely, the first instrument is the Evaluation Form to Identify Desired Results; considering goals, examine established content standards and set the unit in teaching, the second set is the Evaluation Form of Determining Assessment Evidence; The assessment evidence we need reflects the desired results identified, and the last set is Designing Lesson Plan Suitability that this the analysis of the relationships of contents, standards and indicators in English. The steps of instrument construction were as follows:

1) Studying theories, concepts, principle from documents and researches concerning the construction of lesson plan to enhance the performance of backward design using student-centered teaching methods.

2) Determining the cognitive domain for the test of lesson plan to enhance the performance of backward design using student-centered teaching methods.

3) Constructing the test according to the cognitive domain as mentioned in the sub item 2).

4) Trying out the lesson plans with 40 students who are the fourth year bachelor students of Education Program in English and had enrolled in this subject before as a way of checking its suitability of the time for lesson plan.

5) Approving the three instruments.

6) Achievement Test that is the essay test was tried out as mentioned in the sub item 4) and then was calculated for the reliability. The Achievement Test contained 0.6 value of total reliability.

7) Improving the Achievement Test again before using.

8) The test was ready in use for the experiment as performed at the end of teaching of all plans.

4.4.3 The construction of Satisfaction Questionnaire was as follows:

1) Determining the objectives of the Satisfaction Questionnaire.

2) Studying the theories concerning the satisfaction with learning activities which were found four aspects: instructor, contents, learning processes, benefits. There are 17 items of questions based on Likert-type scale (Vagias, Wad M., 2006)
3) The Satisfaction Questionnaire was tried out with the fourth year bachelor students as mentioned in item 4.2 to check its language accuracy.

4) Improving the Satisfaction Questionnaire after trying out, it was ready in use with 52 samples who were the target group for this pre-experimental research. The criterions for interpreting the scale were given according to Boonliang Thumthong (2012)

4.5 Data Collection was operated as follows:
  4.5.1 Five lesson plans to enhance the performance of backward design using student-centered teaching methods were administered to collect the data in the classroom.
  4.5.2 Before teaching according to the plans, students were tested their knowledge and after finishing the five plans they were tested again by using the same test.
  4.5.3 After finishing the five teaching plans, students evaluated their satisfaction with lesson plans for enhancing the performance of backward design using student-centered teaching methods.

4.6 Data analysis was operated as follows:
  4.6.1 Analyzing the effectiveness index of lesson plans to enhance the performance of backward design using student-centered teaching methods was used E.I. that its effectiveness index is not less than 0.6
  4.6.2 Analyzing the students’ satisfaction with the lesson plans to enhance the performance of backward design using student-centered teaching methods was used mean (\( \bar{x} \)) that the criterion is given at not less that level 4 (satisfaction).

5. Results

The results of this research were finding as follow:
5.1. The effectiveness index (E.I.) of the lesson plans to enhance the performance of backward design using student-centered teaching methods (E.I) is shown in the table 1.

Table 1 Numbers and means of the effectiveness index scores of the lesson plans to enhance the performance of backward design using student-centered teaching methods

<table>
<thead>
<tr>
<th>Sum of pretest scores</th>
<th>Sum of posttest scores</th>
<th>Numbers of students</th>
<th>Full scores</th>
<th>Numbers of students x Full scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>585</td>
<td>1,110</td>
<td>52</td>
<td>24</td>
<td>1,248</td>
</tr>
</tbody>
</table>

From the table 1 was found that the effectiveness index was calculated as follows:

\[
E.I. = \frac{P_2 - P_1}{Total - P_1}
\]

\[
E.I. = \frac{1,110 - 585}{1,248 - 585}
\]

\[
E.I. = 0.79
\]

Therefore, the effectiveness index of the lesson plans to enhance the performance of backward design using student-centered teaching methods was 0.79 that is higher than the prescribed criterion as given at 0.6. This is shown that the students’ knowledge increased according to learning from the lesson plans to enhance the performance of backward design using student-centered teaching methods.
5.2 The satisfaction of students with the lesson plans to enhance the performance of backward design using student-centered teaching methods.

Students’ satisfaction with the lesson plans are shown in the table 2.

Table 2 Means of students’ satisfaction with the lesson plans to enhance the performance of backward design using student-centered teaching methods.

<table>
<thead>
<tr>
<th>Evaluation</th>
<th>Mean</th>
<th>Satisfactory Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructor</td>
<td>4.53</td>
<td>Very satisfied</td>
</tr>
<tr>
<td>Contents</td>
<td>4.55</td>
<td>Very satisfied</td>
</tr>
<tr>
<td>Learning activities</td>
<td>4.58</td>
<td>Very satisfied</td>
</tr>
<tr>
<td>Benefits</td>
<td>4.60</td>
<td>Very satisfied</td>
</tr>
</tbody>
</table>

(4.50–5.00 = Very satisfied, 3.50 – 4.49 = Satisfied, 2.50 – 3.49=OK, 1.50 – 2.49= -Dissatisfied, 0-1.50 = Very dissatisfied)

From the table 2 is found that students satisfied with the lesson plans to enhance the performance of backward design using student-centered teaching methods at the very satisfied level arranging in order of means as follows: benefits, learning activities, instructor, and contents respectively. Therefore, the satisfaction of students with the lesson plans to enhance the performance of backward design using student-centered teaching methods was at the highest level that is higher than the prescribed criterion.

6. Conclusions and Discussion

Conclusions

6.1 The effectiveness index (E.I.) of the lesson plans to enhance the performance of backward design using student-centered teaching methods was 0.79 that is higher than the prescribed criterion 0.6.

6.2 Students satisfied with learning activities from the lesson plans to enhance the performance of backward design using student-centered teaching methods were at the very satisfactory level (highest level) that is higher than the prescribed criterion.

Discussion

This research is to study the effectiveness index (E.I.) of using student-centered teaching methods to enhance the performance of backward design of the third year bachelor students of English education under the Education College, Roi Et Rajabhat University. There are some points for discussion as follows:

The effectiveness refers to the results of higher learning achievement as studied from the teaching plan. This research found the effectiveness index 0.79 that is higher than the hypothesis given at 0.6. This finding is in line with the research of Natthakiat Chimpo (2012) who studied the accounting achievement in problem solving thinking using Backward Design method. It was found that the posttest scores were higher than the pretest scores statistically significant difference at 0.01 level and they also had high level of problem solving. It was also in line with the research of Sheri Ensley Stover (2006) who studied about comparing of learning between teacher-centered teaching methods and student-centered teaching methods, that was found students who were taught through student-centered teaching methods higher than the students who were taught via teacher-centered teaching methods significant difference at 0.012 level.

Students satisfied with learning from the teaching plans from English instructional design through storytelling at the very satisfaction ($\bar{x}$=4.56) that is higher than the criterion given at the satisfactory level. This finding is in line with Dolawan Phuangwiphak (2011) who studied learning outcomes and retention of English vocabularies as studied from electronic book in English stories for
Grade 5 students that were found students satisfied with the learning activities as designed in the lesson plan at the satisfactory level.

7. Acknowledgements

Thank you to Roi Et Rajabhat University that supports the budget for this research. Thank you to Assist.Prof.Dr. Kochaporn Namnaphol, Vice Director of Research and Foreign Relations, and her colleges to consult me on research. Thank you to the personnel at the Research and Development Institute Roi Et Rajabhat University for providing facilities of doing this research. Thank you Assist.Prof. Therarsak Dakaew, Vice Director of Student Affairs and Culture who gave me knowledge on the knowledge management, classroom management and giving me documents. Thank you to Dr.Saksri Suebsing, Director of Research and Development, who helped me in doing this research. At last but not at least, I thank you to lectures and personnel at the Education College who facilitated me in doing this research as well as thanks to the third year bachelor students of English education who participated in this research.

References