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Table of Contents

EFFECTIVENESS OF ELEMENTS PERIODIC TABLE INTERACTIVE MULTIMEDIA IN NGUYEN TAT THANH HIGH SCHOOL Fiki K Astuti, Edy Cahyono, Supartono, Ngoc Chau Van, & Nguyen Thuy Duong	1
IMPLEMENTATION OF PROBLEM-BASED LEARNING MODEL (PBL) BASED ON REFLECTIVE PEDAGOGY APPROACH ON ADVANCED STATISTICS LEARNING Niluh Su listyani	11
PPR IMPLEMENTATION IN MICRO TEACHING COURSE TO IMPROVE STUDENTS' CONFIDENCE AND COMPASSION Hannah Elyse U. Tee & Ma. Mercedes T. Rodrig	20
IMPLEMENTATION OF REFLECTIVE PEDAGOGY TO PROMOTE PROSPECTIVE MATHEMATICS TEACHERS' ENTHUSIASM Margaretha Madha Melissa	29
GROUP GUIDANCE SERVICES BASED ON FOLKLORE FOR STUDENTS JUNIOR HIGH SCHOOL Agus Supriyanto & Amien Wahyudi.....	37
EFFECTS OF USING THE JAPANESE ABACUS METHOD UPON THE ADDITION AND MULTIPLICATION PERFORMANCE OF GRADE 3 INDONESIAN STUDENTS Juliana & Lester C. Hao	47
UTILIZING AUTHENTIC VIDEOS: AN ACTION RESEARCH TO ENHANCE STUDENTS' ABILITY IN DEVELOPING THEIR SPEAKING CONTENT Yeskha Martika Megariani	60
DEVELOPMENT OF CHARACTER ASSESSMENT INSTRUMENTS IN SERVICE LEARNING AT BIOLOGY EDUCATION DEPARTMENT SANATA DHARMA UNIVERSITY Luisa Diana Handoyo & Ika Yuli Listyarini.....	71
PROGRAMMED LEARNING AS SOLUTION FOR SCHOOLS WITH COMBINED CURRICULUM TO WIN ENGLISH ONLINE NATIONAL EXAMINATION Ludwina Lucky Wibakti	80
MORAL EDUCATION TO EMPOWER CONSCIENCE, MIND AND VOLITION TO IMPROVE THE QUALITY OF HUMAN BEINGS Paulus Wahana.....	87



EFFECTIVENESS OF ELEMENTS PERIODIC TABLE INTERACTIVE MULTIMEDIA IN NGUYEN TAT THANH HIGH SCHOOL

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Abstract

The result of observation and interview shows that the learning process in Nguyen Tat Thanh High School was going fun and everyday teacher used different method of learning, sometimes teacher also made a worksheet for students, but the power point presentation media that teacher used did not show the interaction between media, teacher and students. Also there were unnecessary pictures on the power point that could distract students focus and the colour combination was not suitable. This research aimed to develop an interactive multimedia and know its feasibility and effectiveness. This study had significance to develop an alternative instructional multimedia in an education game way so could increase students' motivation and learning outcome. The design of this research was Research and Development with ADDIE model. The data of this research were obtained from validation result from media expert and instructional expert, students' response at small scale test, post test result and students' response at large scale test. The score of validation result for the media expert was 96 categorized as very feasible and for the instructional expert was 62 categorized as feasible. Small scale test result showed that students gave very good response with 69.97 score. Students' post test gave effective result with classical completeness 61.76% and very good response with 68.5 score. It can be concluded that the elements periodic table interactive multimedia was feasible and effective to be used in learning process, and have very good response from the students as users.

Keywords: interactive multimedia, elements periodic table, effectiveness

Introduction

Nguyen Tat Thanh High School is a Lower and Upper Secondary Education located in Ciau Giay, Hanoi, Viet Nam. This school is under Hanoi National University of Education. Nguyen Tat Thanh High School has 51 classrooms with 2.132 students. It has a proper condition to study. Each class has LCD, projector, lockers, AC, fan, and seats for students; has two computer laboratories; a language laboratory; canteen; counselling office; teacher room in each floor; a meeting room; principal room; vice principal room; and also library.

According to the observation and interviews with students, the learning process in Nguyen Tat Thanh High School is going fun. In the learning process, the teachers not only teach the material but also the life skill, both in extra classes or outdoor activities provided by school. The innovative teachers make the students interest in chemistry, they always have something new to be given to the students for the learning process. Sometime teachers use discussion, presentation, debate, question-answer, or experiment to learn Chemistry. Teacher also sometimes made a worksheet for students. Elements Periodic Table is one of Chemistry materials that students learn. It was learnt on October and teacher used power point presentation as the media and discussion and question-answer as the method to explain it. However, the power point media that teacher used in elements periodic table chapter was still one way learning, had too much texts and the colour combination between texts and background sometimes was not suitable. Power point presentation was only helped teacher to explain the material and the interaction between teacher, media and students was not visible.

Media is one of factors that can make a learning process is going effectively. Media can prevent misconception in the learning process. Supposing that teacher explain an atom theory, it needs a media to make a student understand enough the shape of an atom because teacher impossible brings an atom to the class. Buckingham (2007) said that medium as an intervening means instrument or agency: it is a substance or a channel through which effects or information can be carried or transmitted. A medium is something we use when we want to communicate with people indirectly, rather than in person or by face to face contact. This dictionary definition tells us something fundamental about the media, which forms the basis of the media education curriculum.

Yang *et al.* (2013) said that incorporated with some cognitive theories, Mayer and colleagues purposed the theory of multimedia leaning which emphasize the role of experience and ability in learning from various nonverbal representations including pictures, animations and narrations; also in addition, taking the idea from negative theory, Mayer further pointed out that meaningful learning in multimedia environments occurs when learners select relevant information, coherence principles, modality, individual differences, and so forth and these principles to date have become the major guidelines for designing multimedia instruction.

One of media which can enhance learning process is animation media. Animation media is a computer based learning media in an animation form that visualize Chemistry concept (Mawarni, 2015) and can prevent student misconception (Fitriyah & Sukarmin, 2013). Other media which can be used in the learning process is interactive multimedia. An empirical research shows that using computer based media with multiple representatives effectively help students to understand chemical phenomenon deeply (Levy & Wilensky, 2009). Education game also one of interactive multimedia that increase use in chemistry learning. Education game is developed to interest the students in learning process so that will increase students' motivation (Sari, 2014). Besides, game also makes students feel comfort and happy in the learning process so can increase learning outcome (Heriyanto, 2014).

Hence, in this study the writer wants to develop an interactive multimedia for elements periodic table learning process in Nguyen Tat Thanh High School. The writer also wants to analyse the feasibility of the media which has developed.

Method

Elements Periodic Table was conducted arithmetic and memorized so it needed additional media to make it easy for student to learn it. The investigation that the writer used was a Research and Development. This study method aimed to produce a product and tested the effectiveness of it (Sugiyono, 2010: 407). Model of development that the writer used was ADDIE (Analysis, Design, Develop, Implementation dan Evaluation) (Mulyanta, 2009).

The design of ADDIE model began with analysed the problems and potency of the school and did the literature review in accordance with the problems. Then made the design to create elements periodic table interactive multimedia. Elements periodic table interactive multimedia developed with software Adobe Flash that could made animations and combine texts, graphics, symbols, audio, and video so made the instructional media more interesting for student (Suyanto 2003). Development of element periodic table interactive multimedia was done in several stages: the initial product development stage, initial product validation by experts, and small-scale tests. Once the product was validated by experts then revised initial products. Likewise after a small scale test it revised based on feedback from students as respondents in order to obtain a good learning media and ready to be used on a larger scale. Then the product tested on large scale. After that, students did the post test that aimed to determine the level of students' understanding of the concept and determine the response of students after using elements periodic table interactive multimedia in the learning process. The data obtained was used to make improvements in order to get the final product.

In conducting this research, the writer involved media expert, instructional expert and respondents. Collecting data from this study was done in three ways: 1.) Observation was used to see the situation on the class. 2.) Questionnaire was conducted to obtain information from experts and respondents related learning media that has been developed. 3.) The test method was used to measure students' understanding of the elements periodic table concept that had delivered by elements periodic table interactive multimedia that has been developed.

Instruments in this research and development used to assess the validity, feasibility, effectiveness, and the responses of students to elements periodic table interactive multimedia. The instrument used in the form of test instruments and non-test instruments. Cognitive test instrument that used as a post-test was in a description form and grading criteria was using the formula used by Mardapi (2008). Non-test instrument was a questionnaire to instructional experts and media experts to validate the feasibility of learning media and to students for giving responses and validation using content validity (Sugiyono, 2010) and reliability of the questionnaire was tested using Cronbach alpha coefficients. Students' responses questionnaires were in qualitative data form and consist of five possible answers: strongly agree (SA) 4 score, agree (A) 3 score, disagree (D) 2 score, and strongly disagree (SD) 1 score. Data analysis of students' responses

questionnaire was in descriptive and qualitative analysis. The grading criteria also used the formula of Mardapi (2008) that had been modified.

Findings and Discussion

Elements periodic table interactive multimedia is a learning media that developed using Adobe Flash software and can be used on a laptop or PC. In this study, elements periodic table interactive multimedia used as a supporting material that help teacher and students in the learning process and there is an animation game that has interesting combination of colour and shapes in addition to make students interest in studying chemistry with enjoyable learning.

Elements periodic table interactive multimedia is divided in to some parts: (1) initial appearance (Universitas Negeri Semarang and Nguyen Tat Thanh High School logo), (2) main menus (material menu, gallery menu and exercise menu), (3) sub menus, and (4) additional menu (developer profile). Main menu buttons have different shape and size with additional buttons to indicate the different of focus point between them.

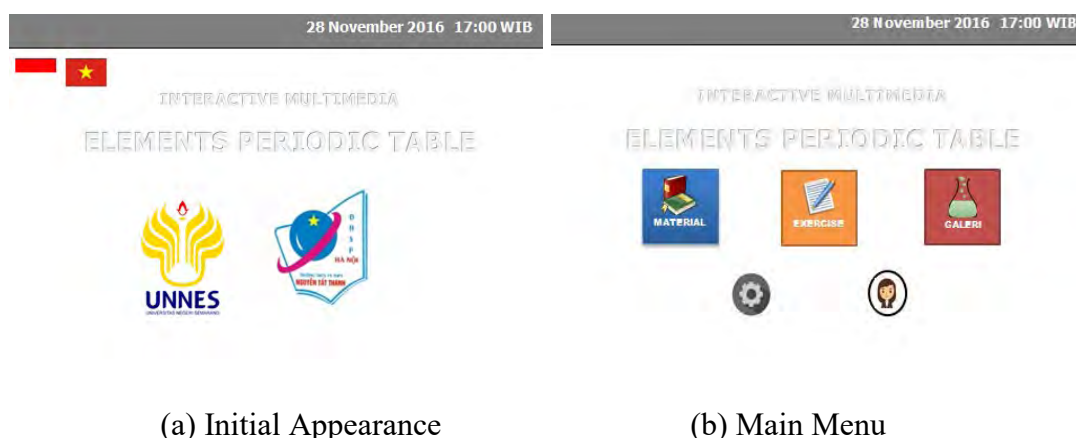
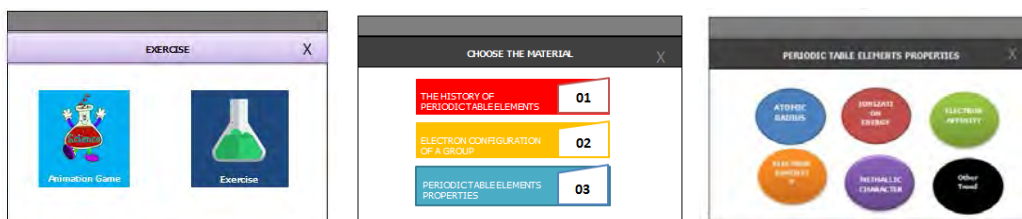


Figure 1. Design of Elements Periodic Table Interactive Multimedia

Selection of colours used in the development of this medium was based on the psychological responses of students as users. This is because the colour is the first thing that student will see and it plays an important role in the perception and interpretation of students' views of instructional media. Buttons have pastel colour because they are eye catching and white as the background because white will make button pastel colour on the background looks shiny and readable.

The buttons on main menu are material, exercise and menu. Material consists of the history of periodic table elements, electron configuration of a group and periodic table elements properties. Exercise consists of animation game and exercise. Animation game is an education game about elements periodic table and exercise is a packet of description questions. Gallery consists of animation video about elements periodic table, a funny way to easier remember elements and some amazing chemistry reactions. There is also additional menu in elements periodic

table interactive multimedia. Additional menu consists of developer profile. Submenus are in Figure 2.



(a) Submenu Exercise (b) Submenu Materials (c) Submenu Periodic Table

Figure 2. Submenus Design of Elements Periodic Table Interactive

One of steps to test the feasibility of elements periodic table interactive multimedia as a learning media was validation from media expert and instructional expert. The validation results are in Table 1 for media expert and in Table 2 for instructional expert.

Table 1. Validation Average Score of Elements Periodic Table Interactive Multimedia for Media Expert

Aspects	Average Score	Average Maximum Score
Linguistic	4.00	5.00
Software Engineering	4.41	5.00
Learning	4.00	5.00

Table 2. Validation Average Score of Elements Periodic Table Interactive Multimedia for Instructional Expert

Aspects	Average Score	Average Maximum Score
Linguistic	4.00	5.00
Contents Standard	4.33	5.00
Learning	4.38	5.00

Based on Table 1 and Table 2 the highest score from media expert was on software engineering aspects and the score was 4.41 from the average maximum score was 5.00. The highest score from material expert was 4.38 from the average maximum score was 5.00 on learning aspects.

The average score of validation results from media expert was 4.13 from the average maximum score was 5.00. It showed that elements periodic table interactive multimedia was compiled the requests of linguistic, software engineering and learning aspects. It also showed that the maximum score was on software engineering aspect reach 4.41 points, so elements periodic table interactive multimedia was effective and efficient as instructional media, good management, easy to use, compatible, good voice control, good animation, suitable layout, and high quality of interaction between user and media. The

average score of validation results from material expert was 4.24 from the average maximum score was 5.00. It showed that elements periodic table interactive multimedia was fulfil the requests of linguistic, content standard and learning aspects. The highest point was on learning aspect reach 4.38 points shows that elements periodic table interactive multimedia was compiled as a learning media with suitable material for learning and suitable for learning aims, had influence for students and had interactive communication.

Score from media expert is 96 from the maximum score 110 with very feasible category and score from material expert is 62 from the maximum score 75 with feasible category based on Table 3 and Table 4. It shows that elements periodic table interactive multimedia is feasible to use as a learning media. Advices from the experts use to improve the learning media before it is used to take the data. The advices are shown on Table 5 and Figure 3.

Table 3. Feasibility Criteria of Elements Periodic Table Interactive Multimedia based on Media Expert Validation Sheet

Interval	Criteria
$92 < \text{score} \leq 110$	Very Feasible
$74 < \text{score} \leq 92$	Feasible
$56 < \text{score} \leq 74$	Fairly Feasible
$38 < \text{score} \leq 56$	Not Feasible
$20 < \text{score} \leq 38$	Very not Feasible

Table 4. Feasibility Criteria of Elements Periodic Table Interactive Multimedia based on Material Expert Validation Sheet

Interval	Criteria
$63 < \text{score} \leq 75$	Very Feasible
$51 < \text{score} \leq 63$	Feasible
$39 < \text{score} \leq 51$	Fairly Feasible
$27 < \text{score} \leq 39$	Not Feasible
$15 < \text{score} \leq 27$	Very not Feasible

(Mardapi, 2008)

Table 5. Advices from Experts

Advices	
1	Back sounds are too loud, turn down the volume of the back sounds. Write down the instruction so the students can know the instruction clearly.
2	Make the question to the points so it will not make confuse the user.

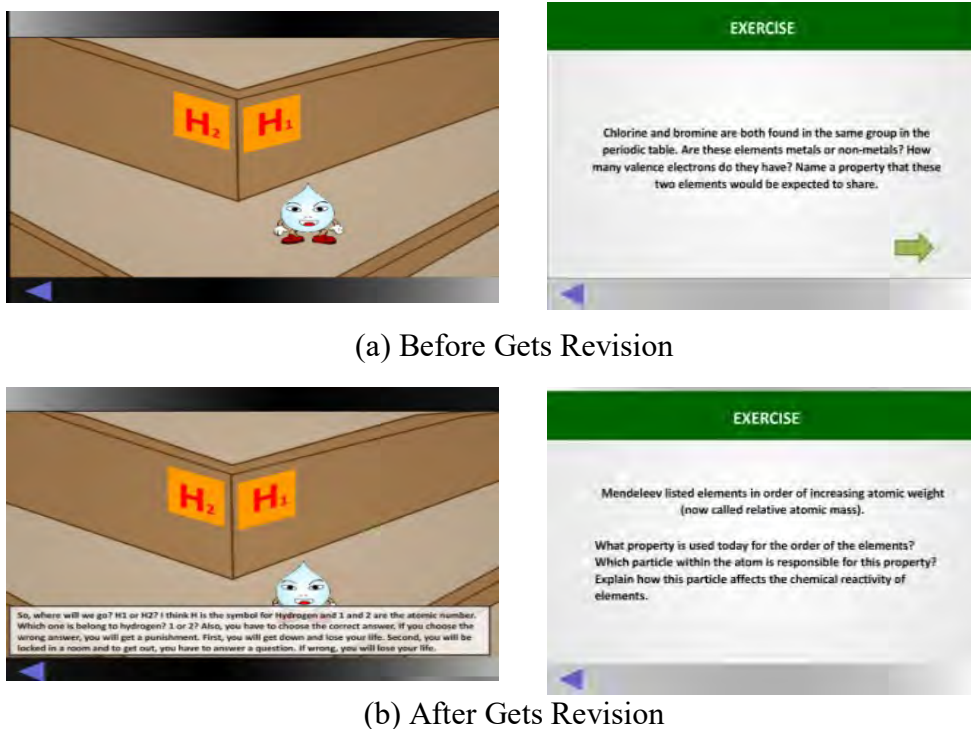


Figure 3. Appearance of Elements Periodic Table Interactive Multimedia

Small-scale test used to know the students response before the elements periodic table interactive multimedia tested in the large scale, also used to know the reliability of students responses questionnaire. Small-scale test was done in Nguyen Tat Thanh High School used nine students of eleventh grade who were selected using purposive sampling technique. Students asked to know the menus of elements periodic table interactive multimedia then operated it. Students also asked to watch the design, video and animation of the multimedia. After that, students gave comments about them. Based on the data, the reliability was 0.83 categorized as reliable questionnaire and the average of students' responses was 69.97 categorized as very good responses. Scores of small-scale test are in Table 6.

Table 6. Score of Small-Scale Test for Elements Periodic Table Interactive Multimedia

Class	Respondent	Score
Upper	UC-23	64
	UC-14	66
	UC-06	65
	UC-28	80
	UC-15	66
	UC-01	65
Lower	UC-08	66
	UC-22	80
	UC-11	75

Students' responses data from large-scale test provided information on students' acceptance response to elements periodic table interactive multimedia during the learning process on large-scale tests. The average results from students responses was 68.5. It was very good response. Recapitulation data was presented in Table 7.

Table 7. Recapitulation Data of Students' Responses to Elements Periodic Table Interactive Multimedia on Large-Scale Test

Score Interval	Criteria	Number of Students
68 < score ≤ 80	Very Good	15
56 < score ≤ 68	Good	17
44 < score ≤ 56	Fairly Good	2
32 < score ≤ 44	Less Good	0
20 < score ≤ 32	Poor	0

Table 8. Students Comments and Advice to Elements Periodic Table Interactive Multimedia on Large-Scale Test

Advice and Comments	
UC – 30	I like this lesson so much, learn chemistry in Vietnamese is not enough, we could learn chemistry in English in funny way. I love the teacher. She is adorable one!
UC – 32	I like game. So I like this learning way. And I think you are a good teacher!
UC – 26	This is great! I love this teaching method. Anyway, I think it is important to take more focus on the design. 4 of 5!
UC – 21	The lesson is very good, I learn very much about chemistry in English.
UC – 16	Needs higher image resolution and animation also needs some magnet to automatically suck in what mouse dragging in to.

The effectiveness of elements periodic table interactive multimedia showed in students post test result. Post-test was conducted on learning process after elements periodic table was taught by using elements periodic table multimedia. The medium is effective if the post test results meet classical completeness after learning process is aided by the multimedia. Based on Education Ministry of Indonesia (Trianto, 2010: 241) classical completeness that has to be complied is $\geq 85\%$ of students' post test is above 75. But according to Trianto (2010: 241) based on national standard curriculum, the determination of classical completeness is determined by each school based on the facility and other component of the school. In this study, classical completeness that has to be met is 58% of students' post test is above 75. This is based on students test result of the last chapter and the minimum mastery criteria of the school. According to Figure 4 the number of students who get ≥ 75 was 21 from 34 students and the number of students who get ≤ 75 was 13. From that, we know that the percentage of students who get ≥ 75 was 62%. So, elements periodic table interactive media was effective to use in the learning process. And the result is in Figure 4.

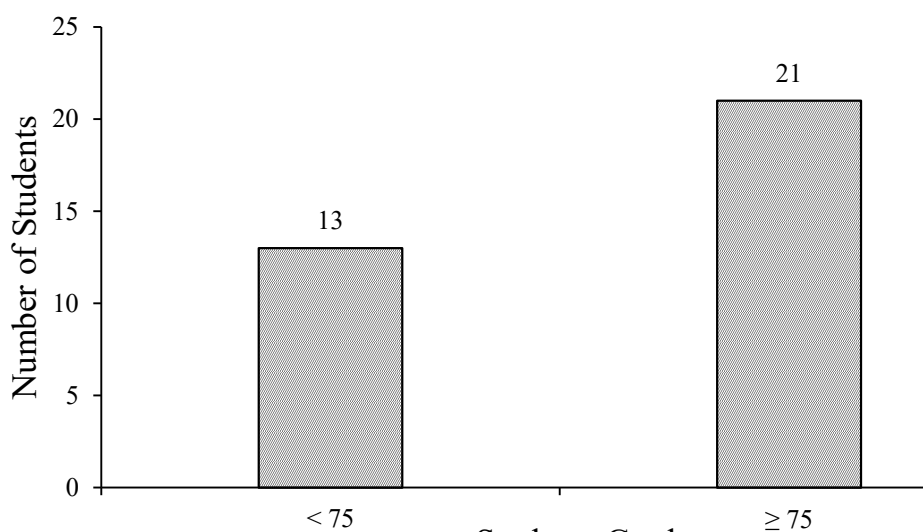


Figure 4. Students Post Test Grade

Adhitama's (2015) study showed that according to questionnaire and observation form, science learning interactive multimedia could improve self-motivated learning 19.14%. Syifaunnur (2015) made an interactive multimedia that combine macroscopic level, submicroscopic level and symbolic level in learning chemistry. The difference of this study and Adhitama's (2015) study is in Adhitama's (2015) study studied self-motivated learning of student and in this study, studied the effectiveness shown by post-test result and from Syifaunnur's (2015) study the difference is in the product. In this study we focused on the game at evaluation process. So we can integrate that an interactive multimedia could make learning process going more fun, increase self-motivated and combine macroscopic level, submicroscopic level and symbolic level.

Conclusions

Based on the study result of elements periodic table interactive multimedia, it can be concluded that based on validation result from the experts, elements periodic table interactive multimedia comply linguistic aspect, software engineering aspect, visual and audio aspect, and learning aspect. Elements periodic table interactive multimedia was effective as a learning media, shown by large scale test results that 21 of 34 students had ≥ 75 score on the post test and students' response on small scale tests was 69.97 with very good response category and on large scale test showed 68.5 categorized as very good response.

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IMPLEMENTATION OF PROBLEM-BASED LEARNING MODEL (PBL) BASED ON REFLECTIVE PEDAGOGY APPROACH ON ADVANCED STATISTICS LEARNING

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Abstract

Problem-based learning was an alternative learning model that can be implemented in a learning based on Reflective Pedagogy approach. Reflective Pedagogy not only prioritized knowledge aspect but also attitude aspect. This research was aimed to 1) describe the implementation of PBL using cycle of Reflective Pedagogy on Advanced Statistics learning and to 2) describe its influenced based on critical attitude, enthusiasm, and caring for others. The subject of this research was Psychology Student of class A. Data collection was gathered from the questionnaire and the results of student reflection. The result showed that the PBL phases could be well implemented in Advanced Statistics learning using Reflective Pedagogy. From the analysis was concluded that PBL gave influenced in good enough category based on critical attitude, enthusiasm, and caring for others.

Keywords: problem-based learning, reflective pedagogy approach, advanced statistics

Introduction

Education is one of the planned efforts to form intelligent people in personality, thinking, and will. As an educational institution, Sanata Dharma University always strives to educate young people to be intelligent and humanist. Ignatian pedagogy, later known as the Reflective Pedagogy Paradigm as the foundation for conducting learning activities, is believed to be able to develop students into professional person according to competence field, conscience, and compassion. The spirit is lived in conducting lectures in all courses.

Advanced Statistics Course is a compulsory subject for Psychology students of 2nd semester. Statistics material itself is not new material, because the material has been introduced since elementary school, studied in junior high and high school, and pursued by Psychology students in the first semester as courses in Statistics. Thus, the material of Advanced Statistics lecture is a deepening of statistical material that discusses statistical methods, especially data analysis techniques on quantitative research.

Students are also required to be critical both in solving problems and can criticize the completion obtained, and is expected to have a concern especially towards friends who have difficulty in understanding the material during the lecture and can establish good communication between friends and lecturers.

PBL (Problem-based learning) is one of the learning approaches designed to help learners develop their thinking skills, problem-solving skills, and intellectual skills (Arends, 2008). In the research of Masek & Yamin (2011) explained that the steps in problem-based learning help learners in improving the ability of critical thinking. With these characteristics, PBL is theoretically very appropriate if applied in Advanced Statistics lectures.

Statistics are very synonymous with mathematics for people who do not wrestle the exact field are not easy to learn the material. The same thing is felt by most of the students of class A psychology when they are about to start their statistics in the previous semester. Students regard the material statistics as difficult, frightening, and complicated by countless calculations and formulas that cause anxiety and anxiety. This assumption greatly affects the enthusiasm of students in following the lectures, especially from involvement during the lecture.

During statistics last semester, not all students were eager to learn the material. In addition to the lecture hours during the day and previously there are also lectures, there are some passive students during the lecture. Nevertheless, some students look excited and always sit in the front row when the lecture takes place. Heterogeneous student characters make lecturers less able to facilitate all students, especially for students who are difficult and do not want to ask either to ask friends or lecturers. Looking at the ongoing lecture, enthusiasm in the lectures of statistics still needs to be improved. Student awareness of friends who have difficulty is still lacking because many who are proficient but not sharing with friends who have difficulty. Some students are also less than optimal in understanding because it is less critical in solving the problem so that errors occur calculates and apply the formula.

The implementation of PPR-based learning with active learning approach in Advanced Statistics is expected to facilitate students to be more enthusiastic about learning that can be seen from getting more involved in learning, increasingly responsible for the understanding of materials and tasks, the more excited in the lectures; able to be a critical and conscientious person; able to cooperate and increasingly care for friends who have difficulty (humanist). Learning that implements PPR with key elements of context, experience, reflection, action, and evaluation and by accommodating active learning models is able to facilitate students to be more enthusiastic in lectures, cultivate critical attitudes, and cultivate caring for others. Using these five elements is believed to be growing the aspect of competence, conscience, and compassion among students.

3C values in Advanced Statistics lectures applying PPR will be more awake during lectures through specific models, methods, or strategies. It was discussed earlier that PBLs are theoretically very applicable in Advanced Statistics courses. On this basis the objectives of this research are: 1) to describe the implementation of PBL learning model based on Reflective Pedagogical

Paradigm approach in Advanced Statistics Course and 2) to describe enthusiasm, critical attitude, and students' awareness toward others by implementing Problem-Based Learning Model).

The paradigm of Reflective Pedagogy, formerly known as the Ignatian Paradigm, consists of steps of experience, reflection, and action that interact constantly (Kanisius & Community Studies and Development of PPR, 2012). Because the comprehensive PPR should pay attention to both the learning context and the pedagogical process and show that learners have completed a particular learning cycle, PPR contains five elements: context, experience, reflection, action, and evaluation.

The Paradigm of Reflective Pedagogy (PPR) is one of the pedagogy that is an approach to help the education needs as a whole and comprehensive, a way of lecturers assist students so that students develop into a whole and comprehensive person (Suparno, 2015). In the same book, it is said that the whole person in education is translated into 3C formulas, namely Competence, Conscience, and Compassion.

Competence in PPR is intended that students have the knowledge and skills according to their field. For psychology students, competence is needed to become a psychologist or psychiatrist. Conscience is needed for students to distinguish between good and evil. Compassion is a sensitivity and concern for each other and the surrounding environment. Conscience and compassion can be realized in students' attitude during lectures. It can be viewed from the enthusiasm, critical attitude, and concern for students to others.

Enthusiasm can be interpreted as a feeling of joy towards something that happens so as to generate a positive response. This positive response can be observed from the attention, concentration, consciousness, and willingness arising from self-will. When students are enthusiastic in lectures, students will have a positive response to learning, which can be seen from the attention of students in learning, student concentration during the lecture, and the involvement in the learning process (Kustanto, F, 2010). Khoerudin, J & Sutarni, S. (2014) suggests that enthusiasm can be seen from the activities of students that is 1) pay attention to teachers, 2) ask, 3) and do the task.

Enthusiastic students will engage in lectures. These activities are: 1) ask, active and responsive as an effort to respond to learning, 2) pay attention to explanations of lecturers or other students as an effort to give attention to learning, 3) doing problem exercises and actively seeking solutions that show the existence of willingness in learning, 4) concentration in learning for example not affected by external situation, 5) have awareness in learning for example by first studying material that has not been submitted.

Critical attitude cannot be separated from critical thinking. Critical thinking is to think of testing, questioning, linking, evaluating all aspects of a situation or a problem. Paul, R & Linda E. (2005) says that a person who thinks critically will be able to answer important issues well. He will think clearly and precisely. In addition, it can use abstract ideas to be able to model problem-solving effectively in order to find the truth for itself. Critical thinking ability of students in the course can be seen from how students behave during lectures,

especially in an attempt to solve psychological problems involving hypothesis testing. Similar meaning is told by Herson (2009) who argues that critical attitudes are seen in the habit of seeking as much information as may be related to the field of study to compare the advantages, the suitability, the truth, and so on.

One of the things seen from people who are critical is being able to give opinions in an organized manner (Pusparatri, 2012). In addition, critical attitudes can also be demonstrated, among others, by 1) constantly asking for any change/novelty, 2) repeating the activities performed, and 3) meticulous by not ignoring the data through small (Herson, 2009).

Caring for others as one of compassion is identical with social caring attitude. Social care is one of the most important characters that teachers need to develop in learning. According to Retno Listyarti (2012: 7), social care is the attitude and actions that always want to provide assistance to other people and communities in need. According to KBBI (2008: 1036) social care is the attitude of heeding (apprehensive) something that happens in society.

In the social awareness, learners are expected to develop attitudes and actions that always want to provide assistance to others. The character of social care is needed learners as stock to live in a social environment. While the most important social element is the interaction between humans (S. Nasution, 1983: 14).

To realize enthusiasm, critical attitude, and caring for others can be implemented by applying the right learning model, one of them is PBL. Problem-based learning (PBL) is one model of learning that confronts learners on unstructured, open-ended, or ambiguous practical issues (Fogarty, 1997). Herman (2007) in his research suggests that in PBL activities, learners' learning activities appear more prominent than the activities of teachers/lecturers/teaching educators. The learner shows a high level of enthusiasm and perseverance in solving problems, actively discussing and helping each other in groups, and not being awkward to ask questions or ask for guidance to teachers/lecturers/educators.

Margetson suggests that Problem-based learning (PBL) helps to improve lifelong learning skills in an open mindset, reflective, critical, and active learning (Rusman, 2001). In PBL, learners are faced with an issue that stimulates learners to analyze problems, estimate their answers, search for data, analyze data, and summarize answers to problems. Thus, problem-oriented learning by itself will train learners to think critically.

Arends (2008) outlines five major phases in problem-based learning (PBL). The phase is 1) Problem orientation; 2) Organizing learners to learn; 3) Assisting independent and group investigations; 4) Develop and present the work; and 5) Analyze and Evaluate the problem-solving process.

Method

This research is a qualitative descriptive study with the subject is the psychology student of A class in academic year 2016/2017 who taking Advanced Statistics learning.

Data on enthusiasm, critical attitude, and student awareness of others are gathered through questionnaires. Questionnaire of student response is a

combination of students' critical attitude questionnaire, enthusiasm, and caring for others. Besides that, this research also using paper of students' reflection to confirm the data.

Implementation of learning is analyzed descriptively by comparing between theory and the practice. Student response' questionnaire be analyzed descriptively by summing up each score obtained by students either for critical attitude, enthusiasm, and caring for each other then each score obtained is categorized in the following table.

Table 1. Conversion Score Student Response

Score Interval	Category
$X > \bar{X}_i + 1,5 Sbi$	Very good
$\bar{X}_i + Sbi < X \leq \bar{X}_i + 1,5 Sbi$	Good
$\bar{X}_i - 0,5 Sbi < X \leq \bar{X}_i + Sbi$	Good Enough
$\bar{X}_i - 1,5 Sbi < X \leq \bar{X}_i - 0,5 Sbi$	Not good
$X \leq \bar{X}_i - 1,5 Sbi$	Very bad

(Azwar, 1995:163)

Notes:

X = score total

\bar{X}_i = ideal mean score = $\frac{1}{2}$ (maximum score + minimum score)

Sbi = deviation standard = $\frac{1}{6}$ (maximum score – minimum score)

Each category of critical attitude, enthusiasm, and caring for each other is then searched for percentages. In additionm it will be calculated an average score on each variable then the average is categorized according to the table above.

The analysis of reflected document data is done qualitatively by the qualitative model of Miles and Huberman which includes three stages: 1) data reduction, 2) data presentation, and 3) drawing conclusions.

Findings and Discussion

Implementation of PBL

Reflective Pedagogy Paradigm-based learning can be implemented well indicated by the implementation of PI elements contains context, experience, reflection, action, and evaluation (Suparno, 2015). There is compatibility between theory and implementation from the learning model. PBL model consisting of phase: 1) giving orientation about the problem to the learner, 2) organizing learners, 3) assisting independent and group investigation, 4) developing and presenting artefacts and exhibit, and 5) analyzing and evaluating process (Arends, 2008) can be applied well. The results of the learning process using PBL can be seen in the following table.

Table 2. Result of Learning Process Using PBL

Group discussion process	Some groups from eight group (8 problems) discussed well, but there were 1-2 discussion
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	groups less than the maximum (not all members were enthusiastic).
presentation	There was a question and answer process because there were differences in the result of advanced and not advanced group discussions. The thinking and reinforcement process is very powerful at presentation.
Material understanding	The result of the group discussion on the PBL problem found that: <ul style="list-style-type: none"> • 1 group is able to solve all the problem well (100%). • 2 groups solve 75% problems correctly. • 3 groups completed 50% of the problems correctly. • 2 groups solve 25% problems correctly.

The results of questionnaire analysis obtained data about students' critical attitude, enthusiasm, and caring for others. Each individual score of either critical attitude, enthusiasm, and caring for each other summed up then categorized. Each category is determined the percentage.

Table 3. Result of Student Response' Questionnaire

Category	caring for others		enthusiasm		critical attitude	
	Amount of Students	Percentage	Amount of Students	Percentage	Amount of Students	Percentage
Very good	2	5.56	3	8.33	2	5.56
Good	11	30.56	3	8.33	12	33.32
Good enough	22	61.11	28	77.78	20	55.56
Not good	1	2.77	2	5.56	2	5.56
Very bad	0	0	0	0	0	0
Total	36	100	36	100	36	100

The results for the average categories of each variable are as follows.

Table 4. Average Category of Critical Attitude, Enthusiasm, and Caring for Others

	Category
Critical attitude	Good enough
Enthusiasm	Good enough
Caring for Other	Good enough

The result of student's critical attitude indicates that included in the category is good enough. This is due to the results of student work is still a lot of students who are not careful in solving the problem. In fact, meticulous is one of the indicators that determine the critical attitude of students (Herson, 2009).

The enthusiasm of psychology students both the majority and the average included in the category is good enough. This result is supported by the results of reflection which states that the involvement of students is less than the maximum and the tendency to just listen and not actively ask or just rely on group members who already understand. Enthusiasm can be seen from involvement in the learning process (Kustanto, F, 2010) and also actively ask (Khoerudin, J & Sutarni, S., 2014). Student awareness of others from the results of student reflection has been awakened.

From the results of student reflection, it is found that most of the students are happy with the implementation of discussion method in PBL as the following table.

Table 5. Result of Student Reflection After Study using PBL

Positif Point	Negative Point
<ul style="list-style-type: none"> • Happy with the discussion method as it helps to gain more understanding. • Presentation methods make it understandable. • Gives a sense of wanting to do more. • Can better understand, help, with each other. • Patience to explain to friends who do not understand. • More effective because they can ask each other and exchange opinions. • Believe in friends and cooperation • Value of tolerance, empathy, sympathy, respect for opinion, and caring • Responsibility and training always strive. • Learn to organize well • To be able to follow the need to learn to understand the material first (better prepare yourself) • More active and enthusiastic learning 	<ul style="list-style-type: none"> • Discussion methods are less effective. Lecturers should explain clearly, give examples, give questions and practice (discussion). • Ineffective if one group is not equal in ability, difficult to work together 4 • Confusing students because of frequent differences in views 2 • Students were just relying on who can already. • Discussion can proceed as long as the division of the group is fair • Discussion takes a long time

The result of reflection during the learning process is many students who received positive benefits and some negative. Most say that the discussion model can help understanding because it becomes more clear when described by friends. However, 9 of the 36 students (26%) did not fully agree with the method of discussion. The causative factor is a group friend who is less cooperative, not if too many differences of opinion leads to more confusion, and if a friend who does

not understand difficult to understand the material, and depends on the material discussed.

In addition to happy with the method of discussion, students can also build noble values in lectures such as cooperation, mutual help, can appreciate friends, patience, and mutual trust. However, when asked about the involvement in the lectures, especially the discussion, not all students expressed certainty involved in the discussion. Although many claims to be involved, the involvement depends on group members. Many students just listen without asking or just rely on friends who already understand. This is an indication that causes less maximal student enthusiasm.

Conclusions

Based on the results of research that has been done the researchers obtained some conclusions as follows.

1. The PBL-based learning phases of the Reflective Pedagogy Paradigm in Advanced Statistics courses that are composed can be carried out well.
2. The student's enthusiasm, critical attitude, and student's concern for others are quite good.

PBL model, in addition can be applied in advanced statistics courses can also be applied to other courses tailored to the characteristics of the course.

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PPR IMPLEMENTATION IN MICRO TEACHING COURSE TO IMPROVE STUDENTS' CONFIDENCE AND COMPASSION

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Abstract

Apart from technical skills, people must also be educated in social values. This is pertinent in developing well-rounded, socially-aware students. Autism Spectrum Disorder (ASD) is a heterogeneous developmental disability characterized primarily by atypical, repetitive, routinary behavior, as well as impairments in socialization and communication. Despite comprising approximately 1-2% of the world's population, people with ASD are greatly stigmatized, leading to an overall lower quality of life for them. In order to address this stigmatization, awareness and empathy must be induced in non-autistic, neurotypical people. The rise of serious games or games with a purpose has provided a different avenue for spreading awareness to an audience whose primary interest lies in digital games. Multiple games have been created to spread awareness for issues such as war, cultural discrimination, and mental illness. This study aims to determine whether serious games can also be used to increase autism awareness and lessen the stigma against people with autism. This study makes use of the digital game *In Someone Else's Shoes*, which simulates some behaviors of a college student with High-Functioning Autism Spectrum Disorder. For this study, 30 participants were asked to answer a survey on their perceptions on people with autism before playing the game. After which, they answered the same survey again to see if their perceptions had changed, and answered an additional self-report on how the game affected them. While there is minimal change in the perceptions of the players before and after playing the game, the self-report shows that majority of the players expressed feeling more informed about autism, showing a positive cognitive response. However, players reported that the game was not as effective at eliciting an emotional response from them, though they still expressed a willingness to aid someone with autism.

Keywords: games for empathy, autism spectrum disorder, serious games

Introduction

Autism spectrum disorder (ASD) is a heterogeneous group of neurological disorders generally characterized by impairments in social communication and interaction, as well as restrictive, repetitive behavior and interests (American

Psychiatric Association, 2013). Because cases of ASD are rarely exactly the same, there is a tendency for society to have conflicting ideas and perceptions of what autism is (Huws and Jones, 2010; Scior, 2011). This leads to stereotypes that are not only inaccurate, but also promote a stigma against them and their families (Milačić-Vidojević et al., 2014).

In recent years, the Center for Disease Control and Prevention has noted a rise in the diagnoses of ASD. A collection of studies across countries from 1966 to 2016 have shown that ASD has slowly risen, with a current average prevalence of 1-2% of the population. This shows that there are millions of people who are identified as being part of the ASD spectrum, with no geographical, ethnic, or socioeconomic discrimination (Centers for Disease Control and Prevention, 2016). Within the Philippines, the cases of ASD are more difficult to determine due to the lack of a formal census. Estimations across the years approximate the incidences of ASD to be at around 500,000-570,000 sometime during 2008-2009 (Carandang, 2009; Kopetz and Endowed, 2012), with news reporting the estimation to have risen to a million in 2014 (Jaymalin, 2014).

Given that a significant part of the world's population has ASD and that the identified cases have risen in the past few years, it is important to dissuade the stigma against them. A way to reduce this stigma is to foster empathy among neurotypical people (that is, those not afflicted with a developmental disability) towards those with ASD. This becomes more imperative, considering that those who are unfamiliar with or know less about ASD have been found to be more likely to perpetuate the stigmatization (Milačić-Vidojević et al., 2014). Moreover, studies have found that increased empathy towards those in stigmatized groups can improve perceptions against those groups (Batson et al., 1997) and even motivate to help those (Batson et al., 2002).

The rise of serious games in recent decades has shown that video games are not just for entertainment, but can also be used for other prosocial purposes. Playing prosocial games has been found to not only increase empathy but also increase prosocial behaviors across different ages and cultures (Gentile et al., 2009).

While there have already been numerous applications of games to address various social and cognitive impairments associated with ASD (Beaumont and Sofronoff, 2008; Kandalaf et al., 2013; Whyte et al., 2015), there is limited literature on the reverse. Almost no studies focus on games that mimic autism to educate a neurotypical player, instead of having autistic players play games that teach neurotypical behavior. This field-game for autism empathy—is what this study aims to explore.

This study, then, aims to determine to what extent a game is effective in inducing empathy in neurotypical players. This study also aims to contribute to the limited body of literature on games for autism empathy. In order to achieve this objective in a limited span of time, however, this study will focus on measuring only immediate or short-term empathy.

Empathy

Empathy is “a multifaceted construct that includes emotion recognition, vicarious feeling, and perspective taking” (Calvo and Peters, 2014). While

numerous models for empathy have cropped up in the past years, one of the more basic yet widely-scoped ones comes from Stephan and Finlay. According to them, empathy can be categorized into 2 subgroups: cognitive empathy and affective empathy. Cognitive empathy refers to the intentional experience of taking someone else's perspective. This includes being aware of and understanding the situation of the target. On the other hand, affective empathy focuses on being able to share in the feelings of others and reacting appropriately. Affective empathy can be further divided into parallel empathy and reactive empathy. Parallel empathy is when one experiences emotions similar to that of their target (e.g. a person experiencing secondhand embarrassment). Reactive empathy is experiencing an emotion different to that of the target's (e.g. feeling pity at someone's suffering) (Stephan and Finlay, 1999).

Cognitive empathy and affective empathy can be developed independently of each other (Belman and Flanagan, 2010); someone can understand what autism is, but may not be able to completely empathize or share in the feelings of someone with autism. Some studies, though, suggest that for empathy to be truly taught, both aspects must be developed. This study will explore.

Games for Empathy and In Someone Else's Shoes

Games for empathy are games which allow the player to be placed in a situation that he/she would otherwise be unable to experience, with the goal of being able to empathize with the situation brought on by the game. These games encourage empathetic play, which makes use of both cognitive empathy (where players attempt to understand the thoughts and emotions of the protagonists) and affective empathy (where players attempt an emotional response, such as identifying similarities between themselves and the target group (Belman and Flanagan, 2010)). There is reason to believe in the feasibility of these games, as it has been found that empathy can be taught (Bachen et al., 2012). Multiple games for empathy have been created for different causes.

The game used in this study is called In Someone Else's Shoes, and features a college-aged protagonist with High-Functioning Autism Spectrum Disorder. The player plays as this protagonist as he/she navigates a typical day. This involves activities such as getting ready in the morning and going to class, on which the 2 levels of the game are centered.

A number of ASD behaviors are distributed throughout the game. The first level of the game focused on repetitive, unusual behavior while the protagonist gets ready in the morning. This portion of the game will involve the player moving around the protagonist's house as he/she completes certain tasks such as taking a shower and eating breakfast. The level is considered complete when the player has successfully finished all tasks and has left the house.



Figure 1. Screenshot of the Gameplay of in Someone Else's Shoes

The second level, on the other hand, focused on impairments in communication and socialization that the protagonist encounters while completing a group activity in school. Unlike the first level, this level will not involve the protagonist moving within the environment. Rather, this level will be text- and dialogue- heavy. Every time an NPC requires a response, 1 or 3 replies will appear on screen, which the player will have to choose amongst as a response to the NPC.

Lastly, whenever an ASD behavior comes into play, a message will appear on screen, explaining to the player what is going on in the game and why it is happening. This is so that the player will not misconstrue the behavior being portrayed in the game, and further makes the player aware that they are playing a protagonist who has autism.

Method

For this study, 30 participants aged 18-25 with a university background (either a current college student or a recent graduate) were recruited. This demographic was chosen because the protagonist of the game is a college student.

Before playing the game, each participant will answer a screening questionnaire to determine their initial attitudes towards ASD. This will be based on Power's Attitudes to Disability Scale (ADS) (Power et al, 2010), which is a multidimensional scale with items on inclusion/exclusion, discrimination, gains, and hope toward those with disabilities. This scale has been chosen due to its validity (Cronbach $\alpha = 0.76-0.80$).

Each participant will then play the game in its entirety and will answer a questionnaire afterwards. Participants will also retake the Power's ADS before answering the questionnaire to see if their perceptions had changed. The

questionnaire for this evaluation will have quantitative questions being evaluated on a Likert scale of 1-5, and will consist of items focusing on cognitive empathy (with a focus on awareness and understanding), parallel affective empathy, and reactive affective empathy towards the game as a whole. Items will not be explicitly grouped in the questionnaire; instead, items for cognitive and affective empathy will be mixed. Items will be based on previous studies which measured empathy.

In order to determine the extent to which the game is effective in inducing empathy in neurotypical players, the results of Power’s ADS before and after the participants play the game will be compared to see if there is a significant difference. This is to determine if the participants’ initial negative perceptions of ASD (if there were any) were alleviated by playing the game.

Additionally, each participant will be classified into 1 of 4 levels of empathy based on their answers in the questionnaire. These 4 levels of empathy are: (1) Understands the situation of ASD with no emotional component; (2) Can feel the same emotions as that of those with ASD; (3) Can feel emotions of compassion for those with ASD; and (4) Is motivated to take action for those with ASD. The differences in the number of participants per classification will then be analyzed to see if there is a particular level of empathy that stands out.

Findings and Discussion

Table 1 shows the results of the pre-test and post-test taken by the players. For each participant’s evaluation, items under the same group were added together. Afterwards, the average of all participants’ evaluations was calculated. A higher score on this scale indicates higher stigma towards autism. The highest possible score on this scale (indicating extreme stigma towards autism) is 80, while the lowest is 16.

Table 1. Average Power’s ADS Scores.

<i>Category</i>	<i>Pre-Test</i>	<i>Post-Test</i>
<i>Inclusion</i>	10.909	11.061
<i>Discrimination</i>	14.727	13.515
<i>Gains</i>	9.545	9.030
<i>Prospects</i>	6.576	6.515
<i>Total</i>	41.758	40.121

From the table, it can be seen that there was a drop in the total score after playing the game, indicating less prejudice against autism. However, a paired t-test reveals that there was no significant difference in the results of the pre-test and post-test of the game group ($t = 1.34$, two-tailed $p = 0.189$, $\alpha = 0.05$), which means the players did not feel significantly less prejudiced towards people with autism.

This could be due to a number of reasons. First, it is possible that the participant pool already partially empathized with people with autism prior to the game, given their initial average score of 41.578 (which, on the scale, is 40.247% prejudiced against autism, less than half). Further studies could be performed with different participants to see if this result holds true.

During the experiment phase, one participant stated that he was unsure of what to empathize with in the first level. This game was originally designed with situations similar to what a player would typically experience in order to lessen the otherness that the player may feel when playing the game. However, based on the last player's statement, it is possible that the given situation was too familiar to the player. This could have caused players not to empathize as much because (and affected the results of the Power's ADS), in their perspective, there was nothing to empathize with.

Moreover, while playing the game, one participant stated that she "felt like [she] was playing mechanics meant to emulate someone with autism, but not actually playing as someone with autism." There was a humanizing aspect lacking in the game which possibly caused the player to feel disconnected with the protagonist.

This disconnect could be linked to Lankoski's theory on player engagement. According to Lankoski, empathetic engagement involves a recognition component, which "describes aspects of character interpretation." (Lankoski, 2011) There has to be a portrayal of the protagonist that makes players believe that the protagonist is real. In his paper, Lankoski cites Doom, which "[offer] almost no basis for recognition of the [playable character] of the game; hence, Doom does not afford empathetic engagement." (Lankoski, 2011) Although Doom is not necessarily a game primarily aimed at inducing empathy, the idea of not being able to establish a solid basis of recognition for the protagonist (shown in his limited interaction with NPC's) could be the reason why some participants were not able to significantly empathize with the character they were playing.

Lastly, a number of clinicians noted that the game felt too short, ending "just as [they were] starting to immerse [themselves] in the game." Although it was the clinicians who noted this, this comment may also possibly explain the results of the player test. Going back to Belman and Flanagan's study, a game's "impact on participants is limited by its brevity and probably also its remoteness from participants' day-to-day lives and concerns." (Belman and Flanagan, 2010) While the second concern was addressed by making the situation in the game relatable to the target player, the game in itself was very short, with most players completing the game in under 15 minutes. Longer exposure to the game is important as this is where the induction of empathy occurs. That said, making the game longer or improving it for long-term play may improve its potential in inducing empathy, as it "encourages far greater cognitive or emotional involvement." (Belman and Flanagan, 2010).

Apart from the participant pool, the perception of the items on Power's ADS may have also affected the results. While answering Power's ADS, one participant asked, "Does this refer to me personally, or what I think society thinks?" It is possible that other participants experienced the same confusion, which could have impacted the results of the ADS.

Table 2. Questionnaire Evaluations

<i>Level</i>	<i>Game Group</i>
<i>Level 1</i>	4.057
<i>Level 2</i>	3.800
<i>Level 3</i>	3.671
<i>Level 4</i>	4.057

Despite the results of the ADS, the self-report Likert evaluation in Table 2 shows that players reacted positively to the game in terms of whether it was able to induce empathy in them. An interesting point to note in the results of the self-report is that after playing the game, players rated themselves more positively in Level 1 (Knowing and understanding autism) and Level 4 (Willingness to help someone with autism) of empathy, as opposed to Level 2 (Feeling the same emotions as someone with autism) and Level 3 (Feeling different emotions as a reaction to someone with autism). This implies that this prototype of the game was slightly more effective in inducing cognitive empathy rather than affective empathy.

In line with these results, one participant noted that the game “was very informative but didn’t really make [her]...feel [anything].” Another participant echoed this sentiment, stating that the game was “more informative than immersive.” It is possible that these impressions also affected how much the player was able to empathize with someone with autism, which could be the reason why there was no significant difference in the results of the Power’s ADS before and after playing the game.

Despite the limitations of the game in inducing affective empathy, it can be seen from the results that inducing cognitive empathy (i.e. spreading autism awareness) is already sufficient for some participants to be willing to aid those with autism.

Conclusions

This study makes use of the digital game *In Someone Else’s Shoes*, which simulates some behaviors of a college student with High-Functioning Autism Spectrum Disorder. For this study, 30 participants were asked to answer a survey on their perceptions on people with autism before playing the game. After which, they answered the same survey again to see if their perceptions had changed, and answered an additional self-report on how the game affected them. While there is minimal change in the perceptions of the players before and after playing the game, the self-report shows that majority of the players expressed feeling more informed about autism, showing a positive cognitive response. However, players reported that the game was not as effective at eliciting an emotional response from them, though they still expressed a willingness to aid someone with autism.

Future studies should consider testing the game on long-term empathy. As this study was limited to studying effects on short-term empathy, it is possible that the game is more suited for inducing long-term empathy. It is highly recommended that the game be enhanced before doing this, as it increases

playability and can expose the neurotypical player to more varied cases of ASD during the longer testing phase involved in studying long-term empathy.

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IMPLEMENTATION OF REFLECTIVE PEDAGOGY TO PROMOTE PROSPECTIVE MATHEMATICS TEACHERS' ENTHUSIASM

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Abstract

In this study described the implementation of Reflective Pedagogy in psychology of learning course to promote prospective mathematics teachers' enthusiasm. To obtain data learning enthusiasm, researcher gives questionnaire of learning enthusiasm to prospective mathematics teachers and also asks them to do reflection. The result of questionnaire of learning enthusiasm is described quantitatively and supported by data of reflection. The result of learning enthusiasm questionnaire shows that the average of prospective mathematics teachers' enthusiasm in cycle 2 is higher than cycle 1, that is $78,19 > 76,15$ and the average is in "good" category. It is also supported by the results of student reflection which states that students' learning enthusiasm is improved after they learn psychology of learning course based on Reflective Pedagogy. So, the implementation of Reflective Pedagogy in psychology of learning can foster prospective mathematics teachers' enthusiasm.

Keywords: reflective pedagogy, learning enthusiasm

Introduction

Psychology of teaching and learning is a course in mathematics education majors that discuss topics of learning concepts, learning theories, factors that influence the learning process, cultural and linguistic impacts on learning, multicultural education, gender influences, classroom management, and strategy the management of students behaved difficult. Thus, the material will be very useful for prospective mathematics teachers when they later become a teacher and face students in the classroom. The purpose of this course is to develop the ability of mathematics teacher candidate in understanding learning process and mentoring/management of learning process as education activity. So, prospective teachers of mathematics should be enthusiastic in learning the material, then later when they become a teacher will have the spirit of loving students.

Based on the observations made by researchers, most of the prospective mathematics teachers tend to be less enthusiastic in following the courses of education. They have less prepared before attending college. In addition, students

also appear less active to ask or think in the lesson. Students are also less enthusiastic in following the lesson. Thus, it is necessary for teacher to use a learning approach that can foster enthusiasm, spirit of learning, and caring for others.

Learning with a Reflective Pedagogy approach that has 3C pillars, namely competence, conscience, and compassion is believed to be an appropriate approach to help students understand the concept of learning psychology and foster student enthusiasm in learning. Learning with a Reflective Pedagogy approach has key elements: context, experience, reflection, action, and evaluation. With such learning cycles, it is expected to really help students to be more active and more enthusiastic in learning. Therefore in this paper will be discussed how the impact of the implementation of Reflective Pedagogy to foster the enthusiasm of learning mathematics teacher candidate.

The word pedagogy (*paideia* - Greek) means methodology or how to accompany and help the learner grow and develop based on the view of life and the vision of the ideal human person (LPM USD, 2012: 4). Reflective Pedagogy is learning that integrates the development of human values and personality formation into the curriculum. Reflective Pedagogy is a process by which teachers accompany learners in the lifelong pursuit of competence, conscience, and compassionate commitment (Kolvenbach, 2005: 2-3).

The main objectives of Reflective Pedagogy are: 1) to develop the students' inner knowledge and attitudes, 2) the pupils are able to see the correlation between their inner science and their environment, 3) the students are able to care for the society and the environment in which they live and give it life. Practically, the application of the Reflective Pedagogy is formulated in a system that has the principal elements (Jesuit Institute, 2014: 4-7, LPM USD, 2012: 10-34; Gallagher & Musso, 2006: 6-8; Kolvenbach, 2005: 2): context - experience -reflection - action - evaluation.

Context is personal care and concern for the individual (*cura personalis*). Teacher must know as much as you can about the world. At the stage of ignition, students are invited to perform activities that contain cognitive aspects (comprehension) of the material, affective aspects (feelings / appreciation) and conative aspects (intention / will). Thus, the whole person (intellect, taste, and will) of the students is honed so that they can gain a fuller knowledge. The memory, the understanding, the imagination and the feelings are used, at the deep level of reflection, to capture the meaning and the essential value of what is being studied, to discover its relationship with the knowledge and human activity, and to appreciate its implications in the ongoing search for truth and freedom. In the process of learning, the meaning of action is to interpret the learning outcomes with the mind and heart to realize his knowledge in real life practice. Evaluation in learning is an activity to monitor student academic progress. Based on this cycle, a teacher can guide the students to facilitate the learning process and foster learning enthusiasm.

According to Webster in Wijajanti (2009), enthusiasm is a great feeling of excitement to reach something. When a person has enthusiasm in him, then he will be made great pleasure in achieving something. Humans need enthusiasm and

enthusiasm to make them do the job with joy. According to Samuel (2015), enthusiasm is energy, fuel, a flame that brings about successful results. If you want to achieve great things; if you want to realize a big goal; if you want to live a great life, you must have enthusiasm for everything you do.

In addition, Samuel (2015) also mentions enthusiasm as a choice of feelings that arise and in selection are then continued and strengthened, because enthusiasm can be generated from and within ourselves or by circumstances outside ourselves, the strongest is the choice alone, because when you has decided to choose to be enthusiastic, then the program will run in the mind instantly generate energy. According to Baum (2002), in addition to the enthusiasm of students in learning, teacher enthusiasm in teaching is also important, a teacher's involvement and excitement communicate themselves to the students, helping to engage them in the learning process. From the description, the enthusiasm of learning is a feeling of pleasure that produces energy to reach a goal.

Method

This activity aims to determine whether Reflective Pedagogy-based learning can foster learning enthusiasm. The method of this research is descriptive quantitative to describe the implementation of Reflective Pedagogy based learning to foster the enthusiasm of learning. The subjects of this research are 26 students in G-Class in Psychology of teaching and learning course at the mathematics education program of Sanata Dharma University. The object of this research is the prospective mathematics teacher enthusiasm. Technique of collecting data in this research is by giving questionnaire learning enthusiasm and doing reflection. The instrument of data collection is questionnaire of learning enthusiasm and reflection sheet. Questionnaire of learning enthusiasm consists of 20 items of statement containing aspects of pleasure, student interest, and student involvement. The reflection sheet consists of 3 questions related to what students get during the lesson, whether the students' learning enthusiasm increases after learning, and whether learning is beneficial when they become teachers.

The technique of data analysis of learning enthusiasm determines the total score obtained by each student. Converting quantitative data into qualitative data with conversion table as follows.

Table 1. Actual Score to five scale

Score Interval	Category
$X > \bar{X}_i + 1,8S_{bi}$	Very Good
$\bar{X}_i + 0,6S_{bi} < X \leq \bar{X}_i + 1,8S_{bi}$	Good
$\bar{X}_i - 0,6S_{bi} < X \leq \bar{X}_i + 0,6S_{bi}$	Good Enough
$\bar{X}_i - 1,8S_{bi} < X \leq \bar{X}_i - 0,6S_{bi}$	Not Good
$X \leq \bar{X}_i - 1,8S_{bi}$	Very bad

(Widoyoko, E.P, 2009: 238)

Note :

$$\begin{aligned}\bar{X}_i \text{ (ideal mean)} &= \frac{1}{2} (\text{maximum score ideal} + \text{minimum score ideal}) \\ Sbi \text{ (standard deviation ideal)} &= \frac{1}{6} (\text{maximum score ideal} - \text{minimum score ideal}) \\ X &= \text{real score}\end{aligned}$$

After that, determine the percentage of the number of students in each category. Student reflection analysis is reducing data, presenting data, and drawing conclusions. Data reduction is done by the process of sharpening, classifying, eliminating unnecessary and organizing data so that can be drawn conclusion. The presentation of data includes the classification and identification of data. The conclusion gives meaning and explanation to result of data presentation.

Findings and Discussion

Below are the implementation of Reflective Pedagogy-based learning.

In Cycle 1

Context

At the beginning of the lecture, the lecturer dig up the early knowledge of the students so that they can know the extent to which their understanding of what learning means and examples of learning and learning activities are in their minds.

Experience

Lecturer stimulates students to learn teaching materials and provide subjects that will be discussed students in groups. Lecturer divide students in groups consist of 3-4 people according to students' own choice, so that students are expected to work together. The main subjects studied in cycle 1 are learning concepts, behavioral learning theory, cognitive learning theory, social learning theory, factors influencing learning and learning (internal and external factors). Each group will present a material. In addition to the presenter group determined, also determined the group of discussants and questioners. The discussion group aims to discuss whether the material presented is appropriate or needs to be added several things. The questioner group is given the opportunity to ask first, then all students may ask. The goal is determined by the discussion group and the questioner so that the other students will also learn the material that will be presented by their friend. With group discussions, students will be more active in asking questions, expressing opinions, answering questions, and actively taking part in lectures.

Reflection

Lecturer ask students to reflect on what knowledge they have received, what benefits have been gained as a teacher candidate, how the enthusiasm of learning and caring for others after half semester, and what obstacles are experienced.

Action

Lecturer guide students to make solutions to obstacles encountered during the lecture so as not to be a barrier in the next learning process.

Evaluation

Lecturer provides evaluation through assessment of process observation, assessment of tasks done, and written tests.

In cycle 2

Context

Students have an understanding of the concepts of learning and learning, learning theories, and the factors that influence the learning and learning process. Therefore, at the beginning of this third lecture, the lecturer explores students' experiences on culture and language as well as gender in relation to the learning process and student learning outcomes at school. Context digging is done with question and answer.

Experience

Lecturer stimulates students to learn teaching materials and provide subjects that will be discussed students in groups. Lecturer divides students in groups consisting of 3-4 people according to students' own choice, so that students are expected to work together. The main subjects studied in cycle 2 are cultural and linguistic impacts in learning, multicultural education, gender influences and personality in learning, and strategies for managing students behave very difficult. The material learned in cycle 2 is more real and often the students encounter in everyday life, so that more and more students are actively involved in learning, conveying their experiences at school time regarding differences in Language, culture, religion, gender, and so on. By learning the material, the students are increasingly aware that in Indonesia there is a lot of diversity, but it is increasingly enriching the nation's culture. By recognizing diversity in Indonesia, students are increasingly appreciating diversity.

Reflection

The lecturer asks the student to reflect on the learning process that has been experienced by questioning the extent to which cultural, linguistic, and gender impacts on the learning and learning experience are beneficial to you and how to appreciate cultural differences, the language associated with the present situation in Indonesia.

Action

Lecturer asks students to create a video containing a campaign of values in Multicultural Education to appreciate diversity (within the family, school or community) as the final project. Student videos are then uploaded YouTube accounts of each group. It is expected that students can make a real appreciation of the diversity that exists around them especially in Indonesia.

Evaluation

The lecturer provides an evaluation through the assessment of process observations, as well as an assessment of the tasks performed, and the final project video assessment. After elaborating Reflective Pedagogy-based learning, the following is the result of questionnaire of student's enthusiasm in cycle 1 and 2.

Table 2. Results Student Enthusiasm Questionnaire

No	Name of Student	Cycle 1		Cycle 2	
		Total Score	Category	Total Score	Category
1	Student 1	91	Very good	91	Very good
2	Student 2	96	Very good	96	Very good
	Student 3		Good		
3		67	enough	71	Good
4	Student 4	87	Very good	93	Very good
	Student 5		Good		Good
5		65	enough	65	enough
	Student 6		Good		
6		67	enough	70	Good
7	Student 7	72	Good	72	Good
8	Student 8	81	Good	83	Good
9	Student 9	76	Good	82	Good
10	Student 10	71	Good	77	Good
11	Student 11	76	Good	78	Good
12	Student 12	69	Good	71	Good
	Student 13		Good		Good
13		61	enough	68	enough
14	Student 14	78	Good	78	Good
15	Student 15	75	Good	75	Good
16	Student 16	78	Good	78	Good
17	Student 17	86	Very good	86	Very good
18	Student 18	88	Very good	92	Very good
19	Student 19	82	Good	82	Good
20	Student 20	73	Good	75	Good
21	Student 21	69	Good	70	Good
22	Student 22	72	Good	74	Good
23	Student 23	70	Good	70	Good
24	Student 24	70	Good	70	Good
25	Student 25	76	Good	77	Good
26	Student 26	84	Good	89	Very good
	Average	76,15	Good	78,19	Good

Based on the result of this research, it can be seen that the average of questionnaire result of learning enthusiasm in cycle 2 is higher than the average in cycle 1, that is $78,19 > 76,15$. The mean of questionnaire result of learning enthusiasm in cycle 2, that is 78,19 in “good” category. Similarly, the average

questionnaire results of learning enthusiasm in cycle 1, i.e. 76.15 include into the category of “good”. The following will be presented the questionnaire analysis of student learning enthusiasm.

Table 2. Analysis of Results Questionnaire Enthusiasm Learning

No.	Category	Cycle 1		Cycle 2		
		Number of students	Percentage	Category	Number of students	Percentage
1	Very good	5	19,23%	Very good	6	23,08%
2	Good	17	65,38%	Good	18	69,23%
3	Good enough	4	15,38%	Good enough	2	7,69%
4	Not good	-	-	Not good	-	-
5	Very bad	-	-	Very bad	-	-

From the table, it shows that there is an increase of the percentage of students who are categorized as "excellent", initially 19.23% to 23.08%. Similarly, there is an increase in the percentage of students in the "good" category and the decrease in the percentage of students in the category quite well. When viewed from the average of the questionnaire results and the percentage of the number of students in each category there is an increase. This happens because at first the student’s enthusiasm is low, students tend to be quiet and passive. Therefore, in the experience stage, lecturer involve students to present lecture materials so that students become more active, can interact with lecturer, other students, and explore the source of learning.

In addition, the lecturer also links the material being studied with the daily experience of the students, so that it is more easily understood by the students. This is in line with Levy's opinion (2017), there are 6 ways to ignite enthusiasm in your students: 1) show your enthusiasm for the works, 2) demonstrate the value of learning the material, 3) allow for students interaction with teacher, other students, 4) allow for student chosen project, 5) connect to the real world: guest speakers, field trips, and 6) permit students to use their expertise. In the final project of making videos, students also experience real and interact with the environment and society. In addition, according to Sullo (2009, 62), “negative energy can bog a school down; positive energy and enthusiasm for teaching enhance performance”. So as a teacher must be enthusiastic in teaching and transmitting positive energy and enthusiasm to students.

The results of the questionnaire of enthusiasm of learning have shown an increase in student learning enthusiasm. It is also supported by the results of student reflection. Most students stated that their learning enthusiasm increased when compared to early learning. This happens because the beginning of their learning to take the course of learning psychology will be boring with theoretical material, but the material is related to everyday life that makes them enthusiastic. In addition, the presence of group discussion makes them enthusiastic about discussing a particular topic. But there are still students who are still less enthusiastic to follow the learning because the students are still lazy to participate in group discussions. This is an input for teachers to improve the next learning

cycle. So the students' final assignments make the campaign videos appreciate diversity. With that students will mingle with the community, interview the resource person, think creatively how to package the video, and so that the enthusiasm is increasing.

Based on the results of the average questionnaire enthusiasm of learning, the percentage of students and the results of student reflexes, it can be concluded that the implementation of Reflective Pedagogy-based learning can foster student learning enthusiasm.

Conclusions

Based on the results of research that has been done, then some things that can be concluded is as follows. Reflective Pedagogy-based learning can foster learning enthusiasm and caring for others. It can be seen from the result of questionnaire of learning enthusiasm shows that the average of questionnaire of cycle 2 is bigger than cycle 1, that is $78,19 > 76,15$ and the average is included in "good" category. Reflective Pedagogy-based learning can be combined with other learning models so as to further enhance students' enthusiasm. The next researcher can review other attitudes such as self-efficacy, mathematics learning anxiety, and others.

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GROUP GUIDANCE SERVICES BASED ON FOLKLORE FOR STUDENTS JUNIOR HIGH SCHOOL

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Abstract

Professional guidance and counseling services are based on a comprehensive guidance and counseling program. Professional counselors were able to implement the program of group guidance based assessment prior to program implementation with four competencies, (1) personality, (2) paedagogy, (3) social, and (4) professional. This article discusses the effectiveness of group guidance services through folklore. The fundamental goal of folklore as a medium of group guidance services is the history of the past can foster National Character. The research approach uses literature study. The analysis through descriptive analysis. The findings show that process of group guidance services through the opening stage, intermediate, core activities, and termination. Folklore as the primary basis of group guidance services carried out on the core activities. Folklore presented by the counselor as a group leader and discussed by members with leader of the group to develop a National Character. Folklore in the process of group counseling is effective in order to grow a national character that corresponds to the origin of the formation of the Nation.

Keywords: group guidance, character, folklore method

Introduction

Each country has a diverse culture and unique character compared to other countries. Cultural diversity gives rise to unique features in every society of language, religion, ethnicity, race, color, and custom. Positive views on diversity give rise to a united nation with challenges in the era of globalization. The negative influence of cultural diversity that can affect all elements of the nation if the people of Indonesia can't appreciate all the differences of human diversity. School's role in developing the character of learners through the education of national character. Strengthening national character can be started from the optimization of character education based on local wisdom (Sultono & Hilmi, 2015). Value-based education emphasizes the realization of good citizens, who possess holistic competencies in knowledge, skills, and traits based on the values of Pancasila or Five Principles of Indonesia or national character (Nuridin, 2015).

The phenomenon behavior that does not value differences between individuals can lead to anarchic behavior. The results revealed that tolerance tended to decline as national income inequality increased (Andersen & Fetner, 2008). The anti-European attitude as a negative impact of globalization on people working in the profession threatens globalization and Europeisation tends to become more intolerant towards immigrants and foreign workers (Giugni & Morariu, 2010). The Wahid Institute's report on violations of freedom of religion and belief and intolerance in Indonesia in 2013 which reached 245 events and in 2014 reached 154 events or down 40 percent with 55 cases of events that is Yogyakarta Special Region with 21 events, North Sumatra with 18 events, DKI Jakarta with 14 events, Central Java with 10 events, and South Sulawesi with 10 events (Setiawan, 2015). The results revealed that Sunnis and Shias assessed the impact of the school curriculum as the most important reason behind religious intolerance, while Ahmadiyya and Christians viewed hate literature as the reason for the case of intolerance (Khan, Österman, & Björkqvist, 2017).

The fact of the case of intolerance results from the values of characters that have not been internalized in human characters. Education has a role in character development through character education. The results showed confidence in students can develop skills and ability to interact positively with the environment and peers (Elias, et.al., 2008; Richardson, Tolson, Huang, & Lee, 2009). The results also show that teachers as a model to contribute to the moral education of children, thus forming a more caring community, student discipline directions drop significantly, especially in areas associated with bullying behavior, and the value of school-based tests with achievement is on the rise almost 50%. (Marshall, Caldwell, & Foster, 2011; Sanderse, 2013). Schools have a common role to develop students' character. The results show that parents, teachers, and administrators as stakeholders jointly combine to encourage students to embody the values of both life in relation to an inclusive and diverse identity in terms of both format and substance in the process of establishing a national identity that results in affective reinforcement and intellectual attitudes that affect social attitudes, social skills, spiritual attitudes (Parker, Nelson, & Burns, 2010; Trisiana, 2015; Wang, 2017).

School counselors have a responsibility to instill character values through counseling and guidance services. Professional School Counselors (PSCs) are required to demonstrate how comprehensive development programs support student outcomes (American School Counselor Association (ASCA), 2005; Dahir & Stone, 2003; Gysbers, 2004; Lapan, 2005; Sciarra, 2004). Group counseling services as a way to shape mutual respect with counseling and guidance functions. The results of the study indicate that the activities or interventions of school counseling programs vary in effectiveness (Whiston, Tai, Rahardja, & Eder (2011). The folklore method as a method can be used to develop the character of the students through counseling and guidance services. The results show that the story The people of Malang (East Java) "contain the values of character education in the form of faith, the power of a prayer, honesty, discipline, hard work, creativity, independence, curiosity, abstinence, tolerance, appreciation, friendship,

peace, caring to others, to preserve nature, to utilize nature, and to love the motherland (Malitasari, 2013).

Group-Based Folk Story Guidance

Group guidance has a different meaning between one expert and another. Romlah (2001) defines group guidance as one of the guidance techniques that seeks to help individuals to achieve their development optimally according to their abilities, talents, interests, and values adopted in group situations. Group guidance is aimed at preventing students from developing problems and developing student potential. Wibowo (2005) states that group guidance is a group activity in which group leaders provide information and direct the discussion so that group members become more social or to assist group members to achieve common goals. Sukardi (2003) Group guidance services are intended to enable students to collectively obtain materials from resource persons (especially tutors) that are useful for daily life both as individuals and as students, family members and communities.

Group guidance services are implemented on a folklore basis. Folklore can be interpreted as a cultural expression of a community through speech language that is directly related to various aspects of the culture and social structure of the society. Folklore has the meaning of a complex of songs, legends, stories that form an oral tradition of unwritten culture (Reber & Reber, 2010: 370). Folklore is passed down from one generation to the next by orally (Hutomo, 1991).

The group guidance service consists of five stages. According to Prayitno (2012) the steps in group guidance are (a) the stage of formation; (b) the transitional stage; (c) activity stage; (d) the inference stage; and (e) closing stages. First, the stage of formation is the stage to form a crowd of individuals into a group that is ready to develop group dynamics in achieving common goals. Second, the transitional phase is the stage to divert the group's initial activities to the next activity that is more focused on achieving group goals. Third, the stage of activity is the stage of the core activities to discuss certain topics. Fourth, the inference stage is the stage of activity to review what the group has done and achieved. The group participants were asked to reflect on the activities they had just followed. The last, the closing stage is the final stage of all activities.

Conclusion group guidance of folklore-based is one of guidance and counseling service that seeks to help individuals to achieve their development optimally according to their ability, talents, interests, and values adopted in group situations using folk-based media. Folktale is an oral literature that exists in society. Folklore is an inherited heritage passed down through generations through oral and written. The groups guidance of folklore-based uses five stages, namely the stage of formation, transition, activity, inference, and closure.

Method

This research uses literature study method. This research is to reveal effective theories about the group's guidance services folklore based. The literature study is used to construct the theoretical concepts of folklore methods that can be used in guidance and counseling services, in particular group counseling services. The objective of the research is to establish the theoretical

concepts and practice of folklore as a medium of group counseling service through past history to foster the National Character. The theoretical concepts of group guidance services with folklore methods can be used by school counselors as one way to build student character.

The data used in the study were sourced from the literature as well as the primary references. The literature and references are valid and used in this research in the form of journals, books, scientific studies and research results. The form of the journal literature, books, scientific studies and research results in the form of text. The instruments used are journal documents, books, and relevant research results. Literature review and reference in content analysis so that emphasize on the analysis or interpretation of written materials based on the context.

The analysis used in descriptive study of literature study in three ways, namely (1) inventory of literature, (2) description of literature, and (3) comparison of literature. The first stage, the literature inventory by collecting literature on appropriate methods for the development of student characters according to the tasks of student development, the process of implementing the group guidance services, the concept of folklore that can be used in the guidance services of the group on the students of Junior High School, and the implementation procedures of group guidance services method of folklore to students of Junior High School. The second stage, the literature description to describe the role of folklore in the implementation of group guidance services by counselors and types of folklore. The last stage, the literature comparison to build theoretical and applicative concepts about the folklore method in the implementation of group guidance services by school counselors.

Findings and Discussion

The results of this study found facts that of variety primary sources such as scientific journals, books, and research. Scientific journals, books, and research results reveal the concept of group counseling methods in the development of student character, group counseling services implementation procedures, and the role of folklore in the implementation of group counseling services to develop the student's character.

The findings about group guidance service can be implemented through a variety of effective methods. Alhadi, Supriyanto, & Dina (2016) revealed that media in guidance and counseling services play an important role in the implementation of guidance and counseling so that students can better understand and internalize the material guidance and counseling services. Myrick (2011) revealed that Large group guidance can address character issues through variety methods. Research Sink & Edwards (2008); Galassi, Griffin, & Akos (2008); Van Velsor (2009) find fact that professional school counselors are equipped with effective techniques to improve multicultural competence and student strengths in school counseling programs based on prevention and self-repositioning socially and emotionally. Implementation of group guidance services to develop characters requires media tailored to the developmental tasks of junior high school students with the cooperation between counselors and related parties. The media group

counseling services will lead to great opportunities that are effective for the development of multicultural competencies of students in counseling and guidance programs.

Table 1. Concept of Group Guidance Service for Developing Character

Number	Findings	Note
1	Media Guidance and Counseling	Media in guidance and counseling services play an important role in the implementation of guidance and counseling so that students can better understand and internalize the material guidance and counseling services
2	Character Education	Large group guidance can address character issues through variety methods
3	Guidance and Counseling Techniques	Professional school counselors are equipped with effective techniques to improve multicultural competence and student strengths in school counseling programs based on prevention and self-repositioning socially and emotionally
Conclusion	Implementation of group guidance services to develop the character of tolerance requires media tailored to the task of development of Junior High School students with cooperation between counselors and related parties in the framework of developing multicultural competence.	

The development of student character in the implementation of group guidance services can use the folklore method. The use of didactic folklore can evoke sensitivity, self-awareness and embrace the noble, pious and humanist nature. (Okeowo & Okeowo, 2015). This opinion is corroborated by research from Sakiyeva, Berdibayeva, Shomanbayeva, & Kalkhojayeva (2014), that the components of the internal structure of the individual are ethnic identities as community awareness of membership in certain social and ethnic groups reflecting the nation's situation in the social system. research show that the People's story from Malang (East Java) "contains the values of character education in the form of faith, the power of a prayer, honesty, discipline, hard work, creativity, independence, curiosity, abstinence, tolerance, love of peace, caring for others, nurturing nature, utilizing nature, and love of the country (Malitasari, 2013).

The ability of counselors in the implementation of group guidance services of effective folklore methods in the development of student potential. The results of Hariyadi, Sugiharto & Sutoyo (2014) revealed that there was an increase in interpersonal intelligence of 13.9% from medium to high category through group guidance services with biblio-counseling techniques based on folklore. The results of research Purnami, Garminah, & Sudarma (2014); Widiawati, Suarni, & Ujianti (2017) revealed that the sociodrama method of folklore has a positive effect on the ability to speak to children compared to groups of students who were taught by

conventional methods. Research Susilowati (2016); Sundari, Sinaga, Ritonga & Ekomila (2017) that the Folktale Speaking program can enhance the existence of Nusantara folklore and shape the character of the students through group counseling services in the private social field, and able to cooperate with subject teachers. The result of the Warta (2012) study that folklore not only presents social conflicts but also shows some ways to resolve conflicts and conflicts bringing the attitude to be wise enough to face, as well as folklore can help to develop students into good students morally and humanist. The conclusion of the research results shows the fact that the role of the past in the folklore of a country can foster multicultural competence according to the values of character education in the social system of the nation.

Table 2. Character Values in Folklore in Group Guidance Services

Number	Findings	Note
1	Folklore Function	The folklore of ethnic identity-formers as public awareness of membership in certain social and ethnic groups reflects the nation's situation in the social system, and is able to arouse sensitivity, self-awareness, embrace the noble, pious and humanist nature.
2	Character Education from folklore	The value of embedded character values such as faith, the power of a prayer, honesty, discipline, hard work, creativity, independence, curiosity, unyielding, tolerance, respectful achievement, friendship, peace of mind, caring for others, nurturing nature, the homeland appears in the folklore of a nation.
3	Metode Folklore in the Implementation of Group Guidance Services	Folklore positively affects the character values in the personal social field morally and humanist and able to cooperate with subject teachers.
Conclusion	The value of folklore character values positively affects the moral and humanist social person for the formation of ethnic identity as public awareness of membership in certain social and ethnic groups reflecting the nation's situation.	

Implementation of group guidance of folklore method according to the implementation procedure. Implementation procedures are applied in accordance with the research of the literature review. Shertzer & Stone (1980) stages of group counseling, (1) giving students personal information to students, (2) individual discussions challenging activity plans, and (3) students having the option to solve problems, goals, and solutions. Gladding (2009) describes the stages of activities in the group, namely (1) the stage of formation, (2) the exploration stage, (3) the regulatory phase, (4) the implementation stage / work, and (5) the merger / termination stage. Prayitno (2012) preparing steps in group guidance are (a) the stage of formation; (b) the transitional stage; (c) activity stage; (d) the inference

stage; and (e) closing stages. Activity in group guidance requires effective group skills for the development of student character. Johnson & Johnson (2006) explains that the group has goals, cooperation, cooperative, productive, communicative, joint decisions with negotiation, commitment to decision, group quality, creativity, leadership and cohesion.

Table 3. Implementation Stage of Group Guidance Services Method of Folklore

Number	Findings	Note
1	Procedure Group Guidance Services of Folklore Method	(1) the stage of formation; (2) the transitional stage; (3) activity stage; (4) the inference stage; and (5) termination stage The group has purpose, cooperation, cooperative, productive, communicative,
2	Group Concepts	joint decision with negotiation, commitment to decision, group quality, creativity, leadership and cohesion (1) provide students with personal information on students, (2) personal discussions about the activity plan, and (3) students have the option to solve problems, goals, and solutions.
3	Objectives of the Group Guidance Services	
Conclusion	<p>Stages of implementation of guidance group of folklore methods through five stages, namely</p> <p>(1) Establishment stage: provide the foundation for the implementation of group guidance services to group members</p> <p>(2) Transitional stage: group members can place themselves on group hierarchy.</p> <p>(3) Stage of work: group members led by group leaders are actively and collectively involved, so the group can be productive.</p> <p>(4) Concluding stages: the group concludes the discussion of the meaning of folklore in personal and social life</p> <p>(5) Termination stage: group ends and say goodbye.</p>	

Implementation of group guidance services of folklore methods with five stages, namely (a) stage of formation; (b) the transitional stage; (c) activity stage; (d) termination stage; and (e) closing stages. The guidance services group of folklore methods to cultivate multicultural competence. The value of folklore character values positively affects social personality morally and humanist.

Conclusions

Implementation of group guidance services to develop the character of tolerance requires media tailored to the task of development of Junior High School students with cooperation between counselors and related parties in the framework of developing multicultural competence. How to develop multicultural

competence through the role of the past in a nation's folklore according to the values of character education. The value of folklore character values positively affects social personality morally and humanist. Folklore as the formation of ethnic identity as public awareness of membership in certain social and ethnic groups reflecting the nation's situation. Implementation of group guidance services of folklore methods with five stages, namely (a) stage of formation; (b) the transitional stage; (c) activity stage; (d) termination stage; and (e) closing stages. The results of the implementation of the group guidance services of folklore methods as the formation of ethnic identity of the nation have positive influence on the social person morally and humanist or the multicultural competence of the students.

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**EFFECTS OF USING THE JAPANESE ABACUS METHOD
UPON THE ADDITION AND MULTIPLICATION PERFORMANCE
OF GRADE 3 INDONESIAN STUDENTS**

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Abstract

This quasi-experimental study was conducted to determine the effect on accuracy and finish time of using the Japanese abacus method on the addition and multiplication performance of thirty Grade 3 pupils in selected schools in Indonesia. Fifteen formed the experimental group, were enrolled in abacus training classes outside of their respective schools, and were taught personally by the researcher through additional abacus treatment for ten meetings. The rest of the students formed the control group who do not use the abacus. Both groups were given the same pretest and posttest on addition and multiplication based on the Indonesian curriculum. Afterwards, students' scores and finish time were analyzed using F-test and Student's t-test. Results show that there is a significant difference between the experimental and control groups in terms of finish time in addition, scores in multiplication, and finish time in multiplication. Results also show that there is a significant increase in multiplication score in the experimental group from pretest to posttest. Student interviews, observations, and analyses of sample solutions revealed several errors that were parallel to Stigler's classification.

Keywords: addition and multiplication performance, japanese abacus method, mental abacus

Introduction

Doing computation, whether manually or mentally, is a basic component in the process of learning mathematics. Similarly, students need to learn the basic operations in mathematics such as addition, subtraction, multiplication and division, before proceeding to more complicated computational tasks. Westcott and Smith (1968) mentioned that understanding of upper-level concepts relies on the mastery of earlier concepts. Moreover, teachers, parents, tutors, and students themselves have a tendency to search for a technique or method that can be used to more easily teach or learn basic mathematical skills – ideally, to lead to mastery. There are plenty of methods and tools that can be utilized to teach speedy and accurate computation; one of which is by using the abacus – an ancient

calculating device used primarily in Asian culture for performing arithmetic processes (Gera and Kaur, 2014).

Motivated by the situation encountered in teaching secondary school mathematics to Grade Seven students, the researchers noticed that the students have not yet mastered nor do they have automaticity in performing simple addition and multiplication. This prompted them to observe the elementary-level mathematics classes, especially in Grade Three, where multiplication is taught and applied in their lessons. Even some of the students were still using their fingers to do simple addition; they were not yet *mature* in terms of basic mathematics skill.

As an abacus teacher, one of the researchers believes that the abacus is one of the tools that can help hone students' basic mathematics skills such as addition and multiplication. The abacus not only increases the ability of children in performing mathematics calculations, but also develops memory effectively (Gera and Kaur, 2014). The researchers wanted to observe and see how far abacus training can help students to be accurate and speedy in performing addition and multiplication.

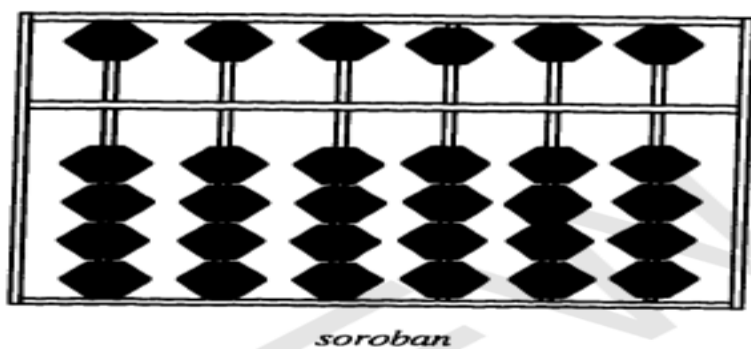


Figure 1. The Soroban (Gilmore, 1997)

In the education setting, Miller and Stigler (1991) espoused the idea that people who have consistently used and mastered the abacus are capable of extremely rapid and accurate mental calculations, with children being able to perform mental calculations by moving the beads in their *mental abacus* (i.e. image of an abacus as imagined by the solver) as they would do on a real one. The abacus is merely a tool; through intensive practice, children are able to imagine and internalize the image of the abacus in their mind, and later on perform mental calculations (“Abacus and its History”, 2007). The statement of problem is “Does the abacus method significantly affect student performance in addition and multiplication?”

The present study is primarily anchored on several theories and ideas that shape its theoretical framework. Piaget’s Theory of Cognitive Development (Woolfolk, 2004) espouses four stages of development wherein the preoperational and concrete operational stages have a significant role in abacus training. The former entails the ability of children to relate objects and symbols, whereas the latter deals with children’s ability to think logically and reversely. In terms of

abacus training, the preoperational stage familiarizes children with the beads of the abacus and how they represent actual amounts and numbers, paving the way for numerals to be coded in their memory as a certain number of beads. Meanwhile, when children progress to the concrete operational stage, development of the mental abacus leading towards mental arithmetic takes place (imagination of abacus).

In addition, Vygotsky's Social Constructivist Theory (Woolfolk, 2004) mentions cultural tools as a means of learning for children. Stigler (1984; 1986) supports this with several mentions of abacus training being heavily supported in East Asian communities; together with the early exposure, consistent practice, and high regard for mathematics learning, children are culturally encouraged to do mathematical computations quickly and accurately at an early age. This idea was supported by several East Asian studies (Wang, et al, 2015; Amaiwa, 2001; Hayashi, 2000). All the aforementioned bind the study, serving as its foundation in the rationale that abacus training, under optimal conditions (i.e. early exposure, long-term consistent practice, etc.), can yield good computational skills: fast and accurate answers.

Method

Thirty 3rd-graders of three elementary schools in Indonesia served as the participants of the study. Two of the schools were in Jakarta and the other school was in Yogyakarta. Of which, 15 were abacus learners who are enrolled in an outside-school abacus course (Level 3) and formed the experimental group. They have mastered the rules in using an abacus. For addition, most of them can do until 2 digits mentally. For multiplication, most of them can do 2-digit times 1-digit mentally.

The experimental group was given additional abacus training for 10 meetings, lasting 45 minutes each session. The Nonequivalent Comparison Group Design (Shadish, Cook and Campbell, 2002) was used. It is a design that consists of giving an experimental and a control group a pretest, followed by a posttest, after the experimental treatment condition (i.e. teaching of the abacus) has been administered to the experimental group. Data gathering was through the pretests and posttests administered to the two groups about addition (until 3 digits) and multiplication (until 2-digits times 2-digits and 3-digits times 3-digits) based on the prescribed Indonesian curriculum. The researchers also utilized observation and interview to gain more insight into the thinking and errors committed by the students. The instruments used in this research consist of the addition and multiplication pretests and posttests, modules (or syllabus) for abacus teaching and learning, and interview guides. For data analysis, Microsoft Excel was used to compute for the means, variances and standard deviations of sets of values. The same software was also used for the following tests of hypothesis: F-test and Student's t-Test. For the analysis of qualitative data from the observations and interviews conducted, content analysis was utilized in an attempt to relate the responses of the students to their test performance and errors committed.

Findings and Discussion

For the quantitative data derived from the pretests and posttests, the goal was to find out if there was a significant difference between the scores and the finish time of the experimental and control group, and between the pretest and posttest data of the experimental group, both at 0.05 level of significance. Student's t-test was utilized, since the sample size was only 15 (i.e. less than 30).

Comparison Between Control Group and Experimental Group

Addition Scores in Pretest

The F-test reveals that the variances are not equal since $0.0253 < 0.05$; thus, Student's t-test for unequal variances is used. With a p-value of 0.4363, which is more than 0.05, the Student's t-test shows that there is no significant difference between the mean pretest scores of the experimental and control groups in addition. Based on this result, we established that the students' ability in the basic mathematics skill for addition was considered to be similar for both groups. Students in experimental group was using mental abacus for simple addition that involved one to two digits while for two to three digit numbers they was using abacus. For the control group, most of them can use mental arithmetic for the simple addition and the rest using a pen-and-paper method.

In the pretest, the researchers chose to include only a few large numbers. This likely required direct addition without using any rules of abacus for the experimental group; in the case of the control group, there was no need for regrouping. However, it should be noted that in the posttest, most of the items involved larger numbers for both addition and multiplication. The number of incorrect answers in the pretest from the 15 students in the experimental group were 56 items in total, compared to 73 in total for the control group. For simple addition that involved one- and two-digit numbers (i.e. lessons from Grades One and Two), students in the experimental group committed 7 wrong answers, while the control group incurred 13 incorrect responses. For the more complex addition questions that involved more digit span, students in the experimental group made 49 mistakes, while those in the control group had 60 wrong answers. The contents of the pretest were familiar for students of both groups, as these were already taught in the first three grade levels. Hence, this also might have contributed to no significant difference between the pretest scores of both groups. As supported by Piaget (in Woolfolk, 2007, p. 29), children who have existing schemes in their minds can make use of these to make sense of events in their world – in this case, their statistically similar performance in addition, regardless of method used. The pretest results show that both groups have significantly similar ability for addition at the beginning of the study, with addition being familiar to the students since the schemes related to this operation has been formed by grade one or even kindergarten.

Addition Scores in Posttest

The p-value for F-test is 0.1145, which is more than 0.05. Thus, there is insufficient evidence to show that the variances are not equal. It means that the variances are equal. Using t-Test for two samples assuming equal variances, the p-value obtained is 0.2828, which is more than 0.05. Hence, there is insufficient evidence to show that the means are not equal. It means that there is no statistical

difference in the student's performance in posttest scores in addition between the control group and the experimental group after the abacus training. From this result, we concluded that there is no effect in student's performance in terms of accuracy for addition after the abacus training. One factor that might explain this performance for both groups is that the pupils are already in Grade Three, which means that they have acquired the necessary foundational skills related to addition in Grades One and Two. In turn, increasing the digit span should not have posed a significant difficulty in obtaining the sum, regardless of method or device used. Moreover, a research by Wu, et al (2009, p.440) showed that there is no significant difference between abacus and non-abacus users when it came to simple addition questions, and that both groups showed high levels of accuracy. This is parallel to the results obtained for the addition posttest.

For experimental group, even if they know the rules of abacus, they still need more time to practice in addition that involved a longer digit span. Regarding the practice of abacus, Stigler's research in Taiwan (1986) found that "Mental abacus skill was found to develop primarily as a result of practice rather than of selection factors such as socioeconomic status, ability and previous mathematical knowledge" (p. 447). During the training, the researchers did not focus much in doing addition that involved two to three digit numbers, but instead devoted more time in doing addition through *asas* (i.e. repeated addition) since some students in the experimental group had not yet mastered mental abacus for the multiplication of 2-digit by 1-digit numbers, which is a requirement to do abacus quickly for multi-digit multiplication.

Finish Time for Addition in Pretest

As for the finish time in pretest for addition, the F-test shows that the variances are not the same; hence, Student's t-test for unequal variances was used which reveals that the means in terms of finish time have a significant difference for the two groups. Checking the means, the experimental group was significantly faster than the control group in finishing the pretest.

One of the advantage of using abacus is that it removes the need to regroup in every step of addition; students can directly get the result as they start to count from the left to the right, either using abacus or mental arithmetic. This process can help them save time and further master the use of the abacus. This is supported by Miller and Stigler (1991) – to do calculations using the abacus, proper finger technique is a basic requirement to achieve proficiency.

Finish Time for Addition in Posttest

With a probability value of less than 0.05, the F-test reveals that the variances are not equal. Hence, t-Test for two samples assuming unequal variances is used; since the p-value of 0.00033 is less than 0.05, there is sufficient evidence showing that the means are not equal. It means that there is a difference in the finish time for posttest in addition between control group and experimental group. From the results obtained, it can be seen that the experimental group is significantly faster than the control group for the posttest in addition. Some factors that affect their result are as follows: the abacus learners were observed trying to beat the time limit and that they directed their focus in answering the worksheet. Gilmore (1997) notes that such an attitude of students in the

experimental group showed that abacus as a tool can help students prioritize and concentrate, thereby switching their attention to their abacus and worksheet. Using abacus also removes the need for regrouping so they can spend time shorter than others. Shwalb and his colleagues (2004) found in their research how motivation for mathematics is influenced by attending abacus training: whenever the researcher gave the students worksheets, they would directly do the calculations using the abacus. This kind of response was analogized to the students as if seeing their favorite food.

Multiplication Scores in Pretest

The F-test, with a p-value 0.1546 of more than 0.05, shows that the variances are not unequal. Thus, a Student's t-test for assuming equal variances is used to check for the difference between two means. It further reveals that there is no difference between the pretest scores of the two groups in multiplication with the p-value 0.2214 being more than 0.05. Based on this result, the researchers found that the students' ability in the basic mathematics skill for multiplication was considered to be similar for both groups. It might have been due to the lesson on multiplication of two two-digit numbers and three-digit by one-digit numbers being new for all students in both groups. The researchers thus categorized the result as low since the mathematics standard score for Grade Three in their schools is 70 at the minimum. Hence, such multiplication problems posed difficulty for them. Both groups used the conventional multiplication algorithm in solving the multiplication of two two-digit numbers, and multiplication of three-digit and one-digit numbers. Based on this result, the researchers shifted the lessons to focus more on their multiplication, thus giving *asas* practice for addition only.

Multiplication Scores in Posttest

With a p-value of 0.0003 for the F-test, there is sufficient evidence to show that the variances are not equal. Thus, Student's t-test for two samples assuming unequal variances is used, with p-value 0.0003 that is less than 0.05 obtained. Thus, there is sufficient evidence to show that the means are not equal. It means that there is a significant difference in the posttest scores of the two groups, wherein the experimental group obtained higher scores compared to the control group. The short process in multiplication using abacus helps student avoid some errors as compared with the conventional way. In the multiplication of two two-digit numbers using both physical and mental abacus, students only need two steps to find the product, as compared to at least five steps in the conventional way taught in schools. Consider 23×54 . For students who are using the abacus, the first step is $23 \times 5 = 115$ (using mental abacus) and shall be put in the thousands pole. As for the second step, $23 \times 4 = 92$ (using mental abacus) and put it in the tens pole, and at the same time, the students directly apply the partial product in their abacus to get the answer of 1242. In contrast, the conventional way would require students to perform multiplication at least in 5 steps.

For the experimental group, there was a large progress in terms of accuracy using the abacus since students knew about the rules of abacus in addition as one of the important requirements in doing multiplication (Flom and Heffelfinger, 2004). Despite the results showing the progress of students in performing

multiplication, some errors were still observed during posttest and are related to the errors that were found in addition, such as errors about upper bead, omission, and position (Stigler, 1984).

Finish Time for Multiplication in Pretest

As can be seen in the F-test's p-value of 0.3126, which is more than 0.05, the variances are equal. Thus, Student's t-test assuming equal variances is used, revealing a p-value of 0.2106 that is more than 0.05. It is interpreted as having no difference in terms of the means. From this result, it can be said that students in the experimental group and control group have statistically similar finish times for the pretest of multiplication. Based on the observations and the test results, it can be seen that both groups still had difficulty in doing multiplication that involved 2 and 3 digits. Both groups were using conventional way regarding 2 and 3 digits multiplication. Abacus learners in the experimental group have not yet learned about the multiplication of two two-digit numbers and three-digit with one-digit numbers in their abacus class outside of school. Furthermore, for simple multiplication involving one-digit and two-digit numbers (i.e. Grade Two lesson), the students in the experimental group committed a total of 10 mistakes; for multiplication that involved more digits (i.e. Grade Three lesson), the 15 students answered 166 items incorrectly. On the other hand, the control group committed 40 and 199 mistakes for the same categories as mentioned above. From these results, one can see that the number of mistakes increased as more digits were involved in the calculation.

These results were consistent with research conducted by Ashcraft and Koshmider (1991) about the development of children's mental multiplication skill: that the third graders had a 4.3 percent error rate on problems that involved small numbers (e.g. 2×3), but 19 percent error rate on problems that involved larger numbers (e.g. 8×9).

Finish Time for Multiplication in Posttest

For this set of data, the p-value for the F-test is 0.0007 which is interpreted as the data sets having unequal variances. Hence, Student's t-test for two samples assuming unequal variances is used, with p-value of 0.0054 obtained which is less than 0.05. Thus, there is sufficient evidence to show that in terms of finish time, there is a difference for posttest in multiplication between control and experimental groups. From the results, it can be seen that the experimental group was faster than the control group in terms of time spent to finish the posttest. Students who use the abacus do the calculation from left to right, so they can simultaneously get the first partial sum as a part of the product while they are processing the next using the abacus. In the conventional way, students work from right to left, so students can not give an answer until they finish covering the entire process. Abacus learner need only few steps compare with conventional way using by non abacus learner. Abacus learner more focus in doing multiplication for 2 to 3 digits numbers even though some forgot how to do it and created some mistakes.

Comparison of Pretest and Posttest for the Experimental Group *Scores in Addition*

A p-value of 0.1511, more than 0.05, is obtained from the F-test conducted which translates to unequal variances; hence, there is insufficient evidence to show that the variances are not equal. Student's t-test for two samples assuming equal variances reveals a p-value of 0.4414 which translates to insufficient evidence to show that the means are not equal. It means that there is no significant difference in the students' performance between pretest and posttest in addition. One of the factors that might have affected the result is the limited time for practice especially with the addition of three-digit numbers using the abacus. Although the same rules for addition in abacus apply, the longer digit span might have been a source of unfamiliarity and difficulty to some students. Another possible factor is that the students might have reached their maximum capacity in using the abacus for addition, which implies that although further practice might improve their performance slightly (which was what happened), but such improvement would not be that significantly different anymore compared to non-abacus users. Another factor that might have contributed to such performance, as observed by the researcher, is the presence of errors parallel to those classified by Stigler (1986): errors pertaining to the upper bead, omission or position. The first type of error relates to the upper bead being forgotten to be brought down when performing an operation involving the *small friend*. The second type of error happens when a bead is accidentally moved or knocked by the fingers. The third type of error pertains to confusion over the position of beads, leading to misreading the value (e.g. 7 is read as 2 or vice-versa).

Finish Times in Addition

The F-test, through the p-value of 0.0303 that is less than 0.05, shows that the variances are not equal. Hence, Student's t-test for two samples assuming unequal variances was used wherein a p-value of 0.2119 was obtained, which can translate to insufficient evidence to show that the means are not equal. Based on this result, despite being faster in the posttest for addition, there is no statistically significant difference in the finish time of the experimental group for the pretest and posttest. To shed insight into this result, the researcher contacted an abacus trainer from UCMAS Jakarta to verify the target speed in Level 3. The trainer responded that the target finish time for students in Level 3 abacus is a maximum of 10 minutes for 40 items of addition of two-digit numbers. As for the experimental group, the pretest and posttest administered contained questions of higher competency, requiring the addition of up to three-digit numbers. With the experimental group managing to finish the 40-item pretest and posttest in 6.62 and 5.58 minutes respectively, their speed was faster than the target time set by the abacus training center. Moreover, they were able to complete the tests with advanced competencies in such a short period of time.

Scores in Multiplication

The p-value obtained for the F-test is 0.0174, which means that the variances are not equal. Hence, Student's t-test for two samples assuming unequal variances is used, wherein a p-value of 0.0035, less than 0.05, is obtained – there is sufficient evidence to show that the means are not equal. Thus, there is a

significant difference in the students' performance on accuracy between pretest and posttest for multiplication; moreover, an improvement is noted from pretest to posttest as can be seen from the means. The statistical comparison of pretest (mean score of 65) and posttest (mean score of 82.93) scores in multiplication showed that there is a significant difference between them. As the researchers noted, in the additional abacus training, emphasis was placed on performing fundamental multiplication algorithms to pave the way for multi-digit multiplication. The researchers allocated much time during abacus training on teaching the students the multiplication of two- with one-digit numbers.

During the training, a key problem was that the students were not able to mentally obtain the product of a two- and a one-digit number. Among the 15 students in the experimental group, six of them did not yet use mental abacus for such kind of multiplication. Thus, the researchers took initiative to reteach and train that students on how to do mental abacus here, before they could move to multi-digit multiplication. Thus, much time was spent for helping the students master in mental abacus for two- with one-digit number as a requirement to do multi digit multiplication.

This course of action was in line with the ideas espoused by Stigler (1984). According to him, there is a close relationship between mental abacus users and their capacity in using the abacus physically. Moreover, the more the children practice using abacus, the more they can perform mental abacus. It took four meetings to finish the practice on two-digit by one-digit mental multiplication. Afterwards, the students were asked to use mental abacus for two meetings and followed this up with training on multi-digit multiplication using the abacus for the remaining meetings.

Finish Time in Multiplication

With a p-value of 0.3141 in the F-test, there is insufficient evidence to show that the variances are not equal; hence, it means that the variances are equal. With this, Student's t-test for two samples assuming equal variances is used; it yields a p-value of 0.3746, greater than 0.05, which translates to insufficient evidence to show unequal means. Based on the pre- and posttest results for finish time in multiplication, there was no significant difference between the two tests, even if the average finish time in the posttest (14.8 minutes) was faster than that of in the pretest (17.49 minutes). In consultation with a trainer from UCMAS Jakarta about the target finish time for Level 3 abacus in terms of multiplication, he responded, saying the multiplication examination's standard is 10 minutes for 20 items of multiplying two two-digit numbers. In comparison, students in the experimental group solved 40 items, comprised of two-digit and three-digit numbers, with an average finish time of 14.8 minutes. Paired with the significantly improved mean score in multiplication, the finish time of the students could be seen as satisfactory given the additional questions administered to them, though they could still improve their speed in multiplication through practice.

Furthermore, moving from left to the right in counting using abacus builds a new scheme in the students' mind aside from the usual right to left method as taught in the classroom (i.e. conventional way).

Doing multiplication using the abacus is shorter compared to the conventional way, especially with multi-digit factors. To find the product of two two-digit numbers using abacus, students need only two steps with an assumption that they can do mental abacus already in multiplying two- and one-digit numbers. For example, for the question 53×45 , first, students should choose the correct pole (i.e. the thousands pole) and use mental abacus to place 212 (i.e. the first product, from 53×4). The second step, which is also the last, is to add the next product 265 (i.e. obtained using mental abacus). For the conventional way, students would have to do at least four steps wherein they are multiplying four numbers.

Doing multiplication using the abacus can help students move faster than others who use the conventional way. It is one major factor that makes multiplication for the experimental group faster than the control group. Moreover, more practice on using the abacus and mental abacus for multiplying two- by one-digit numbers is a major contributor to the speed in doing multi-digit multiplication.

In some conversations during the abacus training, the researchers spontaneously asked some students regarding their interest about abacus. Most of them said that they enjoy studying about the abacus because it is not extremely difficult (i.e. once all the rules have been mastered, one can do all the basic mathematics operations, starting from the mastery of addition as the key). Moreover, the students preferred to learn using the abacus (rather than the paper-and-pen method taught in school) because using the abacus is just like playing with beads and the students never felt bored.

Additionally, the students did not feel compelled to join abacus training. This was supported by Hayashi (2000), who stated that abacus training would be useless if children are forced to do it; otherwise, if children want to learn about the abacus and do the practice (i.e. moving the beads, seeing and reading the value of the beads) as fun, they will tend to enjoy learning more and get more profit from their experience.

However, some students said that the amount of homework from school and also from the abacus course sometimes made them feel too tired to finish all the abas.

Conclusions

The use of abacus to support students in mastering their basic mathematics calculation need more time to practice and master in it (Stigler, 1986). From the context of the current study, the abacus method had more effect in multiplication since the steps in doing multiplication was fewer as compared to the conventional way. It helped students move fast and direct their focus to the problems given to them. Moreover, the use of abacus can encourage students love mathematics since they found it easier to do than the conventional way.

Based on the results of this study, more attention should be given to students who have not yet mastered the basic mathematical operations. Likewise, it is suggested that teachers give emphasis on the preparation of an effective lesson plan in teaching basic multiplication. Since the abacus way for subtraction

is just the opposite of addition, future studies may opt to dwell in this topic. Furthermore, a study about the relation between abacus learners and their performance in problem solving may be an insightful topic for future study.

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UTILIZING AUTHENTIC VIDEOS: AN ACTION RESEARCH TO ENHANCE STUDENTS' ABILITY IN DEVELOPING THEIR SPEAKING CONTENT

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Abstract

Conducting a classroom action research, this study explores how the utilization of authentic videos can enhance students' ability in developing the content of their speaking. A preliminary study which is done by the researcher shows that a group of 10th grade students had a problem in developing their speaking content in English class. Therefore, the researcher determined to use authentic videos in order to solve this problem and improve students' ability in developing speaking content. These authentic videos are expected to attract students' attention as well as give good and authentic models about delivering the message, speaking organization, idea development, and transitions. The findings, from students' score, interview, and observation, and its analysis indicate that the use of authentic videos were effective enough in enhancing students' speaking content development. Besides, students also learned how to pronounce certain expressions, use good intonation in telling something, manage their facial expression and body language when they speak with others, and so on.

Keywords: classroom action research, authentic videos, speaking content development

Introduction

Mastering certain language means we have to deal with at least four basic skills, such as listening skill, speaking skill, reading skill, and writing skill (Jacobs, 2013). We cannot choose to learn or teach reading and writing skills while omitting the other two skills because these four skills are connected one to another. In this case, teachers and schools should provide right portion in teaching these four skills with the appropriate teaching approach and method (Celce-Murcia, 1991). On the other words, it must be fitted with students' needs and the topic of discussion.

This expectation is not in line with the reality. The assessment on English comprehension in Indonesian national examination that focuses on students' ability and understanding in listening, reading, and writing skills (Badan Standar Nasional Pendidikan, 2016) makes many teachers tend to avoid teaching speaking

skill and concentrate on teaching other skills. Moreover, Hughes & Reed (2017) argue that teaching speaking is difficult since there are many aspects to be considered in speaking, like arranging our sentences (structure), pronouncing some words and managing our intonation (sound), and interacting with others or audiences and maintain our body language and eyes contact (organization and behavior). If there is no follow-up to this situation, students will find difficulties when they have to speak using English. This situation was found by the researcher when she conducted a teaching practice in one of private schools in Yogyakarta, Indonesia.

The researcher found that the students were not able to develop their speaking content. When they were asked to speak in front the class, they just mentioned the main idea related with the topic discussed without giving any supporting ideas. If it was done in pairs, their statements sometimes did not show that they were responding to their interlocutor. It is not in accordance with the basic rule of having a conversation (Febriyanti, 2013). In order to validate the data from this observation, the researcher asked the English teacher's opinion or perception about students' ability in developing their speaking content. He said that most of students did not want and/or able to develop their speaking content.

In order to overcome that problem, the researcher decided to use authentic videos because authentic videos can provide interesting teaching and learning activities as well as help students in giving good models of speaking content development (Heinich, Molenda & Russell, 1982). This idea was supported by the school; they provided a viewer and a speaker in each class. Therefore, this study examines how the use of authentic videos can enhance students' ability in developing speaking content.

Speaking content development

Speaking is a kind of interaction between two or more people to deliver certain messages orally, ask something, or even command someone to do something (Luoma, 2005; Bygate, 2010). If someone starts talking, there must be something he/she wants to say. As what has been mentioned before, there are many aspects that should be considered in speaking, such as pronunciation, intonation, fluency, grammar, body language, and the most important aspect is the content of their speech (Hughes & Reed, 2017; Nunan, 2001).

Speaking content is really important because it represents the goal(s) of our speaking and there is a message that will be conveyed in one's speaking content (Grice & Skinner, 1995). This is in line with the purpose of having an interaction through speaking as delivered by Luoma and Bygate. Koch (1995) explains three main steps in developing our speaking content. The first step is determining our purpose or the message we want to convey. By knowing the purpose or message of our speaking, we will be able to make a note on the main points then elaborate it by using some supporting ideas that can be stated in the form of giving definition, example, statistic, argument, and so on (Koch, 1995).

In addition to elaborating supporting ideas based on the main message, we should pay attention on the 'movement' of these ideas. Koch (1995) and Zarefsky (1996) state that we can use appropriate transitions in the idea development or elaboration in order to make the audiences or the interlocutors understand every

single idea we want to convey. These aspects, like delivering the message, speaking organization, idea development, transitions, and the speaking mechanism (fluency, intonation, and pronunciation) are used as the guideline to assess students' speaking performance in this study, especially in the speaking content development (Blaz, 2001; Brown, 2004; Grice & Skinner, 1995; Koch, 1995; Luoma, 2005).

Teachers will encounter many challenges in teaching speaking content development. One of these challenge is students prefer to do the same thing as what is presented in the handbook (Nunan, 2003). In this case, most students tend to change some parts in a handbook into their current situations, and they do not try to develop the speaking content by themselves. Therefore, the topic or material which is provided by teachers should fit with students' needs (Nation & Newton, 2009). For example, in discussing descriptive text, it will be better if teacher give text about markets or demand and supply rather than about life cycle of butterfly. When teachers are able to choose topics that suit to students' needs, students will be able to develop ideas easily and independently when we ask them to speak (Brown, 2004).

Utilizing authentic videos in English class

Media selection that will be used in classroom activities cannot be done indiscriminately because the main purpose of media usage is to bring development on the teaching and learning activities (Eggen & Kauchak, 2010). Therefore, media selection should be based on many aspects, like the learning goals or objectives (Kemp & Smellie, 1989). Certain media are not always suitable to teach a material or topic, so teachers should analyze whether media X can be used to teach topic A. Besides, media selection should also consider students' needs (Ampa, et. al., 2013) and students' learning characteristic (Woolfolk, 2009). If students are audio learners, teachers can use song or one's speech when they are teaching. On the other hand, teachers can use pictures or flash cards if their students are visual learners.

Based on the observation and interview which was done in the preliminary study, the participants of this study are audio and visual learners so the researcher decided to use authentic videos. The use of teaching media that suits with students' learning characteristic can attract students' attention because they like it (Woolfolk, 2009). Another reason why we can get students' attention by using authentic videos is the aspects or occurrences featured in a video are almost the same as what happens in the real life (Heinich, Molenda & Russell, 1982). When students can enjoy the activities in the classroom, it will automatically increase students' motivation to learn and take a part in the teaching and learning activities (Sherman, 2003; ThiTuyetAnh, 2015).

In addition to facilitating students with the media which is in accordance with students' learning characteristic, authentic videos is expected to provide or show good language models for students, such as how to pronounce some words or how to develop a main idea (Sherman, 2003). The existence of good language models by using videos is really important since English is not students' native language and they cannot learn it from their environment (Nunan, 2003). Therefore, teachers should provide good language models for their students, either

by always using English in the classroom or by showing videos. Basically, adolescents often try to do the same things like the role models (Santrock, 2007), hence the participants as adolescents are expected to be able to imitate what they see and hear in the videos, especially in the development of speaking content.

Method

The participants of this study were 17 students (10 male and 7 female) from language class. Since these students took language program as the discipline of their study, they were assumed and expected to have good language skills, as well as in English skills, when we compared to those from other disciplines of their study. It was because the selection of students' discipline of study was based on their choice, their grades in junior high school level, and the national examination score. However, the result of preliminary study indicated that the participants got hassle in arranging and developing the content of their speech in English class. They only mentioned the main point of the topic discussed without giving any elaboration.

In this study, the researcher also invited the English teacher of the students in language class to contribute as the informant about the difficulties experienced by the students, especially in speaking activities. Here, the English teacher as the one who had better understanding on students' strengths and weaknesses also gave information about students' characteristic and interest. This information was really helpful for the researcher in determining the method or media that would be used to solve the problem faced by the students in English class (Suryabrata, 2006). On the other hand, the English teacher was invited to be the observer who gave comment and/or feedback on the researcher and students performance during the implementation of this action research.

This study was done by conducting a classroom action research (CAR) that focused on the common issues or the existence problems in the classroom (Ary, et. al., 2010; Fraenkel & Wallen, 2009). In this study, the researcher would try to find the solution of the problems that appeared in the preliminary study in order to make an improvement on students' learning process or teachers' performance (Hendricks, 2009; McNiff & Whitehead, 2011; Fraenkel & Wallen, 2009). As what has been stated before, the result of preliminary study in this study indicated that the participants found difficulties in developing their speaking content. This data was acquired by observing the classroom activities and also interviewing the English teacher. Fraenkel & Wallen (2009) and Mills (2011) stated that the problem solver should be implemented twice at the minimum. In this study, the first cycle is done to check authentic videos can enhance students' speaking content development and the second cycle is done to confirm or validate the data obtained in the first cycle.

The data from students' score was analyzed by using one of statistical techniques, *t-test*. Generally, *t-test* is a statistical technique that is used to test the hypothesis regarding the comparative of the mean scores of different groups or situations (Ary, et. al., 2010; Pallant, 2013). Here, students' scores as the raw data were inputted in SPSS program and the result of this program used to determine whether the use of authentic videos was effective enough to enhance students'

ability in developing speaking content. In order to strengthen the data, the researcher also conducted a semi-structured interview in which the questions of the interview were pre-prepared (Burns, 2003; Mills, 2011). The researcher decided using triangulation design to provide the more valid and credible data since every data will complete one to another (Fraenkel & Wallen, 2009).

Findings and Discussion

There are four essential elements that should be done in the main activities of classroom action research; these are plan, act, observe, and reflect (Fraenkel & Wallen, 2009; Ary, et. al., 2010; Mills, 2011). Basically, the implementation of these four elements in cycle one and cycle two was almost the same. If there are some changes in cycle two, these are based on the observation and interview data in cycle one to improve the result of this study.

In the planning section, the researcher decided to use authentic videos for some considerations in order to solve the problem that appeared in preliminary study. The researcher also made lesson plan and prepared all teaching material, like handout, worksheet, videos, and so on. After that, the researcher taught the participants using authentic videos. The learning activities in cycle one and cycle two are various, such as comparing two videos, filling in the blanks while watching videos, taking notes on certain expressions on the videos, arranging jumbled sentences, and performing individually or in pairs. In this section, students' speaking performance were assessed by using scoring rubric. The researcher also interviewed four students about the use of authentic videos in the classroom activities. Here, two students from higher level scores and two students from lower level were chosen to ensure that authentic videos could really enhance students' speaking content development from all levels.

Together with the English teacher of this class, the researcher observed the teaching and learning activities, especially on the impact of utilizing authentic videos on students' ability in developing speaking content, and observed students' performance. The last section is reflecting. The reflection was based on the students' score as well as the data from observation and interview. In the first cycle, the researcher tried to find what aspects worked well or did not work well and needed improvement. This data was used as the guideline to make lesson plan for cycle two. On the other hand, the reflection in cycle two was done to make a conclusion of this study, whether authentic videos can enhance students' ability in developing speaking content or not.

Students' improvement in developing speaking content

The result of observation in cycle one and two indicated that there was an improvement on students' speaking skills, especially in developing speaking content. Students were able to elaborate the main ideas of their speaking. Instead of only mentioning the message of their speaking, students also tried to give explanation, evidence, example, or other additional information. It made the audiences could understand their speech. When it was done in pairs, students started responding their interlocutors so the conversation flew naturally.

“Today's teaching was very good. The students' participation in presenting dialogue and students' work in group were also great. They were quick to

memorize their dialogue and good at developing their speaking content. The medium which was used by the researcher as the model for the students was precise. Here, the medium could make students able to imitate how to pronounce and how to use the expression of inviting.” [English teacher]

The students’ progress in developing speaking content was not only shown in the observation data, but students’ scores in speaking performance also showed an improvement.

Table 1. Students’ Scores in Preliminary Study, Cycle One, and Cycle Two

No.	Name*	Preliminary study	Cycle one	Cycle two
1.	Amaranth	50,00	87,50	87,50
2.	Begonia	50,00	87,50	0,00**
3.	Bluebell	79,17	83,33	91,67
4.	Daisy	66,67	83,33	95,83
5.	Gladiolus	62,50	70,83	83,33
6.	Heather	87,50	100,00	95,83
7.	Hibiscus	75,00	87,50	91,67
8.	Iris	79,17	79,17	87,50
9.	Lilac	87,50	91,67	100,00
10.	Marjoram	70,83	75,00	79,17
11.	Mimosa	79,17	95,83	95,83
12.	Narcissus	50,00	66,67	83,33
13.	Orchid	75,00	87,50	95,83
14.	Peony	79,17	83,33	87,50
15.	Rosemary	83,33	83,33	95,83
16.	Sage	54,17	79,17	83,33
17.	Tansy	75,00	91,67	95,83

*) All names are pseudonyms.

**) This student did not come when the researcher assessed their performance in cycle two.

The researcher did not input the data above at once but the students’ scores in preliminary study and in cycle one were inputted first and followed by the students’ scores in preliminary study and in cycle two. Before doing these steps, the null hypothesis (H_0) and alternative hypothesis (H_1) were drawn. In order to find out which hypothesis is accepted, we need to take a look on the significant level (α) —the significant level in *t-test* analysis is 0.05. Pallant (2013) explains that H_0 is accepted if the actual significant two-tailed (sig.(2-tailed)) is higher than the significant level, while H_1 is accepted when the actual significant two-tailed is lower than the significant level.

In the first calculation using SPSS, the null hypothesis claimed that the scores in preliminary study (μ_1) are greater than or equal to the scores in cycle one ($\mu_{2.1}$) — $H_0: \mu_1 \geq \mu_{2.1}$ — and the alternative hypothesis claimed that the scores in preliminary study (μ_1) are less than the scores in cycle one ($\mu_{2.1}$) — $H_1: \mu_1 < \mu_{2.1}$. The result of the data processing in cycle one showed that the *t* value is -4.890 and the sig.(2-tailed) is 0.000. Because the number of sig.(2-tailed) is lower than the

significant level, H_0 is rejected and H_1 is accepted. It means the scores in preliminary study are less than the scores in cycle one.

➔ **T-Test**

[DataSet0]

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 pre_study	70.8341	17	13.01041	3.15549
cycle1	84.3135	17	8.52997	2.06882

	N	Correlation	Sig.
Pair 1 pre_study & cycle1	17	.508	.037

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 pre_study - cycle1	-1.347E1	11.36637	2.75675	-19.32346	-7.63536	-4.890	16	.000

Figure 1. *t-test* result in cycle one

The process which was done in the second calculation using SPSS is the same. The researcher drew the null hypothesis and alternative hypothesis. The null hypothesis claimed that the scores in preliminary study (μ_1) are greater than or equal to the scores in cycle two ($\mu_{2.2}$) — $H_0: \mu_1 \geq \mu_{2.2}$ — and the alternative hypothesis claimed that the scores in preliminary study (μ_1) are less than the scores in cycle two ($\mu_{2.2}$) — $H_1: \mu_1 < \mu_{2.2}$. The result of the data processing in cycle one showed that the *t* value is -8.116 and the sig.(2-tailed) is 0.000. This result is the same as the calculation in cycle one; H_0 is rejected and H_1 is accepted. It means the scores in preliminary study are less than the scores in cycle two.

➔ **T-Test**

[DataSet1]

Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 pre_study	72.1362	16	12.23967	3.05992
cycle2	90.3631	16	6.40388	1.60097

Paired Samples Correlations

	N	Correlation	Sig.
Pair 1 pre_study & cycle2	16	.702	.002

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 pre_study - cycle2	-1.822E1	8.98320	2.24580	-23.01369	-13.44006	-8.116	15	.000

Figure 2. *t-test* result in cycle two

From both calculations above, the result showed that students’ scores in preliminary study are less than students’ scores in cycle one and cycle two. Therefore, the researcher concluded that the use of authentic videos was effective enough in enhancing students’ speaking content development. In addition to increasing their speaking content development, it could also helped teacher to attract students’ attention since they sometimes were busy doing other activities, like chatting, texting, or doing tasks from another subject, and helped teacher to deliver the lesson.

“They were happy and they were eager to do the assignment they got... Playing on video made the researcher’s lesson much clearer. It created a big influence to the students. They did not only listen to the explanation but they also watched the process of something... Therefore, the use of a certain media for certain topics would make the students learned more effective.” [English teacher]

Students’ notions on the use of authentic videos

Generally, the participants agreed that authentic videos could help them in developing their speaking content. These students stated that they used to only mention the main idea of their speaking because they did not know what they should say. However, the use of authentic videos made them realized that speaking content development was really important. Besides, the activities before they should perform in front of the class guided them in elaborating their speaking content.

“At first, I did not know what to say. I was confuse and I wanted to end my dialogue or monologue as soon as possible... But the videos reminded me about the importance of developing my speaking. I also knew the important points in developing speaking content.” [Amaranth]

“When teacher asked me to speak using English, I only mentioned the essential ideas without giving explanation because my friend and I were unfamiliar with that and the teacher did not give enough example about it. It confused us. After I watched video, I know how a good dialog is delivered —the content, intonation, articulation, etc. It motivates me to do so.” [Lilac]

In addition to giving knowledge about speaking content development and motivating the students to develop it, authentic videos could also give real models for students about a good speaking in terms of pronunciation, intonation, body language, fluency, and so on. One participant said that watching video enabled them to enrich their vocabularies.

“Overall, the learning activities, especially the videos, give me more knowledge about speaking. It also increases the number of vocabularies (in English) I have. It makes me feel more confidence when I must speak in front of my teacher and friends.” [Heather]

A slightly different from other friends, Amaranth highlighted how videos really helped her in understanding the topic discussed since the videos made her want to join the lesson and pay attention on teacher’s explanations.

“It is fun. It is different from the common one. I did not easily get bored anymore. The video makes me focus and pay attention on the lesson and it make me understand the lesson easier than when I only read the book or see the PowerPoint.” [Amaranth]

Conclusions

In conclusion, this study attempts to enhance students’ ability in developing speaking content by utilizing authentic videos. The result of t-test analysis presented the improvement on students’ scores after the use of authentic videos in teaching and learning activities. Specifically, the students’ scores in cycle one and cycle two are greater than the students’ score in preliminary study. This result is strengthened by the English teacher’s statement in the field notes when he observed the classroom activities and the students’ opinion in the interviews. They agreed that the use of authentic video could provide good model for students in speaking content development, pronunciation, intonation, articulation, body language, fluency, and many more, so it motivated them to do the same thing (Santrock, 2007). It also enriched their vocabularies and it could help teachers in attracting students’ attention and inviting them to contribute to the classroom activities.

There are some implications based on these findings. Even though the students have already got good model in speaking and got explanation about the topic through the use of authentic videos, teacher must guide the students and provide appropriate exercises in order to help students have better understanding on the topic discussed. Besides, the activity by using videos is listening and it tends to be more integrated with speaking activities; however, teachers can vary the activities by combining with writing, reading or vocabulary building activities. It is recommended for English teachers to utilize authentic videos as the learning media to improve students’ speaking skills. Sherman (2003) states that teachers and students are able to get these kind of videos easily from many sources, such as television, film, internet, and many more. It means students can access it by

themselves and use it to learn at home. It is also recommended for future researchers to further explore the advantages of authentic video in English class or explore how to enhance students' speaking content development by using another method or media.

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DEVELOPMENT OF CHARACTER ASSESSMENT INSTRUMENTS IN SERVICE-LEARNING AT BIOLOGY EDUCATION DEPARTMENT SANATA DHARMA UNIVERSITY

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Abstract

Service-learning is one of the learning methods that combine learning in the classroom with service activities to the community. In service-learning, students are invited to apply the lecture material in solving the problems in the community directly. In the process, many student characters will be trained and developed. This research focuses on developing character assessment instruments that develop after the implementation of service-learning activities in Biology Education Program, Sanata Dharma University, Yogyakarta. The purpose of this research is to develop a character assessment instrument in the form of questionnaires for students, especially in Biology Education at Sanata Dharma University. Questionnaires developed through the stages of the development of the instrument, including determining the purpose of the preparation of the instrument, find the relevant theory, compile instrument indicators, compile instrument, content validation, and revisions based on input validator. Instrument validation is done through content validation with expert judgment. Based on the result of content validation by expert judgment, Aiken index is obtained at 0.85 with high validation category. Based on these results, the character assessment questionnaire developed can be implemented in the learning to assess the character development of students after implementing service-learning.

Keywords: service-learning, assessment instrument, character

Introduction

Currently, the Indonesian government is paying particular attention to the development of character that is integrated through education from early childhood to university levels. The development of the character of this student felt as a very important and urgent thing to do given the declining morale and character of the younger generation. The decline in the character of this young generation can be seen in many ways. In terms of association, there is a tendency of increasingly rampant juvenile delinquency, such as acts of extortion, bullying in schools, a brawl between students, drug trafficking, free sex to lead to abortion,

and so forth. The proliferation of bribery and corruption in various fields, let alone carried out by the stakeholders who belong to the literate, also indicates the need for the application of character education in schools and communities. The world of education is also inseparable from many cases that show the decline of characters, such as cheating, search for key answers before the National Exam, the development of instant culture, and even plagiarism that occurs in the academic circles (Samani & Hariyanto, 2013).

Sanata Dharma University (SDU) as a Jesuit University in Indonesia is also very concerned about developing the character of the young generation. This is as stated in his vision "Being a superior digger of truth and humanist for the realization of an increasingly dignified society". With its "smart and humanist" motive, USD has 3 major missions, one of which is "Developing a holistic education system that is a blend of academic excellence and human values through a personalist, dialogical, pluralistic, and transformative approach." Development of students, SDU prioritizes the 3C development, namely Competence, Conscience, and Compassion. In a sense, SDU graduates are expected to not only have good competence but also have a high conscience and compassion. In line with the vision and mission of the SDU above, Biology Education Department is expecting its graduates to be a generation that has a good character as stated in its vision, which is "Being a study program that produces a tough Biologist of the nation's intellectual always be humanist by prioritizing the dialogical approach in education and management nature sustainably ". From the vision, it is clear that the Biology Education Department always strives to develop the character of the student, either through the learning process or from various activities conducted by students outside the lecture activities.

In the learning process, Biology Education Department strives to develop the character of students through the application of various learning methods such as cooperative learning, problem-based learning, project-based learning, inquiry, service-learning, and several other innovative methods. One of the methods developed is service-learning. Service-learning is a learning method that combines learning theory with service activities to the community (Warren, 2012). Learning with service-learning methods allows students to learn directly from the communities they serve. Learning derived from the students comes from the context of society related to the problems they face. In this case, students engage in activities devoted to human and community needs (Jacoby, 2015). Thus, students can learn to apply the theories that have been obtained in class to the community directly.

Service-learning in Biology Education Department has been developed since 2010 in Nutrition and Health Sciences courses. In its implementation, service-learning has undergone many developments, ranging from student involvement in Pos Pelayanan Terpadu (Posyandu) activities until now has developed with the involvement of students in providing counseling to the community related to nutrition and health issues. From these activities, students get many benefits such as improving their understanding of lecture materials to the development of student character (Handoyo, 2014). Characters that arise during service-learning activities include creative character, responsibility, hard

work, communicative and social care. In another study, it was stated that service-learning has other benefits such as improving student achievement (Warren, 2012), contributing to student's affective learning, such as self-confidence, social responsibility, and self-esteem, developing tolerant behavior toward cultural differences (Kezar & Rhoads, 2001). Service-learning is seen as an educational approach that allows students to think, value, care, or does something and prepares to face future challenges (Karmansyah, Muljadi, & Saputro, 2013).

Based on Mark F. Toncar's research, *et.al.* (2006) has developed a scale to know the benefits of service-learning. The scale for measuring student's perceptions of the service-learning experience is called the SELEB scale (Service-learning Benefit). The scale consists of 20 variables that are grouped into 4 factors, namely (1) practical ability, (2) interpersonal skills, (3) citizenship, and (4) personal responsibility. Factors 1 and 2 are skills-related benefits, while the 3rd and 4th factors show the benefits of a personal nature.

The problem faced in the assessment of character in learning at Biology Education Department of SDU is the unavailability of the instrument to assess the development of student character after implementing service-learning. This assessment instrument is very necessary to be developed to facilitate the teacher in measuring the benefits of the implementation of service-learning for the development of student character. After the teacher knows that service-learning can develop student's character, it is expected that the lecturer can continue to develop the service-learning in their teaching experience. This study aims to develop a character assessment instrument in Service-learning at Biology Education Department.

Method

Character assessment instrument in service-learning, developed by stages in accordance with the stages of instrument development by Retnawati (2016), which determines the purpose of the preparation of the instrument, find relevant theories, prepare instrument grain indicators, arrange instrument items, content validation, and revisions based on validator's input.

Findings and Discussion

Character assessment instrument in service-learning developed in this research through the stages of preparation of instruments as described below.

Arrange Instrument Grain Indicators

The character development instrument in this study measures 8 characters that can develop during the implementation of service-learning. These eight characters can develop as long as the students follow each stage of service-learning, namely investigation, planning and preparation, action, reflection, and demonstration. The characters that appear can be seen in table 1 below.

Table 1. Character Value Emerging during Service-learning

No.	Stage	Character Value
1	Investigation	Curiosity, communicative, social care, honest
2	Planning and Prepare	Creative, hard work, communicative, responsibility
3	Action	Hard work, discipline, responsibility, communicative, social care
4	Reflection	Honest
5	Demonstration	Honest, communicative

Next step was to determine the indicators. Indicators are determined based on relevant theoretical studies. Indicators in this research include 8 aspects of the character that is curiosity, hard work, responsibility, discipline, social care, communicative, creative and honest. Indicators of each character aspect can be seen in table 2.

Table 2. Character Components and Indicators in Service-learning

No.	Character Value	Indicators
1	Curiosity	<ul style="list-style-type: none"> • Seek information from various sources • Have the initiative
2	Hard Work	<ul style="list-style-type: none"> • Not easy to despair in doing the task
3	Responsibility	<ul style="list-style-type: none"> • complete the task well
4	Discipline	<ul style="list-style-type: none"> • Collect reports/tasks result in time • Conducting activities in accordance with the schedule
5	Social Care	<ul style="list-style-type: none"> • Have a sense of empathy towards community problems • Able to provide solutions to the problems that exist in the community
6	Creative	<ul style="list-style-type: none"> • Able to provide innovative ideas in overcoming the problems that exist in the community
7	Communicative	<ul style="list-style-type: none"> • Speak politely • Be able to communicate ideas to friends and communities
8	Honest	<ul style="list-style-type: none"> • Prepare activity reports in accordance with reality • Report data according to community conditions

Organizing Instruments Items

Instrument preparation is done by looking at indicators that have been arranged in the grid. Instrument items can be seen in table 3 below. Items are arranged in the form of a Lickert-scale questionnaire with a choice of "Strongly Agree (SA)", "Agree (A)", "Disagree (DA)" and "Strongly Disagree (SD)" responses. The 13 indicators are then translated into 21 statements divided into 14 positive statements and 7 negative statements as shown in table 3 below.

Table 3. Character Assessment Items in Service-learning

No	Statements	Response			
		SD	DA	A	SA
1	I am actively seeking information about the problems in the community from various sources				
2	The existence of obstacles and difficulties in the implementation of activities, do not discourage/lower my spirit in carrying out service-learning activities				
3	Despite my many lectures, I still carry out service-learning activities seriously				
4	I am actively involved in giving ideas about solutions to problems that exist in the community				
5	This service-learning activity stimulates my imagination to help solve the problems in society				
6	Due to the enormous tasks, my activity report becomes delayed				
7	When I know the problems that exist in the community, I want to help them with the knowledge and skills I have				
8	I am actively involved in solving problems in the community				
9	This service-learning challenges my creativity to design innovative programs according to the problems encountered in society				
10	I prefer to listen to friends opinions				
11	I always collect reports/assignments on time				
12	I can convey ideas to the people in a language appropriate to the condition/context of the community				
13	I only rely on information from lecturers related to the problems occurs in the community				
14	reports that I compile in accordance with conditions in the field				
15	I obey the schedule of activities that have been agreed with the group				
16	I am ashamed to express my opinion				
17	In order for my report to get good grades, I include many activities that I do not do				
18	I carry out service-learning activities with as necessary only, since i also have many another task				
19	I try to communicate with people in polite language				
20	I was careless in preparing service-learning programs				
21	I do all the activities I report in the activity report				

Content Validation

Content validation is done by expert judgment. The expert sees the appropriateness of the indicator with the purpose of developing the instrument, the conformity of the indicator with the theory, looking at the suitability of the instrument with the indicator of the item, looking at the truth of the concept of the

item, looking at the truth of the content. In this research validation of content done by asking advice from education experts, namely Prof. Dr. Paul Suparno, SJ., M.S.T. and lecturer in Biology Education Program, Drs A. Tri Priantoro, M.For.Sc. The expert gives an assessment of the relevance of the statement item with the indicator being prepared. Score is set with terms, score 1 = irrelevant, 2 = less relevant, 3 = relevant enough, 4 = relevant and 5 = highly relevant. Assessment of experts then calculated the index of expert agreement or validator agreement by using Aiken index, by the formula below.

$$V = \frac{\sum s}{n(c - 1)}$$

Information:

V = index of the rater agreement on the validity of the item

s = score per rater minus the lowest score in the scoring category (r - lo)

r = score set by each rater

lo = lowest score in the scoring category

n = number of rater

c = number of categories that can be selected rater

Aiken index calculation results are then used to determine the validity of the instrument, with the provisions as shown in table 4 below.

Table 4. Description of Aiken Index Calculation Result

Index Value of Aiken	Description
< 0,4	Low Validity
0,4 – 0,8	Mediocare Validity
> 0,8	High Validity

Aiken index calculation results each item statement and its description can be seen in table 5.

Table 5. Calculation Result of Aiken Index at each Statement Point

No.	Index Value of Aiken	Description
1	0,875	High validity
2	1	High validity
3	0,875	High validity
4	0,875	High validity
5	0,625	Mediocare validity
6	0,875	High validity
7	1	High validity
8	0,875	High validity
9	0,75	Mediocare validity
10	0,625	Mediocare validity
11	1	High validity
12	1	High validity
13	1	High validity
14	0,875	High validity

15	1	High validity
16	0,75	Mediocare validity
17	0,875	High validity
18	1	High validity
19	0,75	Mediocare validity
20	0,875	High validity
21	1	High validity

The validator also provides some suggestions as summarized in Table 6 below.

Table 6. Input from Validator

Statement Number	Input from 1st Validator	Input from 2nd Validator	Follow Up Improvements
1	Good	Less focus	Adding the word "Natural Resource Management"
3			Adding the word "Natural Resource Management"
4	Good	Less focus	Adding the word "Natural Resource Management"
5	Not quite right	Less focus	Made more technical; Adding the word "Natural Resource Management"
6	Good	Less focus	Adding the word "service-learning"
7	Good		Adding the word "Natural Resource Management"
8	Good	Less focus	Adding the word "Natural Resource Management"
9	Not quite right		Made more technical and scalable; Adding the word "Natural Resource Management"
10	Not quite right	Less complete	Made more technical; Adding the word "Natural Resource Management"
11	Good		Adding the word "Natural Resource Management"
13	Good		Adding the word "Natural Resource Management"
14	Good	Less complete	Adding the word "Natural Resource Management"
17	i is changed to I	Less emphasis	Change i to I
18	i is changed to I		Change i to I
19	Not quite right		Rearrange the sentence
20	i is changed to I	The choice of words "careless" not appropriate	Change i to I, replace the word "careless" with the word "as necessary"
21	i is changed to I		Change i to I

Revisions Based on Validator Input

Revisions are made based on the input of the validators, and then the revised results are re-consulted on the validator to obtain valid instruments. Revisions are made by clarifying the context of the problems encountered that are related to the courses that will be used for the implementation of the questionnaire that is in the course of Natural Resource Management and changes some statements as suggested by the expert. The result of the instrument revision can be seen in Table 7 below.

Table 7. Instruments after Revised

No.	Statements	Response			
		SD	DA	A	SA
1	I am actively seeking information on Natural Resource Management issues in the community from various sources				
2	The existence of obstacles and difficulties in the implementation of activities, do not discourage/lower my spirit in carrying out service-learning activities				
3	Despite my many lecture assignments, I still carry out service-learning activities related to Natural Resource Management seriously				
4	I am actively involved in providing ideas on solutions to natural resource management problems in the community				
5	I am able to provide creative ideas to solve the problems of Natural Resource Management in the community				
6	Due to the enormous task, my service-learning report becomes delayed				
7	When I know the issues related to Natural Resource Management in the community, I want to help them with the knowledge and skills I have				
8	I am actively involved in solving Natural Resource Management problems in the community				
9	I can design an innovative program in line with existing natural resource management issues				
10	In planning the program (solution) to overcome the problems related to Natural Resource Management, I prefer silent				
11	I always collect reports/tasks related to the Natural Resource Management Course on time				
12	I can convey ideas/ideas to the people in a language appropriate to the condition/context of the community				
13	I only rely on information from lecturers related issues Natural Resource Management in the target community				
14	Report on Service-Learning activities related to Natural Resource Management which I arranged in accordance with the conditions in the field				
15	I obey the schedule of activities that have been agreed with the group				
16	I am ashamed to express my opinion/question when				

No.	Statements	Response			
		SD	DA	A	SA
17	observation and face to face with the community In order for my report to get good grades, I include many activities that I do not all do				
18	I carry out service-learning activities with as necessary only, since my other college assignments are also many				
19	I use polite language when communicating with people				
20	I develop service-learning programs as necessary				
21	I did all the activities I reported in the activity report				

In addition to revisions according to expert input, Aiken index calculations are also performed for the instrument as a whole. The results show that the instrument of character assessment in service-learning has Aiken index of 0.85 and is included in the category of high validity. Based on these values, then developed instruments can be implemented in the course to assess the development of student characters after implementing service-learning.

Conclusions

In this research have been compiled the character assessment instrument in Service-learning in the form of a questionnaire. Expert validation results show the value of Aiken index of 0.85 which means that the questionnaire developed has high validity and can be implemented in the course to see the student's response, that is in the aspect of character development after implementing service-learning.

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PROGRAMMED LEARNING AS SOLUTION FOR SCHOOLS WITH COMBINED CURRICULUM TO WIN ENGLISH ONLINE NATIONAL EXAMINATION

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Abstract

Programmed learning which consists of specially designed syllabus and CALL (Computer-Assisted Language Learning) was designed to win English Online National Examination at John Paul's School. It emerged as an answer to the employment of combined curriculum at *Satuan Pendidikan Kerjasama* School like John Paul's School where Cambridge curriculum is applied to prepare the students to take Cambridge International Examination as added value of the school and national curriculum which is provided at the final grade of each level, grade 9 and grade 12. The application of Online National Examination triggers the empowerment of information technology in formulating, designing, applying, evaluating and improving the Programmed Learning to its effectivity and efficiency. The success of the Programmed Learning application at John Paul's School may inspire other schools with combined curriculum to do similar things.

Keywords: CALL (Computer-Assisted Language Learning), combined curriculum, online national examination (UNBK), programmed learning

Introduction

The education system in Indonesia enables schools to apply curriculum other than the obliged National Curriculum. This privilege is given especially for schools which bear the title of SPK or *Satuan Pendidikan Kerjasama*. This status enables the respected school to open cooperation with other institutions in other countries. In big cities this is commonly found, not to mention in Jakarta, Bogor, Tangerang and Bekasi where John Paul's School is located.

The consequence of this status is an SPK school may apply more than one curriculum in its teaching and learning process, with international examination on certain stage based on the rules of the international examination the school adopt; Cambridge and Edexcel are what John Paul's School applies, other than the obliged National Curriculum for the students to face National Examination on their final stage at grade 6, 9 and 12. In this paper, the focus is on grade 9. Intense preparation is not to argue, English is not an exception.

Therefore grade 7 and 8 are employing Cambridge Curriculum because the students are taking Cambridge Checkpoint Secondary 1 at grade 8 semester 2. Only when the students are sitting at grade 9 that they are fully introduced to National Curriculum in order to prepare them to take National Examination just like other National-based Curriculum Schools. The adjustment is not always easy. The time limitation to master all materials from grade 7 to 9 only in months is another challenge. The National Examination method (with Online / IT-Based) is new. The success of the students in conquering English National Examination puts the school's reputation at stake.

It is for the purpose of overcoming those four concerns that finally Programmed Learning was designed. The school needs a good system of safely delivering the students to face the adjustment from international materials to national-based materials and finally set them to win National Examination successfully.

Method

Narrative Inquiry is the research method employed in carrying out the research. The underlying reason is because the data needed are the experience told by the end-user of the Programmed Learning. Narrative inquiry itself, according to Amia Lieblich, Rivka Tuval-Mashiach and Tamar Zilber, refers to any study that uses or analyzes narrative materials. The data can be collected as a story (a life story provided in an interview or a literary work) or in a different manner (field notes of an anthropologist who writes up his or her observations as a narrative or in personal letters). They further specified that their proposed model can be used for the analysis of a wide spectrum of narratives, from literary works to diaries and written autobiographies, conversations, or oral life stories obtained in interviews.

The data were gathered by asking the respondent to write their experiences and impressions as to add some notes after they experienced teaching and learning process using Programmed Learning. Next, analyzing Language Learning History (Oxford,1996:582) of the respondents using Categorical Content-Approach or Content Analysis (Amia Lieblich, Rivka Tuval-Mashiach,Tamar Zilber, 1998) in which categories of the studied topic are defined, and separate utterances of the text are extracted, classified, and gathered into these categories or groups. This approach deals with problem or phenomenon shared by a group of people.

The data needed for this research is whether the employment of Programmed Learning is effective and efficient in order to prepare grade 9 students in facing English Online National Examination to be proven by the achievement in the real English Online National Examination. The respondents were the grade 9 students of John Paul's School batch 2016 – 2017.

A careful data examination was done under the guidance of Categorical Content Perspective or Content Analysis by Amia Lieblich, Rivka Tuval-Mashiach,Tamar Zilber, 1998 as follows: selection of the subject, define the content categories, sorting the material into categories then drawing conclusion from the results. This is further processed by highlighting all related sentences on the verbatim transcriptions, choosing principal sentences to be judged as positive,

negative or neutral, next is to divide sentences into categories then sum them up as the final research finding.

Findings and Discussion

Programmed learning itself consists of specially designed syllabus and the application of CALL (Computer-Assisted Language Learning) during English teaching and learning process. Specially designed syllabus needs to ‘squeeze’ the English national materials from grade 7 – 9 and to re-organize its contents to be delivered easily and effectively (not time consuming). In John Paul’s School, the re-organization of English National-based Curriculum is done by breaking the materials in 15 Chapters, ranging from the easiest to the more difficult ones. The basis is the content of National Examinations and some references of commonly used books in grade 7, 8 and 9. There are two parts in delivering the materials, first is theory of each of 15 Chapters and the second is drills on readings based on each Chapter. The theories provide core information of each chapter is given in 3 meetings (6 teaching period / one week) only, very effectively and efficiently delivered.

Technology empowerment in this digital era seems to be a precise tool of formulating CALL program to support the reading drills. It was first designed in the mid of 2013 as a result of discussion with IT division. The need of an effective and efficient system in order to keep up with the need of providing enjoyable way of teaching and learning was the primary concern. What are needed is a school integrated IT system which covers the teacher administration stuffs like uploading teaching materials, syllabus, semester and annual plan, scoring and behavior system input, and test administration. Under the heading of Test there are class work, homework and test. These initial facilities are the core of developing the Programmed Learning. Basically all reading materials which consists of 15 Chapters with many Past Papers are uploaded into the system (we call it SISTER – Sistem Administrasi Sekolah). Each Past Paper consists of 50 questions maximum; this is to simplify the scoring system, time allocation per meeting and for the purpose of managing all the questions which are updated each year. Thousands of questions are inside the system, carefully chunked, ready to be downloaded on need basis.

The source of questions is the compilation of all questions appeared in National Examination from the year of 2000 to the latest. This means that the content is always updated each year by uploading the most recent ones. To provide interesting materials, they need to be re-typed and re-modeled by modifying the fonts, providing interesting layout by adding pictures and colors also to reduce the students’ boredom in finishing the reading drill program so that optimum results are guaranteed.

The Programmed Learning itself has been employed for 4 years, ranging from its original version into the improved ones. A mini research was conducted in order to collect preliminary findings. The following are the categories in which respondents share their experiences. There are benefits (positive) and obstacles (negative) along with it. Let us start with the benefits (positive):

Effectiveness

This learning model is proven to be successful in achieving the results we projected. The students' learning trajectory is carefully maintained through the scores saved in the system that any mishaps were to be handled properly. Mostly the students scored higher than the minimum requirement (our school set it for 75); this is a good sign of reaching or even exceeding the target set for national examination later.

Efficiency and Practicality

Programmed learning is proven to be efficient in terms of time allocation because the students finish the reading drills to master the English National Examination in 4 months. The remaining time is used for material enrichment. The essence is the students have exceeded the benchmark of English National Examination to be supported more by various level of difficulties.

Familiarity with Online Examination Methods

The application of Online National Examination is new to Junior High School level. Many are afraid of how to do it. Many wonders on what if problem occurs. In short, many are not ready with the new requirement; not only the students, the invigilators, the IT man, the subject teachers and the principal. With the application of CALL, a great deal of anxiety diminish. Better preparation is made concerning the system, the troubleshooting, the methods of carrying out the online examination, the dos and don'ts are well understood. This is because the CALL system is designed as close as possible to the real English Online National Examination. All potential problems are to be eliminated to happen in the real online examination. From the side of the students, they are more than familiar on when and how to start the registration, how to open the questions and to answer them, how to control the number of questions answered and unanswered, how to manage themselves with the time countdown, how to experience reading a long reading passage with only one question at the end then when they click 'Next', other reading passage appears and then only to discover the previous reading passage would be found in other number with different question. This needs good training and good memory in order to locate important information in a what previously was read earlier. How to answer without making notes on the questions and passages. Of course this is different from paper based where they can easily mark the important information on the passage or some parts of the question; where they read one passage with one, two, three, four of five questions following. The CALL program is highly effective in training the students to do these kinds.

Promote Self-Directed Learning and Aptitude

Programmed learning enables the students to have full control of their reading speed. The CALL program accommodate fast readers to read more passages while the slower readers to have just as they can cope. In short, every student gets his/her portion, just right.

Promote Good Attitude

When the students are inside the ICT Room, they are busy with their own screen. The reason is clear: time countdown and online system. Different question appear on each screen that cheating is not an option. Everyone follows their own

pace because they know the amount of Past Paper they have to finish until the end of the CALL Program. They are quiet and focused throughout the English sessions.

Promote Students' Motivation

The motivation here covers several aspects: first, students have the opportunity of moving to ICT room in which they have different classroom situation. Next, the new learning system excite them a lot, especially when they have full control over their learning process. Thirdly, the pop-up scoring system increase their carefulness before submitting their answer because they know this is a one way ticket, no repetition can be made. Then, they grow their self esteem when they are satisfied with their score; then they start to compare their result with other classmates, then a competition spirit grows. Not to mention the enjoyable situation with various layouts, colors and pictures which are absent in paper-based. This reduces boredom and keep the spirit high in finishing reading drills even if the English sessions at the last of the day! The safety and trust ability of the scoring system, build up the confidence this is worth doing. Lastly, the fact that they speed up much faster than their peers in other school motivate them to go faster and achieve better; they can be proud of themselves for speeding up faster than they thought. Especially when they come to the end of the CALL Program, the thrill is genuine.

On the other hand, obstacles are present along the way. The following are some which are commonly found:

The quality of internet connection

The internet connection plays major rule in holding such program because online examination depends on the stability of the internet connection. The school should guarantee that anytime it is needed, it is ready. Otherwise the students will just sit inside the ICT Room, waiting too long to log in, to download the questions, to answer and finally time countdown is not effective anymore. At the end, the students learn very little; the mood is not good; the boredom and dissatisfaction is high.

The quality of school system and facilities

Other than the internet, the internal school system is the key of the application. In this case the IT man should ensure the system is safe from the possibility of being hacked or being unstable that data are lost or unable to be downloaded. The tools and equipment like personal computer or laptop should meet the required standard that students will not have difficulties in using them. Beware also from the possibility of experiencing blackout during the process.

The quality and availability of IT staff in times of troubles

Manpower also plays significant role for the success of CALL application. They are expected to have the ability of 'translating' the need of the subject teacher to create a model suitable for the purpose. That is why from the process of formulation of ideas, in the process of designing the program, in the process of application of the program, in the process of evaluation from what happen, the IT man should be able to improve the system; and this will not happen without having knowledgeable IT staff. Digital application is open to unexpected trouble.

What was working well earlier might be troublesome next. This is when the quality of the IT staff is put at stake. If the school have good manpower to overcome all of these, a good start is well-encouraged.

To sum it all, the respondents are positive toward Programmed Learning and defined it as effective and efficient. However a thorough research is still needed to dig out more facts concerning the application of Programmed Learning.

Conclusions

The research findings showed that the application of Programmed Learning in English teaching and learning in Grade 9 in winning English National Examination is proven to be highly beneficial. The scores the students gathered during the process of reading drills proven to be indicators of their success in dealing with questions provided in the National Examination. Early precautions are also possible to be done from analyzing the ups and down of the scores stored in the system.

The students are more motivated because the system enables them to proceed or to stop based on their learning aptitude. The layout with colorful pictures and many kinds of fonts are another added value of holding CALL. Another motivation comes from the pop-up scores the students gain after finishing a Past Paper. The competition spirit is there, in order to compete with classmates and other class as a group. There grows the spirit of the group. Classroom situations are mostly advantageous because each focused on their own screen; they are not busy with friends that high focus students are highly accommodated.

When the National Examination day comes, the students are not worried. They know exactly what to do because they have been doing it over and over during the reading drills. The system will not be much different from what they have experienced with our internal CALL system. Reading on screen is easy, the absence of note-taking is not a problem. The students are fully aware of the dos and don'ts of online examination model so that mistakes and troubles are to be avoided. The above brief summary have shown many advantages of a school with combined curriculum in winning English Online National Examination starting from the earliest process toward the final end.

The obstacles are for us to be aware of; dealing with digital world is not that simple and sometimes even unpredictable. Therefore the following are to be prioritized for the smooth application of Programmed Learning, to be precise for holding CALL. The internet connection should be stable to ensure the process of downloading and answering questions, also to keep the time allocation strict. The school should have support system and facilities like the availability of computer laboratory or ICT Room with compatible personal computers or laptops enough for every member of the class. IT man as the operator and supervisor of the whole system should be knowledgeable and ready anytime needed in the process of formulating, designing, applying, evaluating and finally improving the CALL after numerous trials. Without all of the mentioned above, a smooth application will not be possible.

To sum it all after the brief discussions provided earlier, Programmed Learning could be a solution for schools with similar situation to John Paul's

School – Bekasi. Its application is proven to be highly beneficial over the difficulties present during its application.

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MORAL EDUCATION TO EMPOWER CONSCIENCE, MIND AND VOLITION TO IMPROVE THE QUALITY OF HUMAN BEINGS

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Abstract

Human beings are the highest form of God's creation among other creatures. Moral education is carried out to enable human beings to live up to their noble purpose of life as destined by God. In order to strive for their noble destiny, human beings have three spiritual powers that must be empowered and utilized in their lives, namely conscience, mind, and volition. In order for those powers to be useful optimally, they must be empowered. In order to empower conscience, it is necessary to cultivate silence in life so that we are able to listen to the gentle whisper of conscience which leads to a good life as the purpose in the journey of life. To prevent the conscience from straying, it needs to have a moral compass which would be the basis to determine the next steps. Furthermore, one should have clear mind to determine the ways, steps, means, and directions to arrive at the expected goal. Finally, in order to realize the qualified life, which has been determined to be done, human beings have willpower to follow up. To determine and decide something, human beings must be courageous to take action. In order to be courageous to take action, we need to have a strong consideration that what we are doing is good and right. Thus, we will dare to be held accountable for any outcomes of the actions we have taken as right and just. That is, essentially, the true human destiny, namely to strive for goodness and truth.

Keywords: moral education, conscience, mind, willpower, quality life

Introduction

Human beings are the highest form of God's creation among all other creatures. Based on their destiny, human beings are not merely physical beings, but also spiritual beings, who possess creativity (cognitive), sense (affective), and willpower (co native) (Sudiarja, Subanar, Sunardi, and Sarkim, 2006: 233-249). As with all other living beings in nature, human existence takes place and is influenced by the law of nature (such as law of gravity). Human beings can slip and fall, can drown in the water, and like other creatures, human beings breathe and digest food. These activities take place naturally and automatically without any human involvement. However, as the highest form of God's creation, human beings conduct activities which are different from those done by other creatures.

The activities are typical human activities, which can only be done by human beings, based on their spiritual ability. The activities typically done by human beings take place based on their feeling, thoughts, judgments, decision-making, as well as willpower, which then are manifested in physical actions (Montemayor, 1994:18). And just as they have unique spiritual abilities, human beings have obligation to act morally, functioning their spiritual power to the best of their ability to sustain the noble destiny as human beings.

Equipped with these strengths, human beings are expected to be the subjects of the law of nature, who realize and desire to do what they are doing. What they do is expected to be more than emotional drive or desire from within, not merely an effect or spontaneous reaction to external stimuli. In dealing with the internal impulses and external stimuli, human beings (as subjects) are expected to overcome, make judgments based on the law of nature, and make decision based on their free will. In utilizing their spiritual powers, they are expected to be serious instead of frivolous because spiritual powers must be used rightly in order to yield positive outcomes. In addition to resulting in the right decisions according to the pre-conceived and pre-determined goals, we also need to determine the aim and purposes in accordance with the noble nature of human beings.

As human beings, we do not just live this life aimlessly. With the freedom in our hands, we are called to live our lives nobly, to embody the positive values of life, and to avoid actions that result in negative values. According to Covey, human beings are expected to develop the spiritual powers to avoid being victimized by life circumstances, not being reactive to circumstances. Instead, human beings are expected to be the subjects of their circumstances, pro-active, capable of feeling, thinking, considering, and eventually making decisions to overcome and to handle life difficulties to realize better and more noble life values and to avoid negative things (Covey, 1989:66-67).

Unfortunately, human beings often live their lives being subjected to their circumstances. In life, these people passively accept fate as something they deserve, merely jumping into bandwagon, being enslaved by authoritarian rulers, being swayed by impulses from within themselves. Some even allow themselves to be enslaved by rules without even considering the relevance and benefits of those rules for their lives. Behaving in such a way, people stop from being subjects and start being objectified by the authority, the existing regulations, allowing themselves to be enslaved by passion, addiction, drug abuse, nicotine, sex, enjoyable worldly possessions (smart phones, television), which are considered as suitable to human instincts. People are no longer the subjects who have freedom, autonomy, ability to discern, decide, and make decision to act. Instead, they are bound by the enslavement.

To live our lives as subjects, instead of objects, it would be great if we realize who we are as noble creatures, which have freedom, autonomy, self-determination, and ability to make judgments, choose, make decision, and act in accordance to our life's goals and orientations. Despite being influenced by our inner drives and external stimuli, we are expected to have the ability to distance ourselves, overcome, and take a stand and take action. Human beings need to exercise their autonomy in relation to other people. People's autonomy is

interpersonal as they are increasingly autonomous in relation to others. A higher degree of autonomy will improve the quality of interpersonal relationship (Bakker, 2000: 38-50).

In addition to being aware as noble creation, we need to know our strengths as spiritual beings, which have conscience, mind, and free will. In this paper, conscience, mind, and free will will be explained. After understanding the description of the three inner powers and how they function, we need to conduct moral education to empower them so they have an increasingly optimal role for the development of our life to become whole human persons who have integrity, are more autonomous interpersonally and interpersonally, are more valuable, have a positive attitude and ability in developing oneself interpersonally.

Theory

The Role of Conscience

According to Covey, people must begin with the end in mind. It means to start with a clear understanding of one's destination. It means to know where one is going so that one better understands where he is now and so that the steps taken are always in the right direction (1989:97-99). The fundamental problem of human life lies precisely in the awareness of goals to be reached based on the current state, namely the values and qualities deemed necessary to be realized.

Humans have freedom and autonomy in determining the direction and destination of their lives, but this freedom requires human beings to be responsible as noble creatures, morally obliged to realize positive values and avoid negative values. The mind clearly has a role to gain clarity of the roads to take, the guiding signs that need to be addressed, the various obstacles that need to be dealt with, the means used, and the ways and actions taken to realize the intended purpose. But the direction to be cultivated must be determined by the conscience that is called on to the good value / quality to be realized. Therefore, the activities of the human mind must originate from what the conscience deems good for the purpose.

Although human beings have free will to choose and act, in fact they cannot choose arbitrarily; and due to the fact that it is a conscious act that human beings need to be held accountable for their actions (Makmurtomo: 23-24). In order to hold accountable for the actions, human beings are endowed with sensibility in their hearts, which always accompany them and raise human beings' awareness to always do good and avoid evil. When humans face the circumstances and problems in their lives, they have moral consciousness to feel, make judgments in making decisions based on their conscience that human beings are obliged to do good and avoid evil (Bertens, 2013: 41-42).

Awareness to do good and avoid evil always assists human (conscience) in making decision to take action. The conscience is a moral consciousness that is naturally formed inside human beings. Human beings have inherent potential to choose to do good and avoid evil since they were born. However, the picture of good (which needs to be chosen), and evil (to be avoided) are formed and awakened in the course of human life. In order to consider and make decisions to

do good, and avoid evil, conscience needs to have reasons as the basis for its consideration.

Conscience is the appreciation of good or evil in terms of our concrete behavior. Conscience commanded to do good or forbid us to do evil now and here; in more concrete terms: we should do good things and avoid doing evil things. Before an ethical / moral action will take place, the conscience will tell whether it is good or bad. If the action is deemed good, the conscience arises as a commanding voice. However, if the action is deemed evil, the conscience will serve as a restrictive voice. When an action is executed, the conscience still works, by commanding or forbidding. After an action or deed is completed, the conscience arises as a "judge" who gives a verdict. For good deeds, conscience will gratify, thus making people feel proud and happy. However, if the act is bad or evil, then the conscience will denounce / blame, so that people feel anxious, embarrassed, sorry, or desperate.

Conscience is personal, ultra personal, and rational. Being personal means being always closely related to the person concerned. It deals with him and the actions he concretely does, and not giving judgments to the deeds of others. The conscience is also ultra personal, beyond personal, transcendental, as if it were the institution above us; in which we submit to be only listeners, open ourselves up to something coming from the outside / up, and which overcomes as the conscience, the inner voice, the voice that comes from within us. The conscience is rational, because the conscience rationally assesses. But the decision given by conscience is usually direct, intuitive, as though not through argumentation or rational reasoning measures.

The Role of Mind

In addition to the conscience, we will discuss the power of another spiritual ability, namely the power of the human mind. We have discussed that conscience is the power that provides the basis, direction, and purpose for action so as not to get lost, but can capture and realize a good life, a quality life, in harmony with the nobility of our human nature. Next, we need to discuss the power of human mind that is expected to be able to think, consider, and decide properly the appropriate direction-goals, paths, means, and ways to be used to realize a good life, a life of value and quality.

Thinking Activity starts when it is triggered by the question or problem, either from others or from within. The question arises in order to obtain information or clarity regarding the question. So the main question is none other than a petition; while the answer is a statement that provides information on the question asked. The thought of making / generating a statement is the thought of searching for and finding information that is appropriate and relevant to what the information is asking for. The requested and thoughtful description of the question relates to the question word being used.

What is done in the thinking activity of answering and giving explanation is: searching for an appropriate explanation in accordance with what is described. Furthermore, the things described and explained are arranged or linked in an explanatory statement. In addition to choosing to seek and find information or explanations, what needs to be thought of is that the information (predicate) needs

to have conformity and the relationship with the described (subject), so that the resulting statement is the correct statement. A statement is said to be true if the relationship in the statement is indeed in conformity with reality (correspondence truth); if it is in accordance with other statements which are the basis of thought (coherence truth); and if the cause-effect relationship is indeed in accordance with its implementation (pragmatic truth).

The statement explains whether there is a relationship between understanding one with another; a positive statement indicates a relationship, whereas a negative statement indicates there is no relation between the meanings in the statement. Each statement provides explanation. Each statement contains at least two things, namely about the explained and the explanation. The statement directly or indirectly provides answers, in the form of explanation or information we ask based on what we need to get an explanation. Based on the question words we usually use, there is an explanation we expect, for example: <who> needs information about the person involved (as subject, object, complement), <what> requires information about the related item, <where> requires information about a place, <when> requires information about time, <why> requires information about the reason or cause of a circumstance, and <how> requires information about the occurrence of an event or circumstance.

In addition to being triggered by questions or issues that require answers containing correct information, the thinking activities are also triggered by a problem that needs to be resolved. The problem in the first sense is the existence of gaps faced and felt by the person concerned that need to be overcome, namely the gap between the experienced reality and the hopes or ideals to be realized. While in the next sense, the problem is all the obstacles, difficulties, predicaments faced by human beings (both in themselves and outside themselves) that need to be faced and resolved in order to achieve the desired or expected goals.

The thought that one can solve a problem refers to the ability to think about how to reach the desired goal. This needs clarity and truth of the goal to be achieved. After obtaining the necessary relevant and correct information on the goal, it is necessary to think about the paths to be taken, the means used, and the ways to do it. All of these must be thought about to gain the clear and correct interconnectedness among the components, in terms of goal, ways, means and paths to realize the goal, namely better, valuable and qualified life.

The Role of Free Will /Willpower

In addition to having a conscience to guide them to good life goals, which are worth striving for, and creativity to help them understand everything better in order to face challenges to achieve more valuable life, human beings also have free will to choose their actions to realize the kind of life they are dreaming of. In addition to conscience and mind, human beings also have willpower to perform the actions they have chosen.

Volition is one of the human's spiritual powers meant to achieve a goal; the goal is the final destination of a goal-oriented movement. Willpower is human's spiritual power to achieve a goal. Volition is the man's inner strength, which arises and intertwines with man's feelings and thought. Volition does not arise

spontaneously, but it arises as a result of consideration based on the feelings and thoughts to realize decision making process (Ahmadi, 2003:113-116).

Volition is the inward impulse of the human being higher than instinct, reflex, automatism, habit, lust, desire, inclination, and lust. Volition or willpower belongs only to human beings, as beings with conscience and thought. Volition is the conscious inner impulse, based on the consideration of the feelings of conscience, mind power, and the whole person of man which leads to activities directed towards the achievement of a particular purpose related to his personal needs.

Based on the above explanation, the characteristics of volition and willpower can be described. Volition is human's inward impulses, because volition is a conscious impulse to be considered. Volition is interrelated with one purpose, driving human activities to attain a certain predetermined goal. Volition as a driving force of human action is based on several considerations, such as conscience which determines whether an action is good or bad, and the personal consideration and influence which can give nuances to the so-called action (Ahmadi, 2003: 125-126).

Some aspects affecting volition: a) influence related to physical conditions, namely the willingness, ability, and capability to act upon the volition; b) instruments, requirements, and tools used to carry out the volition; c) whether the milieu or environmental circumstance is conducive or otherwise; and d) conscience (consciencia) plays a significant role in carrying out the decision of the will (Ahmadi, 2003:138).

Theory Application

Moral Education to Build a Qualified Life

As the highest form of God's creation, human beings can perform activities that are more than other beings, which are not only driven by physical, biological, or psychic impulses. But human activity can take place based on the spiritual ability of man. Typical human activity takes place on the basis of feelings, thoughts, considerations, decision-making, and then there is the will to do it.

With these advantages, man is expected not only to function as an object, but also as a subject, who realizes and wants what he does. So, the activities undertaken by humans are not merely the effect of instinctive drives from within, or just a reaction to stimuli directed at him. In the face of internal instinctive drives and the external stimulus, it is expected that humans (as subjects) take into account some considerations, thoughts, and then make the decision of the will to act upon it. And in exercising the spiritual powers, of course, human beings should not be inconsequential, as these powers must be used properly so as to make the best and righteous decision to realize a good life.

This level of ability is not necessarily possessed by humans, but human beings need to learn and seek for its development. According to Covey (1989: 66-77), human beings are expected, through education, to develop their spiritual power so that people do not fall victim to the situation; so they are not reactive to the situation but are capable of being the subject in dealing with the situation; and are pro-active and capable of feeling, thinking, considering, and ultimately

making a decision to handle and deal with the situation which will bring about a better and more dignified life.

Although in terms of position and composition, the nature of human is the highest form of creature among other beings, man is not by himself capable of placing himself and functioning the power in him to manifest his life as a noble being. Being noble implies being a subject, an autonomous subject, who is capable of considering, making decisions, having the freedom, and being responsible for directing and realizing a life of value. Moral education is human effort to direct his typical actions as human beings, to do it autonomously, consciously, freely, and to be directed to a good and valuable life. Therefore, moral education raises our awareness that humans have a noble position as autonomous beings, which have spiritual resources to organize and direct this life in accordance with his will, i.e. to realize a noble life. In this paper, as humans have positions as autonomous beings and possess the nobility of spiritual powers, presumably through moral education, we need to empower the spiritual powers we possess in order to bring about a better and upgraded life, as our destined vocation.

Conscience serves as a guide, a compass, or a norm to judge an action, whether it is good or evil. Conscience serves as standards or concrete rules in everyday life. Conscience serves to alert people of their value and self-esteem. Recognizing the image and the significant role of the conscience to direct human life, we need to respect the voice of our conscience, listen to every whisper carefully, consider it and then do what the conscience actually says.

Bearing in mind that conscience is personal, we need to have a basic moral principle that we believe and can be used as a reference, the basis on which we base our action. Conscience directs people to do good and avoid evil. In order to avoid evil, we are expected not to commit a crime, neither to harm ourselves nor others. We are at least required not to make other people miserable. And in order to work for good, we need to take account of the benefits of all parties involved, and choose actions that will bring good results outweighing the consequences. In addition to manifesting good and avoiding evil, we also need to pay attention to justice. It means to treat everyone fairly and to give them their rights equally. And the last principle is that we need to treat ourselves and other human beings as autonomous beings, so that every human being as subject is expected to be accountable for the actions taken on his own choice. (Sudarminta, 2013: 170-176).

Without basic moral principle to serve as a basis for judgment, there will be no reference to direct people to a good life. People may get lost in finding their life goal, for example: doing an act that gives pleasure to him but harming his fellow human beings; taking actions that provide the greatest advantage for himself without regard to justice for others. Even people can get lost in doing good in the name of religion or God, for example on the pretext of religion / God, people seek for personal or group gain (e.g. in economic or political) by harming, treating unjustly, even causing others to be miserable.

In addition to a universal basic moral principle, we need to remain open to enlightenment, so that we are increasingly having a wider moral insight. We need

to have an honest and non-hypocritical attitude, so that we can easily identify things that would obscure and even mislead the direction of our destiny. Then, to achieve a quality of life; we also need to be silent to hear our conscience speak and to have clarity in thinking, to hear the gentle whisper of conscience in the hustle bustle of life to be able to see the direction of life clearly and to see the direction that misleads us.

In order to develop a conscience (as *conscientia* = real and personal knowledge), we need to place our conscience in the context of real / concrete life. Either directly or through media, we need to be constantly faced with the problems of life that need a wise moral judgment, involving conscience, mind, and the decision of the will to be followed up. In the context of life bearing the moral problem, through understanding and reflection, we are able to position ourselves and feel with conscience whether the action is good or bad. Through value clarification and analysis, it is hoped that we will be able to choose positive things and avoid negative things. In contrast to the thinking process (subjects who think against the object being thought), reflection is the activity of understanding how a subject experiences, understands, and experiences itself in relation to others. In addition to understanding, we can also feel, and even evoke emotions in relation to what we reflect and ponder. So we need to create an atmosphere that is expected to touch our hearts, to be able to feel the moral issues of the things we face, and to find an attractive positive value to be realized, or the negative value to avoid.

In addition to conscience, human thought or creativity needs to be developed in order to be intelligent: able to analyze (elaborate) issues, to understand the parts, to understand the interconnectedness of each part, to understand the causal relationships between things; and to be able to synthesize (assemble) the existing parts, to realize a systematic unity of thought from the information or knowledge it possesses. Thinking leads to enlightenment / explanation / description, thus gaining a clear or correct understanding or description of the interrelationship of what is being thought about. This clear and correct understanding develops further, broader, deeper, more detailed knowledge, serving as the means to make decisions to solve real problems in life, and to realize the values of their lives. For example, people who are lost in their journey will find help from a map that provides clear and correct information / images of roads to get to the destination. Similarly, understanding of the engine gear system and all its parts will help a motorcycle mechanic to find and fix mechanical problems.

To judge and manifest a good life of value, it would be necessary to relate between the actions having been done and the actions believed to be good / valuable, according to moral principles. A good life is shaped through human's actions on a day-to-day basis. Good actions are relevant actions, which are expected to support the formation of a good life. The good life, the life of value, is a quality life in harmony with our natural human tendencies as noble creatures. The good and valuable quality life orients human beings to realize it. For example: as physical creatures (physical, biological), human beings hope to be healthy, empowered, and skilled. As spiritual beings, human beings hope to

develop and function optimally, overcome life problems, have sensitivity of conscience in relationship with themselves, others, and God, and have a strong will to realize good things. As social beings, they hope to live harmoniously, cooperatively, and graciously with the social and natural environments where they belong.

Conscience leads to a valuable life, and creativity provides a clear and correct understanding of various issues and problems faced on the way to achieve the purpose of life. Volition and willingness to be free to choose the actions are necessary. Thus, in addition to awareness of conscience and thought, humans also have volition to perform actions. However, even though human beings have made decision and have a free will to choose an action, humans do not just choose arbitrarily. Since action is conscious, man needs to account for his actions as a good or valuable action (Makmurtono, 1989: pp. 23-24). In order to account for their actions, humans must desire and do the best and avoid evil; as much as possible striving for the positive and noble values and avoid negative and trivial values (Wahana, 2004: 55-57).

Everything we do must be weighed by conscience in search of a quality of life through ways and means which support the realization of the goals. Therefore, we must be full of courage to desire and do it because we have faith in the goals which direct our life. In addition to having the courage to do, we also need to have courage to account for what we do, both with regard to process and outcome as a result of our actions. Although we have a solid consideration to do and account for it, we must implement it carefully so as to realize the goals of a more valuable life.

Conclusions

Humans are the highest form of God's creation. As the noblest creation, human beings have freedom to act according to their choice and will. In order to realize its nobleness, humans have various means to realize their life of value.

Unlike other God's creations, human beings are privileged to have conscience, mind, and free will. To function properly, these devices must be empowered to improve the quality of life as we are morally called for.

Moral education as the education of values is expected to improve the ability of the mind to understand the value (value knowing), of the conscience feel and live value (value feeling), and of the will to realize the value (value doing). Moral education empowers three special tools in the following ways:

1. Conscience needs to seek a silence, so that the gentle voice of the conscience can be heard in the hustle bustle of human activities. Although our conscience is subjective and personal, we may need to have a general moral principle to base our judgment to take a decision of action.
2. The power of human mind can help human beings to gain a clear and correct understanding, which serves as the way, means, and methods to solve problems, to achieve the highest quality of life.
3. Willpower or volition contains power that can encourage people to act in accordance with the conscience and mind. Willpower will work if we have

a strong conscience and mind. So we need to take action with courage, and account for the consequences of our actions.

In this way, human beings are expected to become more conscientious and sensitive to do good and avoid evil, and to solve various problems intelligently, and have a strong will and concern to realize a life of value.

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