DESIGNING PROBLEM-BASED LEARNING THROUGH NARRATIVE STORIES FOR MICROTEACHING CLASS USING ADDIE MODEL

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Abstract: This research aimed to design a reflection book as a set of problem-based learning (PBL) for a supplementary material in Microteaching class. The book was developed not only to assist pre-service English teachers (PSETs) undergoing Microteaching class to understand real problems in school context, but also to help them enhance their problem-solving skill through critical reflection and discussion. This book was designed by implementing ADDIE model, consisting of five phases, namely Analysis, Design, Development, Implementation, and Evaluation. This product was formatively evaluated within the Analysis, Design, Development and Implementation phases and was field tested in Microteaching class comprising of 19 PSETs from the English Language Education Study Program in Tuladha University (pseudonym). In the last stage, summative evaluation was conducted by two subject matter experts whose background was both English education lecturers and book authors. Product validation included narrative story aspect and reflective activities. The validation result showed that the book was appropriate and practical for enhancing PSETs' problem-solving skill.

Keywords: ADDIE model; microteaching; narrative stories; problem-based learning.

INTRODUCTION

Problem-solving skill becomes an important aspect in teacher preparation program. This skill is needed by teachers to make useful and accountable decisions regarding their complex duties and

responsibilities. Therefore, in the 21st century, education experts pay more attention to effective teaching that enhances this skill (Harshbarger, 2016) as a way of making sense of reflective thinking and reasoning to determine what must be done (Sumartini, 2016). It can be inferred that teachers who are able to think and reason logically are able to deal with problems effectively (Rillero et al., 2017).

It will be beneficial when teacher education institution facilitates their pre-service teachers to enhance this skill as the preparation for their future career. It is because teachers are required and expected to always reflect on their teaching and actions in the purpose of continuously dealing with their students (Harn & Meline, 2019). The enhancement of problem solving skill in PSETs can be facilitated through conducive learning environment. Hence, appropriate learning methods situated in real contexts of the learners can open opportunities to activate prior knowledge, explore problems and practice their problem-solving skill through reflection (Yew & O'Grady, 2012). One of learning methods to improve problem-solving ability is problem-based learning (Sumartini, 2016).

The concern of problem-based learning (PBL) in Indonesia has been increasing as it is in line with the National Education Roadmap (2020-2035) by the Ministry of Education and Culture (Kementerian Pendidikan dan Kebudayaan, 2020). The roadmap is developed to guide education stakeholders, especially education faculty, to prepare high quality of pre-service teachers with advanced problem-solving skills. Hence, they become qualified teachers for the 21st century learning.

Moreover, there have been various themes on PBL investigated throughout the world. In the past five years, studies on PBL have developed crucial issues related to teachers' competencies, STEM, creativity, and scientific inquiry. Ertmer et al. (2014) studied teachers' knowledge and confidence in implementing PBL in the context of teaching science, technology, engineering, and mathematics (STEM). By conducting mixed-method, they found that implementing PBL in

STEM gave positive impacts to the teachers as they gained their content knowledge of the subjects they taught. Moreover, the teachers participating in the study testified that they enhanced their confidence while implementing PBL in their classes.

Ajmal et al. (2016) conducted an experimental research on Pakistani pre-service teachers' experience while studying a course through PBL in their preparation to become future teachers. The result showed that the prospective teachers found that a course based on PBL helped them to progress in developing some skills and confidence. Further, the pre-service teachers sometimes also found difficulties in understanding PBL materials. To come up with this challenge, the prospective teachers brought the particular materials into group discussions.

The different studies conducted in the context of STEM teachers (Ertmer et al., 2014) and Pakistani pre-service teachers (Ajmal et al., 2016) shared similar results in the context of the positive impact that PBL might give. Both studies highlighted the conclusion related to PBL in enhancing skills and confidence.

A study related to PBL conducted by Moutinho et al. (2015) highlighted science teachers' perception on using PBL in teaching Nature Science subject. The result showed that the participants of this research believed that PBL was helpful to enhance their scientific inquiry. PBL also fostered the teachers' scientific knowledge and creativity in scientific attempt. Another study was also conducted in the context of English learning. The study conducted by Hwang et al. (2017) integrated PBL and English listening game. They developed an English listening game underlying in PBL. Using quasi-experiment method, they found that their designed game promoted students' English learning achievement and motivation.

In Indonesian context, studies on PBL were also conducted. A study conducted by Windari (2017) examined the implementation of PBL to enhance students' English skills in grade 12 in a particular senior high school in Denpasar. Using a class action research (CAR), the result showed that PBL helped the students to improve their

ability to think critically affecting their English evaluation score. Another study conducted by Murniyati (2017) by using CAR in junior high school context. She highlighted that using PBL through mind-mapping gave positive impact on students' English academic performance improvement. In the university level, Fakhriyah (2014) conducted a study on the use of PBL to develop pre-service primary teachers' critical thinking in the context of science learning. She claimed that the students' ability to identify, to analyze, and to think logically could be nurtured through PBL so that they were able to make the right decision and conclusion.

Although a number of studies on PBL as above have provided positive evidences on the students' learning, particularly on their creativity and critical scientific inquiry, studies on PBL centering around authentic narrative stories for PSETs are still underrepresented. It is for this reason that this study was carried out to take a part in supporting national education roadmap in equipping pre-service English teachers (PSETs) with problem-solving skill.

Thus, the significance of this current study is at closing the above research gaps on PBL contexts by designing PBL using narrative stories for Microteaching class. Narrative stories of teachers are powerful as media for the PSETS' reflection to imagine the real teaching context (Gouthro, 2014). Besides, microteaching class is justified as the current study field because it is the first place for pre-service English teachers to practice teaching and to help the pre-service English teachers to increase their awareness about teaching profession (Coskun, 2016).

This research is expected to shed a light on PSETs' enhancement of the problem-solving skill through problem-based learning with narrative stories. The purpose of this research is to create a learning product in the form of a reflection book based on the concept of PBL as the preparation for PSETs to face real problems in the school context. Therefore, this research was conducted to answer the research question: How was the set of narrative stories using problem-based learning for Microteaching class designed?

LITERATURE REVIEW

Problem-based Learning

PBL is defined as both teaching method and instructional strategy. As a teaching method, problem-based instruction highlights the use of real problems within narrative stories in order to designate target issue in learning activities (Harn & Meline, 2019). Meanwhile, as an instructional strategy, problem-based instruction facilitates students to deliberate, scrutinize, and propose potential solutions to the real-problems narrated in stories.

Barrows (1986) asserts that PBL enables learners to acquire prior knowledge, retain, retrieve, and use the knowledge in the future context. Since in PBL students are the problem solvers (Moutinho et al., 2015), they define the context of the problem and consider the conditions to find a solution (Savery, 2015). Not only can the students learn strategies for critical thinking, finding information, and sharing ideas, PSETs can also work collaboratively in groups to identify what they already know, what they need to know, and how to obtain information to solve problems (Ajmal et al., 2016). By collaborative work, students participate in self-directed learning and apply new knowledge and ideas to solve problems. They, then, reflect on the effectiveness of their problem solving strategies. In PBL, the teachers play the main role as facilitators to support, guide, and monitor the students' learning process (Christiansen et al., 2013).

The notion of PBL refers to a learning model that focuses on students where they learn something through problems and the problem solving process. In this research, PBL refers to a set of instructional strategy packed with re-constructed true stories to depict the problem situations. Within PBL, a set of activities is organized to facilitate the PSETs to deliberate, scrutinize, and elaborate potential solutions for the depicted problems. There will be no right or wrong solutions since PBL employs elaborative open-ended responses.

Narrative stories in PBL

In the context of this study, the researchers designed the problems for PBL in the form of narrative stories. It is because narrative stories can be powerful resources of learning. Narrative stories of teachers are important as sources of inquiry and reflection leading to teacher professional development (Rhodes, 2019). Teachers' stories bring real-life classroom experiences in which they explore dilemmatic problems and complexities related to teaching (McNett, 2016). By bringing the real-life problems in the form of stories in this study, the researchers believe that PSETs can learn the real classroom problems, through which their critical thinking and problem-solving skill can be challenged and honed to a higher level.

The narrative stories in PBL can be an effective tool to present the situations that foreshadow what PSETs potentially deal with in the future workplace (Davidson & Major, 2014). The situations include instructional, behavioral, psychological, contextual (Soleimani & Razmjoo, 2016) and ethical problems (Benninga, 2013) that teachers face in the school context. Therefore, it is hoped that the narrative stories help PSETs to make sense of and connect the presented teachers' experiences to their own background and understanding (Gouthro, 2014).

METHOD

The study employed ADDIE model (Branch, 2009; Cheung, 2016) to answer the research question. The model of the instructional design consisted of five phases, namely Analysis, Design, Development, Implementation, and Evaluation. Figure 1 depicts the procedure taken in this research (Sopian et al., 2019).

As portrayed in Figure 1, each step of ADDIE model required formative evaluation from the subject matter experts (i.e., Microteaching lecturers or validators) in order to improve the book. The formative evaluation was conducted within the process of

analyzing, designing, developing, and implementing the learning product.

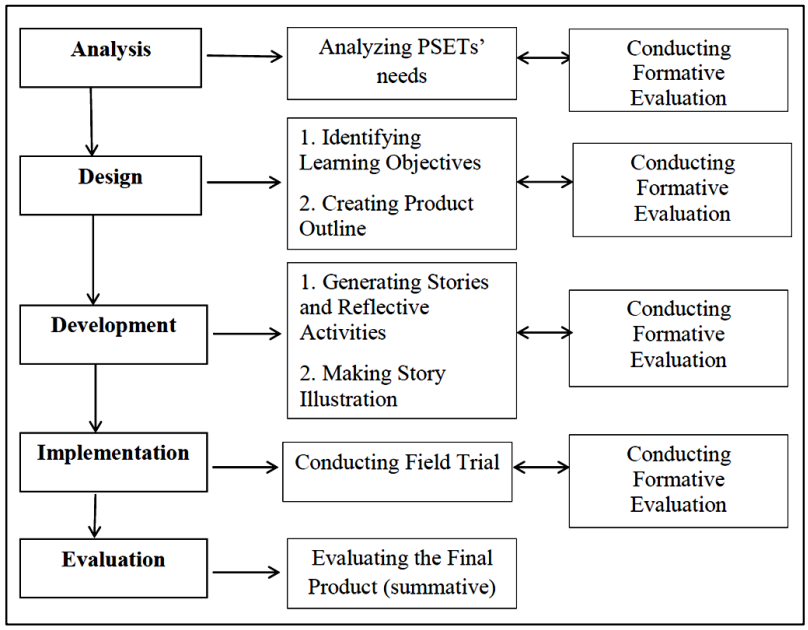

Figure 1 Procedure in ADDIE Model

Meanwhile, summative evaluation was performed at the end of the stages to check the overall feasibility of implementing the designed materials. Both evaluations were correlated to each steps of the ADDIE model.

The participants in the Analysis, Design, Development and Evaluation phases were chosen with purposive sampling (Ary et al., 2010) based on the background and expertise to obtain valid data. Meanwhile, the researchers used cluster random sampling (Ary et al., 2010) in the Implementation phase to choose 1 out of 8 Microteaching classes.

In the Analysis Phase, the researchers involved three English teachers and two teaching practicum supervisor lecturers to get information about PSETs' performance in the school-based teaching practicum and PSETs' needs for performance improvement. PSETs undergoing Microteaching class were also involved to get information of problems in class from their viewpoint. The data gathered from

English teachers, supervisor lecturers, and PSETs were formatively evaluated by the Head of Teaching Practicum program in order to get justification of the PSETs needs and the proposed design.

Table 1 Research Participants

Stage of procedure	Participant (s)
Analysis	• 3 English teachers • 2 Teaching practicum supervisor • The head of teaching practicum program
Design	• 5 Microteaching lecturers • 5 English teachers
Development	• Teacher Professional Development (TPD) expert • English education lecturer
Implementation	• 19 pre-service English teachers • the lecturer of the Microteaching class
Evaluation	2 educational book authors

In the Design Phase, five Microteaching lecturers and English teachers were involved to give evaluation on the learning objectives and product outline proposed by the researchers. In the Development Phase, two subject matter experts whose expertise was in Teacher Professional Development and English Language Teaching respectively were involved to evaluate the design prototype. In the Implementation Phase, all PSETs in a Microteaching class and a Microteaching lecturer were involved to give evaluation to the product during the trial. In the last stage of Evaluation Phase, two subject matter experts whose background of both was educational lecturers and book authors were involved to give their summative evaluation for the reflection book.

Generally, this research employed multiple data collection techniques, namely interview, FGD and questionnaire. In the Analysis Phase, the researchers examined the PSETs' needs regarding their problem solving skill. The information was gathered by conducting interview with the teaching practicum supervisor lecturers and English teachers. The researchers also conducted focus group discussion (FGD) in one Microteaching class consisting of nineteen PSETs. The results of the interview and FGD were used to analyze

PSETs' needs to enhance their problem solving skill in order to prepare them for school-based teaching practicum and their early teaching career. The PSETs' needs, then, were evaluated by the Head of Teaching Practicum Program through semi-structured interview.

In the Design Phase, a questionnaire containing list of topics was used to get evaluation from the research participants. The questionnaire was developed with a Likert-scale (from 1 to 5) with the qualitative value of "not feasible, not necessary, neutral, necessary, feasible". In the Development Phase the researchers generated stories and reflective questions based on the six chosen topics. Illustrations were also created in order give delineation on the story content. A lesson plan of material delivery was also constructed in this phase. The stories, reflective questions, illustrations, and lesson plan were evaluated by an expert in teacher professional development and an English education lecturer through interview. The revisions were made based on the expert's suggestions.

After the revision, the researchers came to Implementation Phase to conduct the learning product trial to get feedback from PSETs and the Microteaching lecturer. The researchers applied the supplementary materials in six meetings for all six units of the learning product. The implementation was conducted in a Microteaching class from 18 February to 5 March 2020 in Tuladha University. A questionnaire adapted from Delisle (1997) on evaluating problem presentation on PBL was used to get the evaluation from the participants.

The last step of this research was summative evaluation to assess the feasibility of the final version of the reflection book. The summative evaluation was performed by involving two subject matter experts. The background of the experts was English education lecturers and educational book authors. A Likert-scale questionnaire ranging from 1 to 5 illustrating qualitative value of "Very Poor, Poor, Fair, Good, and Very Good" respectively was given to the experts. The questionnaire was adapted from Delisle (1997) to assess whether the problem presented through the story is clear to define, meets the

goals of Microteaching class, builds students' thinking and reasoning skills, connects the students' current learning and the future professional teaching world, and is at the right level for the Microteaching students' current learning.

The instruments used in this research were FGD initial questions, interview questions, and questionnaires. Spaces were also provided in the questionnaire for the evaluators to write their feedback or comments. Thus, the data for this study was qualitative in nature, lending a great deal to FGD notes, interview transcript which had been member-checked and assessment results. The data were descriptively analyzed by using Ary et al. (2010) qualitative data analysis techniques. The techniques included transcribing raw data, coding, categorizing, and conceptualizing in the Analysis Phase.

FINDINGS AND DISCUSSION

This part discusses the elaboration of five steps of ADDIE model: Analysis, Design, Development, Implementation, and Evaluation.

Analysis Phase

In the Analysis Phase, the researchers gathered information about PSETs' current knowledge, skills, or attitudes and what they needed to learn and achieve (Cheung, 2016). The problem-based supplementary material learning model was developed based on the problems faced by PSETs and teachers in school context. The researchers conducted some interviews with English education lecturers and English teachers who were experienced in mentoring and supervising PSETs in their school-based teaching practicum.

First, the researchers interviewed the English education lecturers in order to gain information about evaluation and suggestion from the schools regarding PSETs' ability and attitude during the practicum. The two initial questions in the interview were as follows: *1) What input from partner schools did you know about the ability and attitude of PSETs in the school-based teaching practicum*

program regarding their teaching competence, attitude, and motivation? 2) What competencies did PSETs need to improve as teacher candidates?

Second, the researchers interviewed English teachers who were experienced in mentoring PSETs in order to obtain information about PSETs' strengths and weaknesses. Two initial questions were asked, namely *1) What positive aspects did you know about the ability and attitude of PSETs while undergoing the teaching practice program? 2) What competencies did PSETs need to improve as teacher candidates?*

Besides gaining information from the lecturers and mentor teachers' point of view, the researchers also conducted FGD in one Microteaching class. The FGD aimed at finding out information related to teaching problems from PSETs' point of view. Similarly, two initial questions to discuss were addressed as follows *(1) What problems did a teacher commonly find related to learning situation and condition? (2) How did their teachers commonly respond to those problems?*

Based on the interviews and FGD, the researchers transcribed the raw data, coded the transcripts, categorized the coding, and conceptualizing the coding. The researchers found two kinds of problems in the school context, namely classroom management and non-classroom management problems.

Table 2 Problems Faced by PSETs

Categories	Types of Problems	Main Issues
Classroom management problems	Instructional problems	teacher assertiveness, demotivated students, undone homework, class heterogeneity
	Contextual problems	teaching preparation and technical issue, classroom size, school facilities
	Behavioral problems	gadget disruption, student motivation, misbehaved students, teacher confidence, juvenile delinquency
Non- classroom management problems	Ethical problems	teacher-student relation and border
	Psychological problems	teacher belief and identity

There are three categories of major classroom management problems: instructional, contextual, and behavioral problems (Soleimani & Razmjoo, 2016). *Instructional problems* occurred because of, firstly, the low level of PSET assertiveness while conducting teaching practicum. In some cases, students in class tended to look

down on PSETs and were more respectful towards their real teachers than PSETs. This had an impact on how students responded to learning delivered by PSETs in class. In some cases, when PSETs provided homework for students, only few of them did the homework at home, some of them did the work at school and some did not do it at all. Unfinished homework and take-home assignments could be problematic for teachers since it potentially disturbed the class flow (Soleimani & Razmjoo, 2016). Moreover, unfinished homework could be caused by students' regulation of motivation (Xu, 2014). Hence, teachers should be able to build students' motivation.

Secondly, the instructional problem also related to class heterogeneity. Class heterogeneity referred to the variety of the students in the class including students' level of academic and students' characteristics (Mathur & Manocha, 2020). An interview with an English teacher revealed her experiences and attitude in facing problems towards heterogeneous class. Students with high English speaking performance found difficulties when they had to work as a group with students with low English speaking performance. While those students were put in one group, the high performers tended to dominate the discussion and learning process. On the other hand, the low performers were only to follow the domination of the high performer without knowing the point of learning. The teacher stated:

> "*It is like an everlasting problem for new teachers or some senior teachers until we find the right strategy to solve. One strategy might work for Class A but it might not work with Class B or C or else*." [English Teacher 2, interview]

Reflecting from her experience, the English teacher argued that PSETs needed to understand problems related to class heterogeneity and to practice how to deal with such challenges.

Contextual problems referred to problems related to contingent issues (Soleimani & Razmjoo, 2016). It could occur because of PSETs' material mastery, PSETs' teaching preparation, technical error, class size, and school facilities. Teaching was never the same as it had been

planned. There must be unexpected and unpredicted events during the material delivery. Some PSETs usually came to class with good preparation by making use of technology such as an interesting online game and creative slides. While they expected for exciting students joining their class, it did not easily happen. When they were expected to conduct an online game, such as *Kahoot*, the game did not work as it was anticipated due to technical error. Unfortunately, PSETs did not prepare with plan B while their plan A did not work. As the effect, they lost the students' attention during the errors in such circumstance.

Behavioral problems were related to students' conducts during teaching and learning process with teachers at school. This problem could also be contextual as students' characteristics and school background took it into account. The examples of behavioral problems were gadget disruption, distracted students, misbehaved students, and juvenile delinquency. It was also in line with the interview result with an English teacher.

> "*Gadget disruption potentially happens with students. Therefore, the teacher has to be creative in* ***finding strategy to make use of their gadget for meaningful learning activities*** *rather than just telling students not to use gadgets during the lesson. It is the challenge of being teachers in this era.*" [English Teacher 1, interview]

This problem occurred because teachers sometimes were more alarmed to spend time reacting to student misbehavior rather than applying more effective anticipatory approaches (Pankowski & Walker, 2016). Therefore, English Teacher 1 also added that it was crucial to reflect on such problem in PSET education so that teacher candidates would be ready to find strategies to deal with gadget disruption in class.

Non-classroom management problems consisted of ethical and psychological problems. Firstly, *ethical problem* could emerge because of student-PSETs relation. Based on the interview with a lecturer, there was a case in a senior high school when a student tried to attract a PSET by overwhelmingly giving special attention. This kind of

ethical problem potentially occurred when students saw pre-service teachers as their 'seniors practicing to become teachers' rather than their teachers. In other case, the lecturer also added that not all PSETs realized they were teacher candidates. When they did not realize their position, it would be difficult for them to realize their responsibilities and roles. Lecturer 2 gave a case example on this issue.

> *"I got a report from the mentor teacher of a private senior high school that* ***one pre-service teacher dated her student****. It started from frequent simple attention given by the student and the pre-service teacher felt comfortable with. Then, they liked each other and dated while the teaching practice program was still undergoing. For me, it breaks teachers' professional moral value."* [Lecturer 2, interview]

Therefore, it was important for PSETs to be able to show student-teacher border and use appropriate approach to deal with such problem. PSETs needed to understand that student-teacher relationship could positively impact on nurturing students' engagement in school (Archambault et al., 2017). However, they had to keep professional and moral values over personal values when facing ethical dilemma (Benninga, 2013).

The second non-classroom management problem was related to *psychological matter*. Teachers, especially novices and pre-servicers usually came to school with his/ her idealism. Those teachers encountered a psychological challenge when their beliefs coincided with beliefs of the senior teachers. It was because novice and pre-service teachers tend to be more concerned with discipline and behavioral norm maintenance (Wolff et al., 2015). In the interview, an English teacher shared her experience when she used to be a novice. She tried to discipline the students by asking them to always come on time, but one senior teacher actually showed the opposite by being late to class. It became a psychological burden for the novice teacher since she was unable to act more and lack of chance to control the condition that they dealt with (Caspersen & Raaen, 2014). Learning from her experience, the English teacher expected that PSETs had to be equipped not only with knowledge of teaching techniques but also

with insights into potential psychological problem in school context. So, they would be able to deal with it.

Based on the FGD and interviews, the researchers mapped out the possible problems and causes and proposed a solution to help PSETs reflect on those issues. The mapping of the PSETs' needs was subsequently evaluated by the head of teaching practicum program of Tuladha University through interview. The head of teaching practicum program recommended that creating PBL instruction should facilitate PSETs with prior knowledge and depiction about any possible problems that might happen during their school-based teaching practicum. The facilitation was considered suitable to implement in Microteaching class because this class contained substantial elements in the process of teacher professional development during teacher education program (Mutlu, 2014). The problems, moreover, should not be limited to the main objectives of Microteaching class, such as applying the most appropriate teaching method and strategies in their classes, using certain basic teaching skills appropriately, designing lesson plans, managing classroom, and evaluate their peer's teaching. In addition to those objectives, it would be also helpful to provide PSETs undergoing Microteaching class with portrayal of problems that might occur in the future not only about classroom management problems, but also non-classroom management problems.

Design Phase

After the Analysis Phase, the researchers came to Design Phase to create the learning objectives (Cheung, 2016) and product outline. First, the researchers identify the learning objectives. Referring to the evaluation result and recommendation from the head of teaching practicum program, the researchers created the learning objectives as follows, 1) to define the problems provided in the stories, 2) to explain the first reaction while facing such problems, 3) to generate ideas to solve the problems, 4) to discuss in group and highlight others' key points of solutions, 5) to justify the underlying beliefs to deal with

such problems in the future. The objectives were in line with the principle of facilitating PBL elaborated by Savin-Baden (2003).

The researchers chose to use PBL model (Barrows, 1986) that was packed in the form of critical reflective practice (Jones & Ryan, 2014) for the learning instructional design. The problems gained from the Analysis Phase were portrayed in narrative stories in order to facilitate PSETs to deliberate, scrutinize, and propose potential solution to the real-problems narrated in stories (Malone, Helmer, & Polat, 2019). To create the narrative stories, the researchers generated twelve topics based on the result of Analysis Phase.

The twelve topics, then, were given to validators consisting of five English education lecturers and five English teachers. The purpose of validating the topics was to choose the most feasible topics to be developed in to narrative stories. Questionnaires were distributed to the validators to gain the data on topic feasibility. Table 3 showed six out of twelve topics which were considered the most feasible.

Table 3 Topic Validity Result

Topic	Average	Percentage
Contextual problem: A new teacher had planned all the lessons in her laptop, but unavoidable technical matters happened.	4.3	86%
Psychological problem: A student always gave a PSET special attention because she needed the PSET's attention.	4.2	84%
Instructional problem: High performing student did not want to work as a group with low performing peers.	4.2	84%
Behavioral problem: A new teacher got less respect from students. Students preferred to play with their gadget to listen to the teacher.	4.1	82%
Psychological problem: Senior teacher was not discipline and it was in the opposite of teacher's belief.	4.0	80%
Instructional problem: Students did not do homework due to learning motivation.	4.0	80%

Using a five-scaled Likert-scale questionnaire, the validators assessed the degree of feasibility for each topic to discuss in Microteaching class. The average score of the feasibility degree of the six topics was 4.1, signifying that the topics were feasible to be

developed in form of stories as a part of the PBL design. The six topics became the outline of the reflection book development.

Development Phase

After the topics were validated, the researchers created the instructional problem-based materials consisting of true-experience-based narrative stories and reflective activities. The topics were developed into six titles of narrative stories delivered in six units, namely *They didn't do Their Homework, Uncooperative Peers, My Plans Ruined, They Ignored Me, The Girl at School,* and *Uncooperative Colleague* respectively. The distribution of the units was based on the problem category in which the classroom management problems were put in the first units. Meanwhile, considering the problem complexities, the researchers put the non-classroom management problems after the others. The stories were labeled as activity A in the reflection book in which PSETs, as the target audience, were expected to read and understand the problems depicted through the stories.

The reflective questions were, then, made to facilitate PSETs to enhance their problem-solving skill. Four parts of reflections were included in each unit and labeled as Activity B, C, D and E. The elaboration of the reflection activities was as follows. Part B consisted of problem definition and individual reflection. Part B was in line with objectives 1, 2, and 3. In part B, PSETs were expected to define the problems provided in the stories, explain the first reaction, and generate solution for the problems. Therefore, spaces are provided for PSETs to write their responses. Third, part C was in line with objective 4. In part C, PSETs were expected to discuss in group to share their response regarding problem definition and solution. PSETs were also expected to jot down their peers' ideas which are inspiring for them. Fourth, part D was also in line with objective 4. In this part, PSETs were expected to discuss in big group (a class) to share their response regarding problem definition and solution. PSETs were also expected to jot down inspiring ideas related to solutions for the discussed problems. Fifth, part E was in line with

objective 5. In this part, PSETs were expected to justify their underlying beliefs to find resolution to the problems that possibly occur in the following meetings.

Table 4 Sample of the Reflective Questions

Part of Activity	Sample Questions
Part B: Problem definition and individual reflection	After reading the story and understanding the situation, please reflect on these questions: (1) What is the problem faced by Rangga? (2) What would be your first reaction and solution if you were in Rangga's position? Why? Please explain your underlying beliefs of your possible actions.
Part C: Group Sharing	Please work in a group of four and share your response. During the group sharing, please take notes of every member's response. You may jot down some interesting notions from each of the group member.
Part D: Class Discussion	Please share any lessons you have got from the group sharing. Please also jot down ideas from your friends that touch your feeling during the class discussion sessions.
Part E: Resolution	After the class discussion, refer again to the story and think of: (1) What would you do in the next meeting? (2) Why would you do so? What are your underlying beliefs?

In this phase, the researchers also selected supporting media for the content. The researchers chose and created an illustration for each story. The illustrations were put within the story parts and functioned as the pre-activity to give PSETs prior knowledge about the problems that would be discussed.

After generating the content, the researchers developed guidance for lecturer and PSETs as the implementation preparation (Branch, 2009). The guidance was in form of a PBL lesson plan which was adapted from Delisle (1997) and Gagne et al. (2005). The guidance was elaborated as follows.

First, the lecturer began the PBL activities by showing an illustration picture on the beginning of the unit and asked the PSETs about their initial opinion. Second, the lecturer told the PSETs what was expected to do with this learning activity. Third, PSETs divided themselves in a group of four to read and share their understanding the story. While conducting a group discussion, the PSETs wrote their problem definition, first reaction, and possible solution on the provided spaces respectively. Then, the lecturer confirmed the

problem faced by the main character in the story. In this stage, the lecturer facilitated the PSETs to explore their ideas by following their discussion and ask questions or give considerable comments whenever possible. Fourth, PSETs made a circle so that everybody in the class can face each other. Each group representative shared the discussion result. Each of PSETs jotted down any touching / inspiring ideas from the class sharing. Fifth, PSETs wrote down the resolution to prevent similar problem in the following meeting and their underlying beliefs on the provided space. Sixth, the lecturer asked PSETs' impression on doing the activities and the value they learnt. Seventh, the lecturer closed the learning activities.

The narrative stories, reflective activity instructions, and the delivery guidance were discussed with a teacher professional development (TPD) expert and an English education lecturer for formative evaluation. The result of the formative evaluation was in form of qualitative data gained from his comments and suggestions on the stories, instructions of reflective activities, and delivery guidance respectively.

Both experts suggested that, *first*, some diction in the stories needed to be changed in order to give more emotional impact to the PSETs while reading the stories. Therefore, the stories were hopefully more engaging for the target audience. *Second*, the expert of TPD suggested that the picture illustrations could have higher resolution to create better presentation. Meanwhile, the English education lecturer stated that some pictures in books did not really represent the problem shown in the stories. Therefore, illustration changes were needed.

Third, regarding the reflective activities, the experts suggested to provide bigger writing spaces for each activity since the spaces to write PSETs' response were too narrow. Bigger spaces would facilitate PSETs to write more and deeper analytical ideas towards the problem. *Fourth*, the reflective questions should be contextualized based on the problems depicted in the stories. *Fifth*, related to delivery guidance, the TPD expert suggested that the delivery time for each

activity were divided wisely. Moreover, to save the time and to give more exploration on the problem-solving in class, the TPD expert suggested that PSETs should read and do the individual reflection at home. Meanwhile, the English education lecturer suggested to begin the activity by asking initial question related to PSETs' background knowledge. For example in the *Uncooperative Peers* story, the lecturer suggested to ask "*What would you do if you want to put students in some groups? How would you group them?*" to PSETs before reading the story. This would activate PSETs' prior knowledge.

The required revisions were made based on the experts' suggestion. Before the book was tried out to PSETs in Microteaching class, the researchers re-assessed the revised book with the experts.

Implementation Phase

Based on the experts' comments and suggestions, the learning material design which was revised and considered applicable was tried out to PSETs in Microteaching class. The field test was conducted six times for all of the six units from February 18th to March 5th 2020 in one class. The trial was aimed to assess the content of the learning product, whether or not it was understandable by the PSETs. The aspects of the content assessment were 1) the plot of the stories whether it was clear and understandable, 2) the imagery whether it helped PSETs to imagine the situation in the story, 3) story feeling engagement whether it made PSETs feel what the main character felt, 4) problem depiction whether it helped PSETs to foresee the possible problem faced by new teachers, and 5) reflective activities whether it encouraged PSETs to think of possible solution for the problem in the story. The researchers also used the questionnaire ranging from 1 to 5 of the Likert-scale, defining "very poor", "poor", "fair", "good", "very good" respectively, to gather the data of learning product assessment from PSETs. Besides, a space was provided in the questionnaire to facilitate PSETs to give feedback or comment to improve the product quality.

Table 5 the validation sheet by PSETs

Aspects	Statement Number (s)
Story presentation and plot clarity	Q1
Story engagement	Q2, Q3
The appropriateness between the stories and PSETs' needs	Q4
The appropriateness between the reflective activities and PSETs' needs	Q5

The researchers also gave the questionnaire and asked the PSETs to fill the assessment. The result of the five aspects of the reflection book assessment showed that the average score of the story presentation and plot clarity was 4.78, the imagery was 4.80, the story feeling engagement was 4.80, the appropriateness between the stories and PSETs' needs was 4.64, and the appropriateness between the reflective activities and PSETs' needs was 4.77. The general average of all units of the reflection book was 4.76. It means that PSETs generally considered very good for the book. Figure 2 depicted the assessment result of each unit of the book in the Implementation phase.

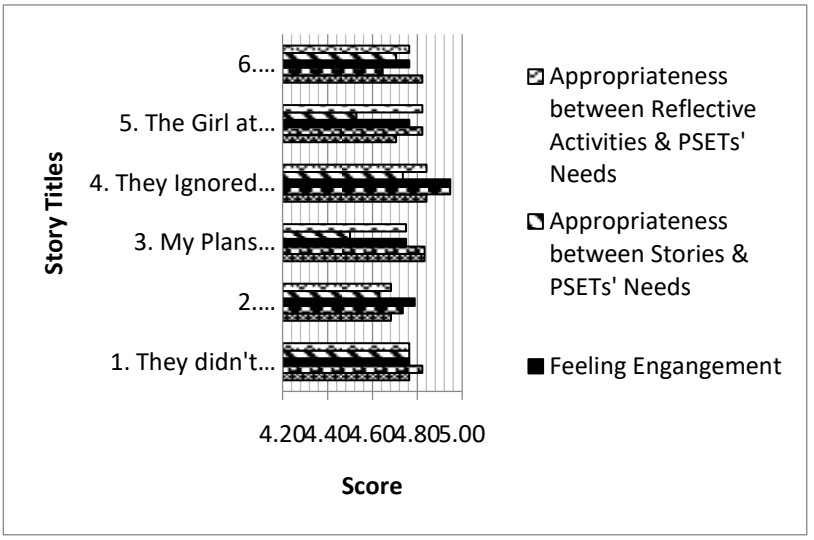

Figure 2 PSETs' Assessment Results

The PSETs gave positive responses about the supplementary material design as follows. The stories were realistic because they

represented the problematic matters in the school context. The stories were engaging because they could feel the main characters' feeling while unexpected problems occurred at school. The vocabulary and plot of the stories were easy to understand, imagine, and encourage them to think of reasonable and considerable solution. The focus of the stories was clear as they were grounded on the perspective of the main characters who experienced dilemmatic problems and struggles (McNett, 2016). Furthermore, the set of activities could help them to predict possible problematic situation at school and to get them prepared for such situation. It was in line with PBL principle to bring the real world problem into the classroom to explore and solve (Savery, 2015). One of the comments from PSETs on the story *My Plans Ruined*:

> *"Through this activity, I practice thinking the cause, effect and the solution for such unexpected technical error. So, when I become a teacher later hopefully I will always prepare for plan B"* **[I3P1, Questionnaire]**.

Some suggestions were also given by PSETs related to the content of the stories. For example, for the story entitled *Uncooperative Peers*, even though the main character's feeling was already well depicted, more detailed students' actions affecting the main character's feelings should be added. Hence, it might help the PSETs to tangibly imagine the class situation. In addition to the content-related comments, some story appearance-related suggestions were also made. It was suggested that the stories should be typed in bigger fonts and wider spaces. Formatted in a narrow space was tiresome for PSETs as the readers. Therefore, these suggestions also became the base to revise the stories for improvement.

Based on PSETs suggestions, the researchers did some revisions as follows. First, the researchers added some description on students' conduct in the story *Uncooperative Peers.* Some sentences were added to tell the readers what each character was doing so that their actions became obstacles in the learning process. Second, the

researchers changed the font to present the story from Arial Narrow 10 to Calibri 11 and changed the line spacing from 1.0 to 1.15.

Evaluation Phase

This research employed both formative and summative evaluations. The formative evaluations were done within the Analysis, Design, Development, and Implementation phases. The report of the formative evaluation had been written in each phase. Therefore, this section was aimed to discuss the result of the summative evaluation to get general evaluation for the product practicality. The summative evaluation was conducted by inviting two subject matter experts (SMEs) after some revisions were made considering comments and suggestions obtained from the Implementation phase. The background of both SMEs was English education lecturers and book authors and they were chosen purposively based on their expertise.

The researchers used questionnaire with Likert-scale (from 1 to 5) to represent product assessment as "very poor", "poor", "fair", "good", and "very good" respectively. Each questionnaire contained ten statements to assess each unit of the book. The SMEs were also provided with some spaces to optionally write their comments about the book. Table 6 depicted the summative validation sheet by SMEs.

Table 6 Validation Sheet by SMEs

Aspects	Statement Number (s)
Linguistics aspects of the contents	Q1
The story engagement	Q2, Q3
The correlation with real problems in the school context	Q4
the appropriateness between reflective activities and problem solving enhancement	Q5, Q8
The problem clarity	Q6
The appropriateness between stories, reflective activities and learning goals	Q7, Q9, Q10

The assessment result from SME 1 showed that the average score of all units in terms of linguistics aspects of the content was

considered "very good" with the score 5.00. The assessment result on the story engagement and the appropriateness between reflective activities and problem solving enhancement was 4.90. The evaluation results on the narrative story correlation with real problems in the school context, the problem clarity, and the appropriateness between stories, reflective activities and learning goals were 5.00. Hence, the general evaluation for product practicality by SME 1 was considered "very good". The following Figure 3 showed the samples of the book content which were evaluated by the SMEs. The sample was the final look after some revisions were done within the previous phases.

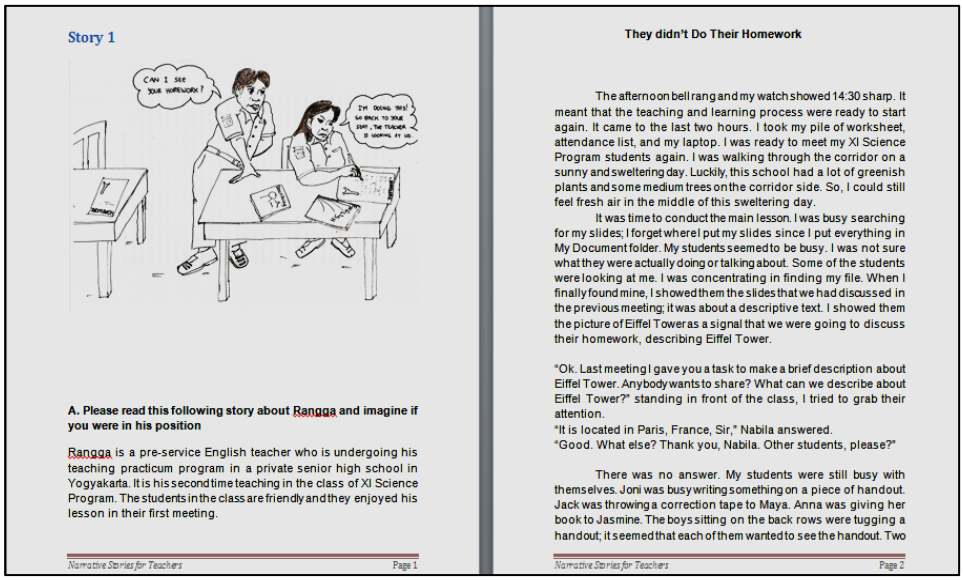

Figure 3 Story Presentation Sample

The unit average scores of the book given by SME 2 were presented as follows. The average score for the linguistics aspects of the stories was 4.00. The average score of the story engagement was 4.25 and the correlation between the stories and real problems in the school context was 4.00. The appropriateness between reflective activities and problem solving enhancement was 3.95. The problem clarity was 4.00 and the appropriateness between stories, reflective activities and learning goals was 3.80. It meant that general evaluation

for product practicality by SME 2 was considered "good" with the overall average score 4.00.

According to the SMEs, the book was considered appropriate and practical to help PSETs reflect on their preparation to become teachers. Some problems might seem classic, for example problems related to the undone take-home assignments, but it actually became the problem for most teachers time to time, and still happened. In addition, the SME 1 also mentioned that emotional aspects in the stories would highly influence teacher candidates and beginning teachers whether to continue their job or not. From the comment, it could be inferred that exploration of the emotional aspects brought PSETs to reflect on themselves whether they were ready to face unexpected feelings due to unexpected problems in the school contexts.

CONCLUSION

The purpose of this study was to create a reflection book to facilitate PSETs enhancing critical thinking and problem solving skill. The book was developed by employing ADDIE model with formative evaluation within the stages of Analysis, Design, Development, and Implementation. Meanwhile, summative evaluation was conducted in the end of the procedure. The process of the book development was through the results of PSETs' need identification, designed topic and learning objective validation, product development evaluation, and field trial. The final version of the book consisted of six units consisting of illustrations, stories, and reflective activities. The summative evaluation conducted by two experts showed that the book was practical and useful to be implemented in Microteaching class to help PSETs improve their problem-solving skills.

The activities in the reflection book are based on PBL method. PBL orientates the learning process on the PSETs, while the lecturer plays a role as learning facilitator. This kind of learning model facilitate PSETs to look into themselves, to explore the problems collaboratively, to share ideas, to practice making decisions

considering their underlying belief, and to find sustainable solutions, and to be effective problem solvers. The set of activities are considered in line with the roadmap of Indonesian Ministry of Education and Culture to facilitate PSETs to achieve problem-solving skill.

The completion of this research contributes to the English education study program, PSETs, and future researchers. The study program can make use of the book as the supplementary material for Microteaching class to introduce PSETs with problems in school context. Furthermore, PSETs' continuous learning can be facilitated by reflecting on experiences provided in the stories. By practicing critical reflection, PSETs are expected to become more aware of the challenges of becoming teachers that are not only limited to classroom management aspects but also other issue of non-classroom management problems. Through this problem-based learning product, it is hoped that PSETs can also equip themselves to be critical-minded teachers in dealing with various problems in schools so that they can take effective actions and solutions for their students' wellbeing. As for the future researchers, this study finds that cases in learning contexts are abundant and always evolving. The future research can investigate more deeply on designing PBL focusing on narrative stories to hone strategies for learning success, such as students' motivation and self-efficacy.

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