

Creative Problem-Based Learning: A Need Analysis for Developing Learning Model and Tools for Enhancing Students' English Competence in Vocational High School

Hersulastuti¹, Dwi Bambang Putut Setiyadi¹, Iswan Riyadi²

¹ Graduate Program, Universitas Widya Dharma Klaten, Klaten, Indonesia

² Teacher Training Faculty, Universitas Widya Dharma Klaten, Klaten, Indonesia

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Abstract: The aims of this research: (1) to describe the condition of teaching and learning English in Vocational High School (VHS) in implementing the 2013 National Curriculum, and (2) to determine the needs analysis of the teachers and students for developing the Creative Problem-Based Learning (CPBL) model and tools for English learning in VHS. This research was the initial stage of Research and Development (R&D) conducted through descriptive qualitative approach involving ten participants (English teachers) and twenty respondents (VHS students) of ten schools from different regions and provinces in Indonesia. Data were collected from questionnaire, interview, observation, and document study. Triangulation technique was employed to examine the trustworthiness of the data, then analysed using interactive model of Miles & Huberman (1994). The finding indicated that there are two crucial problems faced by teachers in conducting English teaching practices in VHS: the time constraint in implementing scientific models, and the usage of the general learning material which was not relevant for preparing students entering the workplace. Based on the needs analysis, both teachers and students need other alternative learning models and tools which are developed based on the needs in VHS. Conceptually, CPBL Models and Tools is appropriate for English learning in VHS.

1 INTRODUCTION

At present, one big challenge for English teachers in Vocational High School (VHS) is fostering students' English competence needed for completing the tasks relevant with the requirements in the workplace. As stated in 2013 curriculum, English learning in VHS is conducted only in 2- 3 hours/ week. The limited time allotted brings lots of barriers for teachers since they have to teach their students using scientific learning models as recommended. This condition is worsened by the policy to implement the same curriculum as used in Senior High School. Consequently, there is not any different on the use of the learning material, whereas both schools have different objectives, need, learning system, and characteristic.

Based on the preliminary study conducted at three schools in Klaten, the findings indicated that in implementing 2013 curriculum, there was positive attitudes of the VHS teachers towards the scientific learning, however, it was not optimally reflected in the teaching practice. One important finding showed

that in teaching, teachers encountered problems with the limited time to use the scientific learning models because they needed longer time to perform the whole syntax of the models (Hersulastuti and Yuliantoro, 2016). Another study revealed that in teaching, not all teachers were qualified to use the scientific learning models, such as discovery/inquiry based learning, project-based learning, and problem-based learning. Surprisingly, as it was observed, there was a teacher carrying out the lesson without making preparation, as a consequence, the learning could not run effectively (Novillia, 2016).

In relation with the learning tools, the initial analysis toward the book of Bahasa Inggris which was provided by government and widely used to teach tenth grade students demonstrated that the material presented was too general for VHS students, most of the texts provided were less authentic, moreover the activities designed had not optimally supported the development of critical thinking and problem solving skills of the students. This condition challenges teachers to look for other relevant

materials to fulfil the students' need by exploring more appropriate materials browsed from the internet. The two phenomenon presented in the previous studies above might occur in other different districts, or other provinces in Indonesia.

Meanwhile, following the nature of the scientific learnings and accommodating the 21st century learning, there is a strong requirement to lead VHS students at least develop 4 Cs (critical thinking, creative, communicative, and collaborative) which are very important for successfully performing the assignments of their job. To achieve this condition, there should be great efforts to provide better learning exposure to make them optimally achieve their English competence so that they are able to win the job competition in the workplace. Therefore, developing learning model and tools of Creative Problem-Based Learning (CPBL) is crucial to do. This model uses theoretical bases of problem-based learning where learner's simultaneously develop new knowledge and skills based on their initial knowledge and treat them as the active subject of learning to become problem solvers by facing them to problems reflecting of the real life (Arends, 2007). This model, theoretically, is believed to be appropriate for VHS context to improve students' competence and develop positive characters, think critically, to be creative in finding solutions of the problems, and develop collaborations at once. These skills are essential to gain success in their job performances which have different complexities and require smart and creative solutions.

The choice to develop CPBL model and tools was triggered by some proofs of the previous findings that students were able to learn effectively in the problem solving class as they were required to develop their high order thinking skills and resulted higher grade in accomplishing their assignments (Ormrod, 2006; Idowu, Muir and Easton, 2016). Another evidence demonstrated that in the language learning, problem-based learning could foster student's grammar mastery, acquire more vocabulary, and successfully handle problems in the communication process. It happened because students were challenged to be problem solvers to explore and communicate their solution creatively to be accepted by others (Doghonadze and Gorgiladze, 2008). (Othman and Shah, 2013) highlighted the effect of PBL in essay writing and they found that the experiment group could develop thesis and supporting arguments variously than the control group. The use of PBL in English class enhanced students doing more exploration and meaningful interaction as they had a freedom to determine the solutions to solve the

problems without interfering with their mother language.

Taking the results of the previous studies, it is important to recommend English teachers in VHS put PBL into practices, however as VHS has different learning situation and specific characteristic, a particular modification or adjustment needs to be made for accommodating VHS learning context to achieve the learning success. It is, therefore, the present study mainly aims at describing English learning in VHS and analysing the needs for developing the CPBL model and tools for enhancing students' English competence in VHS context.

2 METHOD

The present study was the initial phase of Research and development (R&D). It was conducted through descriptive research by means of qualitative approach. There were thirty participants and respondents consisted of ten participants from different provinces (East Java, Mid Java, West Java, DIY, DKI, Bali) and twenty respondents from two different provinces (West Java, and Mid Java). They were selected purposively to take part in the study. This study used questionnaire, observation, interview, and document study to collect the data. The interview was conducted to the participants either by face to face and phone as well as by written communication using e-mail, Line, or WhatsApp focusing on English learning in VHS and the needs for developing CPBL Model and Tools for enhancing students' English competence in VHS. The questionnaire was administered to obtain data from the respondents contained questions relating to their general views about the learning, especially focusing on the learning models and material used in their study and identified their needs of the learning materials which are relevant to support their competence. Meanwhile, observations were done at three schools (Solo, Klaten, and Magelang) and it was video recorded aimed at obtaining the factual data of the English learning. Several documents, like syllabus, lesson plans, and book which was used in English learning were studied to support the data. To examine the trustworthiness of the data, this study used triangulation of multiple method of data collection to ensure that the data obtained were dependable each other. Data then further analyzed by interactive model analysis (Miles and Huberman, 1994), consisted of three main activities: data reduction, data display, and conclusion drawing/verification. At the first step, the data from the field

note and interview script, and questionnaire were reduced and selected according to the main focus of the study, only the relevant data were analyzed, while the irrelevant data were reduced. At the second step, the data were presented in narrative text and table to help the researcher's understood and what was happening. The data were displayed systematically and objectively. The data display in this study was passed through several activities: cross checking the findings, synthesizing, and writing report. The last step was conclusion drawing/verification. It was done by noting patterns and themes, giving meaning and interpreting the data, comparing, and verifying to add the clarity. Confirmation and verification was carried out through triangulation.

3 RESULT AND DISCUSSION

By referring to the data collected from questionnaire, interview, observation, and document study, they can be presented according to the focus of the research. The data obtained were classified into three major aspects: (1) teachers' point of view about English learning in VHS: the purpose, syllabus, instruction material, method, media, and assessment; (2) the practice of English learning in VHS (3) the need analysis for developing CPBL models and tools for enhancing students' English competence.

3.1 Teachers' Point of View about English learning in VHS

Ten teachers (T1, T2, T3...T10) who are selected in this study state that English learning based on the 2013 National Curriculum, either VHS or Senior High School (SHS) implement the same syllabus and learning materials provided by the ministry to achieve the mastery of communicative competence. As a consequence, there is no difference in using the learning materials for both schools. Whereas seen from the learning characteristic, teachers think that teaching and learning English in VHS should be different from SHS. For this matter, they claim that ideally, English learning in VHS should be directed to make students proficient in both written and spoken language to support their competence relevant with their field of expertise. To facilitate this to occur, there should be a suitability of other learning components. It includes the implementation of appropriate learning models and the use of relevant materials to support students have communication skills required in the workplace. They believe that appropriate materials in learning can lead students get

better achievement. In this case, there is a discrepancy between what is regulated and what is needed.

The belief held by the teachers supports (Ojanperä, 2014) study that English matters, especially for contributing the employees' job performance. This study proved that having good English mastery, some employees got some merits for enhancing their career path as they were given more opportunities and promotions to be sent to other countries for handling particular jobs, hence they earned more financial and rewards. In contrast, those who were lack of English competence might get some barriers in accomplishing their tasks. This finding implied that the ability to communicate in English fluently in the workplace was a very valuable skill and became great asset to many companies.

In relation with the scientific method which should be conducted in all schools, including in VHS, all teachers showed positive responses. It is because all teachers have attended workshops on the implementation of the 2013 National Curriculum. They agree that implementing such a method comprising of five or six phases (observing, questioning, experimenting, associating, communicating, or/and creating) in learning is a golden way to lead students develop attitudes, skills, and knowledge. Such belief was similar with the finding of the previous study that the good perception on the implementation of scientific approach was possibly influenced by some professional development, like seminar, or workshop they have attended before. Therefore they did not hesitate to put it into practice (Sofyan, 2016). Another reason was because they believed that this methods could direct students to act like scientist by putting forward the inductive reasoning rather than deductive one. With this nature, in conducting learning, teachers realize that they have to change their mind set from teacher-oriented learning to student- oriented one. This condition brings consequences that in the learning process they should provide students with opportunities to develop their curiosity and construct knowledge in their cognitive process to make students develop high order thinking skills, foster problem solving skills, as well as gain communication skills at once.

Teachers in this study viewed media as an important factor to gain the learning success. An interesting media could arouse students' motivation to learn. They also believed that various media would make good impacts in learning. The analysis showed that the kinds of media which teachers usually used were pictures, printed media (newspapers and

magazines), electronic media (film, video, tapes) and some other new Medias like mobile phone, tablet, and internet. This finding was similar with the previous study that English teachers in Czech secondary school used a variety of media in their EFL classroom. In comparing which kinds of media which is appropriate for teaching English, the finding showed that both the old and new media were commonly used and regarded as effective. However, seen from the student's preference, the new media, especially internet was the most popular for the students than the old media (Slavíková, 2014).

The assessment recommended in the 2013 National Curriculum is authentic assessment. Teachers (T3, T6, and T7) admitted that they did not know in particular details, however they viewed that authentic assessment as the method for assessing students' competence comprising three areas, namely attitudes, knowledge, and skills. In conducting the assessment, it could be in form of project, performance, and portfolio. The finding revealed that teachers had understood about this kind of assessments. However, it was not quite easy to put it into practice. Further checking in the lesson plan, although they had implemented several techniques in assessing students' progress and achievement, but they still encountered some problems in designing assignments, providing the rubric for scoring, and writing the report. This finding has been similar with the previous study that teachers get difficulties in implementing authentic assessment due to the lack of teachers' comprehensive understanding of the 2013 National Curriculum. Therefore, further recommendation was addressed to provide teachers with effective training program (Retnawati, Hadi and Nugraha, 2016).

3.2 The Practice of English Learning in VHS

In teaching practice, based on the interview, all teachers admitted that they carried out learning following the phases of the scientific approach. Different activities were designed in every phases of the method. The procedures of each phases simply summarized as follows: (1) observing – give students opportunity to observe text, picture, or certain object relevant to the topic presented, identify the important things from the object, and comprehend the result; (2) questioning – encourage students to actively learn and develop questions relating what they have observed, inspire others to answer logically, support students to participate in the discussion, encourage tolerance, and foster students' ability to think critically; (3)

experimenting – put students into several groups for discussion, supervise and guide the process, and monitor the results; (4) associating – provide students opportunity to analyse and associate the information obtained from the discussion, ask students to make connection of each information for drawing conclusion; (5) communicating - encourage students to communicate the result to other by demonstrating their abilities, or reporting the result, and (6) creating – the follow up activity by creating products or ideas by using the knowledge that has been constructed.

Teachers' explanations above was in accordance with the steps stated in the Regulation of Minister of Culture and Education Number 103 of 2014. In the real practice, T1 and T5 further explained that the five or six phases of the scientific method were not always delivered in one meeting at once. They sometimes broke up the syntax into several meetings to deal with the limited time they had, for this matter, there was another problem relating with developing four language skills integrated. Such findings was in line with the previous study conducted by (Budianto, 2014) who proved that due to the limited time available, the teacher observed was not able to perform all the scientific stages as recommended. However, some features presented by the teacher could encourage students to participate into the learning and build student's confidence in accomplishing tasks given by the teacher.

The analysis on 3 lesson plans made by the teachers (T3, T4, and T7) reflected the teachers' knowledge that in general, they have understood the nature of scientific learning. It could be traced from the method chosen by the teachers which was presented in the main learning activities reflecting the syntax of the method stated.

Confronting to the result of the observations conducted in three schools in different places: Solo (S1), Klaten (S2), and Magelang (S3), it was clear to see that teachers have implemented scientific learning variously. The summary of the observation can be presented in Table 1.

Table 1: The teaching practice in 3 vocational high schools.

No.	Aspects	S1	S2	S3
1	Syllabus	English syllabus for <i>SMA/MA/SMK/MAK</i>	English syllabus for <i>SMA/MA/SMK/MAK</i>	English syllabus for <i>SMA/MA/SMK/MAK</i>
2	Method	Project-Based Learning: (start with the essential question; design a plan for the project; create a schedule; monitor the progress of the project; and asses the outcome)	Scientific Method: (observing; questioning; experimenting; associating; communicating)	Problem-Based Learning: (problem orientation; organizing learners; conducting investigation; presenting the result; and evaluating the problem solving process)
3	Material & Sources	Exposition writing; <i>Bahasa Inggris Kelas XI</i> ; other texts taken from internet	Describing people; <i>Bahasa Inggris Kelas X</i>	Asking and giving information; <i>Bahasa Inggris Kelas XII</i> , other supplementary materials taken from internet.
4	Media	Multi-media	Picture	Multi-media
5	Evaluation	Authentic assesment	Authentic assessment	Authentic assessment

It can be seen from the Table 1, teachers have conducted scientific learning, however, some fundamental problems encountered during teaching and learning process. The teacher in S1, though she has a good capability in presenting the materials, at the beginning she still found difficult to encourage students to engage in the learning. This situation challenged the teacher to elicit several questions to make students think critically about the topic presented. Another problem found was relating with the time constraint. It was observed that to present Project-Based Learning method by following its whole syntax really consumed longer time. This was similar with the result of the preliminary study conducted for the present study (Hersulastuti and Yuliantoro, 2016). Confronted to some students, they said that actually they enjoyed the learning as the teacher was qualified, but they were not accustomed to learn in such learning situation, they needed time to adjust.

Several barriers also found in S2. In applying the scientific method, especially in the questioning phase, there was a stagnant of the learning as students did not pose any questions relating with the picture observed, instead of that, the teacher himself delivered questions to students. The findings of the present study was in line with the study conducted by (Zaim, 2017). In questioning phase, students were expected to actively learn and develop questions to raise skills and the other answer systematically and logically using correct grammar, however it was found out that in general, teachers still had problems to do this activity. The problems occurred were related to students' ability as they have limited

vocabularies to ask questions, another reason was that they were afraid of making mistakes. Similar problem occurred in the communicating phase. It was still difficult to encourage students to present their descriptions.

Meanwhile, different problems occurred in S3. In implementing Problem-Based Learning method, teacher tried to perform its syntax as it was prepared in her lesson plan, nevertheless she was looked in rush to move from one phase to another phase. When it was confirmed, she argued that she was limited by the time allotted.

Apart of the finding above, another finding showed that not all teachers participating in this study (T4, and T9) experienced in using all learning methods as recommended in curriculum. In addition, three other teachers (T1, T3, and T6) sometimes used other methods, like jigsaw, or think pair share depended on the learning situations.

In relation with the use of learning materials. In this case, there were four teachers (T2, T4, T5, T9) who committed using the books distributed by the ministry as the main learning source, whereas six others (T1, T3, T6, T7, T8, T10) prefer using other authentic materials taken from other learning sources which considered more relevant with the needs of the students. The difficulties laid on adjusting the authentic materials which are appropriate with the topics they were going to teach. In most cases, such materials contain more difficult language and terms which require more explanation.

3.3 The Need for Developing Creative Problem-Based Learning Model and Tools

The two crucial problems relating with the implementation of scientific learning in VHS brings implication to develop CPBL Models and Tools for alternative solution to overcome the barriers faced by teachers. Based on the analysis of the interview, there is a need from the teachers (100%) to remain using scientific method in their learning, as it becomes mandate of the curriculum, however it should accommodate the limited time available. They claimed that based on their practices, to perform the whole syntax of the learning models as recommended really consumed longer time. T1, T7, and T10 experienced of such matter often that made their learning unfinished. This statement further strengthens the finding of the previous studies (Budianto, 2014; Hersulastuti and Yuliantoro, 2016). For this reason, they suggest that the model which will be developed through the present study should have simple syntax and easy to remember to avoid teachers taking a look often into their lesson plan during they are implementing the model. This is important matter as it will build their confidence and generally will influence students' perception toward teachers' readiness as well. Therefore, 100 % of the participants agree with the development of the model and tools which encourages students' active participation. 90 % of them are willing to take part in developing CPBL models and tools by actively contribute in the development process. Whereas 10 % of the participants still need to see the effectiveness of the model which will be developed and know its impact on students' learning before stating the willingness to be involved.

To optimally support the students' enhancement on their communicative competence, teachers (100%) need learning tools, especially learning materials which accommodate the students' needs for habituating them to the communication context of workplace. It is because the existing book they used to teach at present contains too general material for VHS students. They need other supporting material to encourage students to be more competent in English since they have to compete for getting job as soon as they graduate from schools. The analysis shows that teachers need any supplementary book which contains the balanced proportion of the four integrated skills, provides authentic material, grammar insert, vocabulary building, and uses interesting illustrations to attract students to learn.

Another point to include is the guidelines on how to use the books, summary, and reflection page.

The analysis of students' needs highlights the importance of learning English for preparing them to enter the workplace. 90 % of the respondents believe that having good English mastery is beneficial for supporting their competence. Whereas 10% believe that productive skills are more important for them. In relation with the English learning conducted by the teachers, surprisingly, only 70 % of the respondents claimed that they enjoyed learning English using the scientific models. The rest of 30% felt confused as teachers changed activities often, even when they had not finished doing a certain task yet, soon they needed to move to another task. Such situation made them not so excited since it put them in rush to accomplish the task. In answering to their preference of the learning methods, 100% of the respondents stated that they like to study English in situations where they could participate actively in more fun learning situation.

Further analysis on their needs of learning materials, 100% of the respondents agree that the existing book they used to study contained general materials, therefore they need other supporting sources which could fulfil their vocational English to improve their competence. The reason was to prepare them to enter to the workplace. Taking the needs analysis conducted in this initial phase, it signifies that developing the CPBL models and tools which accommodates VHS learning context is urgently needed to enhance the students' competence.

4 CONCLUSIONS

The present study have revealed the factual condition in English learning in VHS in implementing the 2013 National Curriculum. The findings show that teachers have sufficient knowledge about the implementation of the curriculum for English learning in VHS context. Teachers have implemented scientific models as recommended in the curriculum, however there are two crucial problems that become barriers in conducting the English learning, firstly, dealing with the time constraint to perform the whole syntax of the scientific learning models, and secondly in relation with the learning material used to teach English which is not relevant with the student's needs.

The needs analysis conducted to teachers and students resulting the needs to develop other alternative scientific learning models which are simple in its syntax and practical to be implemented in VHS context. To optimize such models, teachers and students need learning tools, including learning

materials which are relevant with their needs to habituate students to the field of English in the workplace. Conceptually, CPBL model and tools can meet the needs for enhancing students' English competence, and developing their positive characters.

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