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IN SEARCH OF PRONOUN EQUIVALENCE: CHALLENGES IN TEACHING INTERPRETING

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Abstract

There are some challenges in Interpreting; in this study, we focus more on the interpreting of pronouns from English as Source Language (SL) to Indonesian as Target Language (TL). The data was collected within simulations in classroom setting. The results showed many unnatural translation of pronoun 'it' and 'this'. References of these pronouns are anaphoric and may take different linguistic units (clause, phrase, word). There were some strategies employed to achieve natural interpreting in TL. Some students repeated the reference(s); but they need to recover the whole references (might be very challenging when the reference(s) are complex). Other strategies are partial recovery, or lexical addition that complies with TL structure. There are some suggestions for an interpreter to deal with the challenges; one of them is to be familiar with the topic of what they are interpreting. In this way, they do not have to rely on short-term memory skills to decide which strategy to employ.

Keywords: interpreting, pronoun, reference, translation

Introduction

Translation is the conversion of text or speech from source language (SL) to target language (TT). As for Interpreting, it is a kind of oral translation, instead of textual translation. The difference is well discussed by Tirkkonen-Condit and Jääskeläinen (2000). As this study discusses the application of translation/interpreting in a classroom setting, it is important to review 'translation' class here before we proceed to 'interpreting'. The discussion is restricted to language-related program. We need here to distinguish translation as a practical skill, and translation as a study, although both are aimed at delivering meaning to speakers of target language (Robinson, 2004). As a practical skill, translation is closer to the industry. Therefore, a translator must be able to satisfy the demand of the industry. Fair and acceptable translation is appreciated financially by the clients. Often, the key success is the mastery of domain specific terms, such as legal, chemistry and religion (cf. Torrejón & Rico, 2002). Therefore, many translators do not have language-specific degree.

As for translation study, it studies translation scientifically; translation product is reviewed scientifically and often discussed within linguistic/cross-linguistic frames, such as ideology, social structure and gender (cf. Munday,

2016). While translation classes at the university level offer both (practical and translation studies), the content in Interpreting classes deals with translation as practical skills. The aim of the class is usually to allow students to simulate interpreting events.

Methods

In this study, the data is obtained from observations during interpreting class and exams. The class is offered to undergraduate students and Diploma-3/vocational program. The material, however, is equally vocational (even to undergraduate students). Interpreting is considered more challenging than (text) translation as it requires 'faster' response.

Prerequisite to this class is ideally very strict (students have to be excellent in listening, speaking, and translation class). However, should that be the case, this should be an optional class. It is then decided to reduce the level of difficulty so that it is more accessible to various students. The aim is focused on interpreting in introductory level (allow students to simulate interpreting).

The material is designed from English to Indonesian, as it will be easier to deliver the oral translation. The audio files are (in monologue, obtained from (http://learningenglish.voanews.com/), given without subtitle. There are two types of interpreting; consecutive and simultaneous. As its name suggests, simultaneous requires the interpreter to do the interpreting task while the client is talking. As for consecutive, it waits for the client to cease, then the interpreter delivers the interpreting. The simulation in this introductory class is restricted to the level of consecutive interpreting, as much better comprehension and production is required in simultaneous interpreting (Bajo, 2000).

Findings and Discussion

Challenges in teaching interpreting are actually many (cf. Garzone & Viezzi (2002) and Braun (2007) for discussion in detail). Bogucki (2010) discusses the challenges within classroom setting. However, challenges usually lie on three stages; input, processing, and output. Input is the reception stage. As for interpreting, input is in the form of speech in SL. Some challenges are; the client is speaking too fast, the speech is long and complex, there are numbers and proper names, and the use of domain specific terms. Should the interpreters succeed at this stage; they may proceed to the next stage, which is processing.

In the processing stage, it is assumed that an interpreter is already aware of the client speech in SL. This is the stage where the SL has to be converted to TL. There are times when an interpreter knows what it means in SL, but cannot find the equivalence in TL. Another time, the SL is understood, but it is too complex and it requires to be restructured.

This stage is considered less vital than the previous ones. Problems in this stage are usually related to physical factors (ex: the interpreter speaks too slowly, too fast, too softly or too loudly). However, the interpreter's accent is sometimes a problem. Say, in Indonesian or English, saying [r] with thrill or flap does not change meaning. However, in some TLs, they do distinguish meaning. Pronoun

reference is a problem that lies in input and processing stage. The central role of pronoun in linguistics is studied by Gordon (1993).

Students are actually familiar with pronoun reference exercise in many language testing simulations, but they are all receptive (like questions in TOEFL, 'to whom does 'she' refer to', 'it in line 5 refers to …'). The reference is also not hard to discover as it is usually anaphoric (located in the previous speech/sentence). The skill it requires is merely identification. As for English, grammatical and semantic features often help (ex: they is plural, she is a woman, it is a non-human entity, etc). There have been several efforts to computationally deal with this challenge. See LeNagard & Koehn (2010) and Nakaiwa & Shirai (1996). Identification is not the problem, when they read. But when they hear speech sounds, which will be a different case, as they are required to recover the reference very quickly. This of course will affect the production. If they fail the identification stage, then how will they be able to give output?

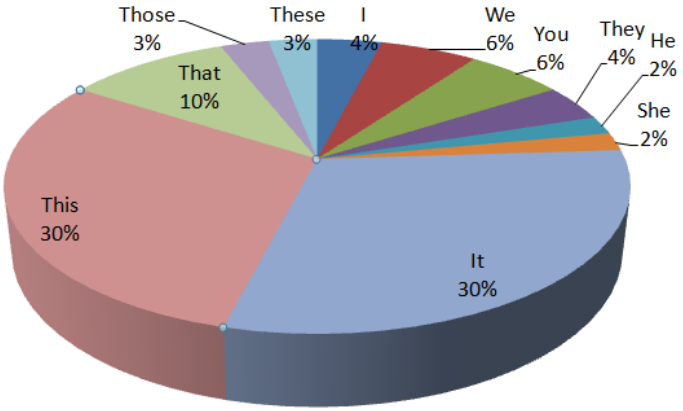

Figure 1. Unnatural Translation to TL across Pronouns

Figure 1 shows the results of the research, where errors related to pronoun are dominated by 'this' and 'it'. Errors here are not necessarily absolute, but they do make the TL sound unnatural. There are some reasons why errors such pronouns are dominating over the others. One reason is their frequency in the data. 'This' and 'it' dominates over the other pronouns. Failure to deliver proper interpreting on such pronouns might also be driven by the location of the reference, which is usually in the previous sentence. Consider table 1 from audio file 'cow genome':

Table 1. Cow Genome

Reference(s)	• Researchers from twenty-five countries have made a genetic map of a cow. • Better understanding of what makes a cow could lead to better milk and meat production.
Sentence with Pronoun	It could also help the drug companies
Translation	1. *Ini bisa membantu industri obat* 2. *Hal ini bisa mengembangkan industri farmasi lebih baik*

In table 1, two different ways of translating pronouns are identified. The first one is literal translation, where 'it' is translated into *ini*. However, in the second one, the translation is enhanced with *hal* 'matter'. We understand that the reference of this, is 'understanding', which actually the head noun. In this case, it will refer to the whole noun phrase. By using *hal ini* 'this matter', it will refer to the whole phrase. While using 'it' is enough in English to achieve natural coherence, using *hal ini* makes the equivalence in Indonesian more natural. Let us have a look on another data, which is present in table 2:

Table 2. Cow Genome 2

Reference(s)	• Today there are more than eight hundred breeds of cattle raised for different reasons. • But some people are concerned that breeding has reduced genetic differences among cattle.
Sentence with Pronoun	• This could make it easier for disorders to affect a large number of animals.
Translation	1. *Ini membuat mudah penyakit untuk mempengaruhi banyak hewan.* 2. *Kurangnya varian genetik hewan, menyebabkan sebagian hewan tersebut mengalami kelainan*

The reference of 'this', is on the clause level 'breeding has …'. The first translation refers to the literal translation. The second translation is more natural. Unlike table 1, the second translation in example 2 takes different approach. Instead of complementing *hal* 'matter' with *ini* 'this', the reference is repeated with sentence structure modification. For another approach, let us have a look at table 3:

Table 3. Gone With the Wind

Reference(s)	• The one thousand page book is about a beautiful and rebellious young woman named Pansy O'Hara who lived in Georgia during the Civil War. • The book became a great success around the world.
Sentence with Pronoun	• It is much more than a love story between Scarlett O'Hara and Rhett Butler. • It describes the tragic period in American history when American soldiers killed each other in huge numbers.
Translation	1. *Ini lebih besar dari cerita cinta …Ini menjelaskan periode tragis* 2. *Ø Selain menceritakan kisah cinta antara …., buku ini juga, menjelaskan tentang…*

The strategy employed in the translation as shown by table 3 is a little bit different. In the first translation, literal translation strategy is repeated twice, in two different sentences. In the second example, a construction of clause combination (in one sentence) is employed. Instead of following SL structure, the

student used similar to (but not the same) 'not only-but also' construction to TL '*selain …, juga…*'. As specifically for 'it', it is translated into *buku ini* 'the book'. The word *it* is not translated to its literal equivalence, however the insertion of *ini* may equally show definiteness.

Table 4. Gone with the Wind (part 2)

Reference(s)	-Same as table 3-
Sentence with Pronoun	It describes how people bravely rebuilt their lives after such destruction.
Translation	*1. Ini menjelaskan bagaimana orang-orang…* 2. *Sebagian buku ini menceritakan ….*

Table 5. Gone with the Wind (part 3)

Reference(s)	-same as table 3-
Sentence with Pronoun	And it captures the spirit of the Old South and a way of life that forever disappeared after the war.
Translation	1. *Dan ini menangkap …* 2. *Dan sebagian lain menjelaskan mengenai …*

Tables 4 and 5 will be described in unison. The reference of the two tables is the same as table 3. In the English version in table 4 and 5, pronoun 'it' is used. In the first translation, literal translation strategies are used. Better translations are provided in the second examples, although meaning shift actually takes place. Pronoun 'it' in these examples actually refers to the whole book. But in reality, 'it' is only parts of the book; therefore, *sebagian* 'part' is employed. Here, the translation is not faithful, but still correct and natural although they do shift the meaning.

Table 6. SpeakeasyDC Celebrates the Art of Storytelling

Reference(s)	Once upon a time, there was a person with a teacher, a crowd and a microphone. So, the person began to tell a story.
Sentence with Pronoun	This is the general idea behind an organization in Washington, D.C. called SpeakeasyDC.
Translation	*1. Ini ide umum dibalik…* 2. *Inilah konsep Speakeasy DC, sebuah …..*

Unlike previous examples, the addition here (as shown by the second example), is bound form/particle *–lah* is added. The function of *-lah* are many. One of them is to mark definiteness. However, why such definite marker is required while the head is already there (making it already definite)? We resort to another meaning, which is the emphasis. So, the translation, besides natural, also emphasize on the focus of the reference. The presence of *–lah* makes the TL stay coherent.

Table 7. SpeakeasyDC Celebrates the Art of Storytelling 2

Reference(s)	Brady says he has always like singing. He sang songs on the albums of other major artists.
Sentence with Pronoun	This led him to write and record songs for his own album, "A Long Time Coming".
Translation	*1. Ini mengarahkannya untuk menulis dan …* *2. Hal-hal itulah yang memotivasinya untuk mengarang lagu dan ….*

In table 7, one student employed literal translation, while another student negotiated the meaning in the TL. In the TL, student 2 translated it (singular) into *hal-hal* (plural reduplication). The reduplication changes the noun reference into plural. However, this seems very well tolerated by the ears of native speakers of TL as *sang songs* and *like singing* are the references as well. These two references are well correlated so that the shift is still acceptable. Audience does not seem to bother *ini* and *itu* as the shift is still fairly acceptable.

Why IT and THIS: Some Suggestions

The two pronouns (It and this) are empirically frequent in the SL. What makes these two pronouns dominate the interpreting errors? Some pronouns are relatively less challenging, such as *she, he*, but this may pose problems too, and although not many, errors in translating these pronouns also took place (see figure 1). There are also other pronouns that are empirically frequent but the reference is not anaphoric. The references are located still in the same phrase, therefore they do not have to trace the reference back. As for pronouns that are not correctly translated, most of them are bare pronoun. So there are two main problems here. First, the target pronouns are empirically frequent. And the second, is that the reference is located anaphorically. Unlike translating texts, students cannot go back to the previous sentence to trace the reference(s).

What some students may not realize, those who successfully translated the reference with natural translations may not necessarily know the reference either! It is true that in some strategies when reference(s) are mentioned, students need to recover the reference fully and quickly. But in some other strategies, errors are overt because of only the choice of style. For instance, translating SL 'this' literally into *ini* without any lexical addition may seem strange. However, adding *hal* into *hal ini* might result in more natural translation. I argue that understanding natural structure in TL is also a must for an interpreter so that the conversion process can be executed in no time.

Conclusion

In the findings section, the statistic has shown that the errors are dominated when students are translating pronoun *this* and *it* in the initial position. Translating the pronoun literally does not comply with the natural structure of TL. Therefore, some strategies are employed. The first one is pronoun recovery, either full or partial. This, however, requires the interpreter to recall the pronoun reference(s). It

might not be a problem when the reference is short, but for long complex reference(s), this may cause problem. Another strategy is by lexical addition (*hal, tersebut, etc*). The last strategy is deletion, where the pronoun is deleted in the TL. However, this strategy has to be employed very carefully as it requires additional strategy such as unification, in which the interpreter needs to reorganize the whole structure.

There are few ways to generate better translation in TL. The first one is by improving recall skills/memory skills. But this might be difficult for beginner as memorizing skill is gained by experience. There are some useful papers to read in order to understand the link between memory and interpreting skill such as Lambert (1991), Hulme (1991), Liu (2004). Another useful tip is to focus on potential reference. In this way, reference is anticipated before the pronoun(s) surface. Reference is usually a noun. But, it can also be a phrase or the whole sentence. Pronoun also mostly refers to given instead of new information. That is why it is located anaphorically, and seldom cataphorically. In some cases, we can generalize the reference, especially when the reference is in sentence level.

In trainings, of course an instructor can slow down the rate of speech in the recording. Many tools can be used to manipulate the rate. But this must not happen continuously as simulation is conducted to give experience interpreting as closely to realities as possible. A better suggestion, for an interpreter is to gather a lot of information about the topic that s/he is going to deal with. It will be a good idea to spend a few minutes with the client and talk about the topic before the interpreting process is delivered on public.

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PLURALISTIC AND MULTICULTURAL EDUCATION IN THE INDONESIAN SCHOOLS

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Abstract

Indonesia consists of many islands, cultures, ethnicities, and religions. This country will be strong if its people would like to live and work together peacefully. It can be done if they accept their differences and want to work together as one nation. The spirit should be taught since the elementary schools until universities. Thus, the curriculum, teachers, and teacher training institutes should be pluralistic and multicultural. Indonesian schools should provide and improve the pluralistic and multicultural spirit and environment, because there are still many obstacles in these matters.

Keywords: pluralistic and multicultural education, Indonesian schools, curriculum

Introduction

Indonesia consists of more than 300 ethnic groups, cultures, religions, and faiths. Indonesia is a multicultural and pluralistic nation. This country will become strong only if its people are able to accept their differences, live together and work together peacefully.

The Country has *Pancasila philosophy* and *UUD 1945* as its constitution and become its basic for living together as a nation. We have *Bhineka Tunggal Ika* as our vision that we are many but one. We are different but we want to live together as one nation. That spirit will be stronger if we can accept and live together in differences.

The spirit of accepting the differences does not automatically emerge, but they need to be built and developed. Through pluralistic and multicultural education, we are able to help young students to be aware of the importance of accepting, living and working together as one family. This kind of education should be done since the elementary schools and continue until they study in the university.

This paper discusses some aspects of pluralistic and multicultural education, such as a pluralistic curriculum, teachers, teachers training institutes, intercultural experiences, and how to implement them in Indonesian schools.

Pluralistic and Multicultural Education

Pluralistic education or multicultural education is defined as a perspective that recognizes (a) the political, social, and economic realities that individuals

experience in culturally diverse and complex human encounters; and (b) the importance of culture, race, sexuality and gender, ethnicity, religion, socioeconomic status, and exceptionalities in the educational process (NCATE, 1986, in Hernandez, 1989: 4).

Most teachers know pluralistic and multicultural education more as education that accepts pluralistic culture. For them, education must stress the importance of student culture and honor their different cultures. The diversity of culture is known and accepted even is more developed. So it is clear that pluralistic education is education that accepts and develops the diversity among student because of their culture, religion, economic, and ethnicity. The purpose is that the young students are able to live and work together in their diversity.

According to Grant and Sleeter (1989: 143-144), multicultural education has two main problems: (1) give the same opportunity for education to all students and (2) pluralistic education. First, each student has to get the same opportunity to success in their education without discrimination. To help them success in their study, the weak and disabled students should be helped more according to their culture and situation. By considering the pluralistic situation, each student can be developed optimally.

Students should be incouraged to see and understand other cultures, so they can accept and honor the different cultures. So, it is important not to hide the different cultures, or make all the cultures as one culture. In the Indonesian new regime (*Order Baru*), we experienced that the government tried to erase the diversity and pushed the same national culture for all. In this condition it seems that the country is likely peaceful, but actually there are many conflict inside and many people feel afraid.

The Indonesian law of education (*Sisdiknas*, 2003) says that the Indonesian education is not discriminative. The national education process is democratic and non dicriminative and also honors the pluralistic nation (verse 4). The *Sisdiknas* also says that the Indonesia education emphasizes the quality for each student without discrimination. Disable, special, or gifted students are educated differently according to their situation. In this document, it is clear that Indonesian education is pluralistic in which each student will be educated according to their situation.

According to Giselbrecht (2009: 12), pluralistic education is about validating students and letting them know that they have the same opportunity in the academic study. Pluralistic approaches to languages and cultures are democratic concepts which acknowledge the right to diversity of all cultural varieties. Pluralistic concepts support attitudes of openness, tolerance and understanding towards the cultures, social structures and values of other communities. In the context of education, pluralistic ideas can be put into practice by the development of a global view of learning and teaching of language and culture.

Strategy for Pluralistic and Multicultural Education

To develop the pluralistic and multicultural education in this country, some strategies should be done such as: pluralistic curriculum, teaching, teachers, teacher education, situation of school, and some intercultural experiences.

Pluralistic Curriculum

The curriculum should be *pluralistic curriculum*. The curriculum content should improve student to accept diversity and communicate with other different cultures. That is why, students should learn the different culture in their schools. Because Indonesia has many songs, dances, food, ornaments, shirts, and languages, so students should learn about different food, music, dances, behavior, languages, culture values, how they think, behave, and communicate. By learning their different cultures students will know other cultures and will be easier to accept their different friends.

The *way teachers teach students should be pluralistic*. Teachers should know the student's situation and cultures, so they are able to help students according to their situation. Teachers should use several approaches in their teaching. For example, they give variety of examples according to gender, cultures, and students' situation. Teachers should teach students using multiple intelligences, so the students are able to understand the material content easily. When teachers ask students to make a group or work together in small group, the group should consist of different students from different cultures. By making a group from different cultures, students will learn how to live and work together with others peacefully.

The *books used in the classroom should multicultural*. They have to be free from discrimination, free from bias gender, ethnic, classes, age, religion, and minority. Sometimes, several books in their explanation or in their example have bias meaning and omit some factors that will distract students' knowledge about pluralistic and multicultural spirit. It is better if each shool evaluates every textbook that will be used in teaching learning process, so it will be free from discrimination.

Classroom situation should be arranged according to multicultural relation among teachers and students. Classroom decoration should be managed according to multicultural values. For example, in each classroom we can put pictures of different heroes from different islands, pictures of different cultures such as foods, islands, statues, dances etc.

In the Indonesia curriculum (Kurikulum 2013) there is centralized curriculum that is decided by the central government. But there are also some local subject matters that should be decided by the local government. The local subject matters give opportunity for students to learn about their local values, skills, and cultures.

It is better if the evaluation is also multicultural. It means that there are several models of evaluation, not only one evaluation model. The evaluation should be multicultural, used many kind methods and cope with students' different cultures.

The multicultural curriculum should provide several experiences for students to see and to have experiences about other cultures. For example, students have a trip to go to other islands that have different cultures. Students live in different cities, islands, provinces that have different cultures. By experiencing different cultures, they will be more open and understand the different people that have different cultures, religions, etnics. Schools provide their students to play games with students from different schools that have different cultures, religions. Sometimes it will be better students do a project together with students from different schools. If students from different schools have oportunity to meet together, to play together, and to do project together, they will be more understand each others and they will be easy to work together. It will be helpful if there is oportunities for students from different schools learn in different schools as exchange students.

Multicultural Teachers

One of the most important in the pluralistic and multicultural education is the teachers. The teachers should be pluralistic in their teaching, approaches, and style of living and communicating with students.

All teachers should pluralistic and multicultural. They should know how to be pluralistic teachers in the pluralistic situation. They should accept diversity, honor all students and know how to teach and evaluate. They should manage their teaching pluralistically. Teachers should stress diversity in their teaching learning, give some examples how to live together peacefully.

Teachers have to respect all different students; they do not discriminate against students according their cultures and gender. They teach using different culture so students will know the other culture and learn about it.

Teachers should know student situation and their cultures. They have to know student habits, values, families, languages, religion, health, what is their purpose of learning, hobby, media, environment, etc. So, it is better if teachers study about student situation and environment. By knowing student situation teachers are able to help students better.

Some teachers do not know their students and their backgrounds. Many teachers like to teach in the same ways and same method for different students. Some of them like to push students to behave the same and not allow differences in their classroom. Even some teachers don't like if students answer or do their task different with the teachers answer. This situation sometimes makes students unhappy in their classroom.

Giselbrecht (2009) says the importance of pluralistic textbooks. Since these concepts are very new they will not be included in most current textbooks. Therefore, it is recommendable that teachers have access to additional materials. The internet, in general, represents a valuable source. There are several internet websites featuring information and activities which support pluralistic approaches.

The most important things to help students improve their multicultural spirit is teachers' example. Students everyday see and live with their teachers. They learn from their teachers how they behave, how they act as pluralistic or multiculurreal educators or not. If students everyday experience that their teachers

are discriminative or do not honor students from different culture, students will follow those ecamples. So, to improve multicultural education in schools, teachers should become good examples.

Teacher Training Institute

Teacher training institutes are very important. They have to have pluralistic programs that are not discriminative. They should train and facilitate student teachers on pluralistic approaches in teaching learning.

Teacher training institutes should help students to develop and improve their knowledge and awareness about pluralistic and multicultural education. The institutes should have a center for learning and teaching in pluralistic and multicultural situation. The center will help students and teachers who want to learn and develop their understanding about pluralistic education.

In this center some experts and researchers are able to work together in developing program, methods, strategy, and books that stress on pluralistic education. In this way, the center is able to give support and material to teachers and student teachers around this country.

Indonesia has many teacher trainning institutes such as FKIP (Faculty of Teaching and Education). In this institutes students learn to be teachers either for elementary schools, junior high schools, or senior high schools. The institutes stress on subject matter and pedagogy for teachers. In some institutes students learn multiculture education, multiculture teaching and learning, but in some institutes the multiculture and pluralistic environment have not been yet developed. So, all teacher training institutes schould provide and improve their multiculture and pluralistic education and environment.

Intercultural Experiences

According to Giselbrecht (2009), the most important to develop students pluralistic and multicultural sense and habit is to give students intercultural experiences. Students should be given opportunities and experience about authentic intercultural contacts. In this way, they can make use of their pluralistic skill and extend their plurilingual and pluricultural repertoire.

There are various ways in which students could put their pluralistic skills into practice in the real world. Because Indonesia consists from many islands that has different cultures, students can be encouraged to correspond with pen friends from different islands. They can communicate with friends from different cultures and islands using internet or gadget.

Visiting, traveling, and going to other island that have different cultures and language in Indonesia are very important to understand better other cultures. Students don't learn different cultures from books only, but from their real experience about other cultures. By visiting other islands, students are able to see, meet, talk, communicate with different people from other culture. These real experiences will give them more deep understanding about other people.

Living in different islands or places with different cultures is very important too. Students are able to live in other different cultures, so they have experience living together in peaceful situation with other people. For example, High school

students from Jakarta (capital city) live in Wonosari (small villages). By doing so, they learn how people in Wonosari live and work for their living. Students have experiences living in small village, doing agricultures, and meet students from small villages. In some experiences, most students were happy and they were encouraged to help the village students as sisters. Most students learned to honor and appreciate village people values.

Meeting, playing, and doing same project with different students from different schools that have different culture and background are also helpful for improving multicultural education. In Indonesia there are several kind of schools that have different background and values such as public schools, Islamic schools, national schools, Christian schools, catholic schools, Hindu schools, and conglomerated schools. Until now, some schools don't know and communicate together, they are doing their own jobs and education. It should be better is they improve their communication by doing project together playing games together, or have same program that they do together. For example, students from Catholics schools can meet and play together with students from Muhammadiyah Schools, or Public schools. Students from Hindu schools can do same project with national schools or different religion schools.

Some Handicap of Multiculture Education

There are many handicaps or obstacles for multiculture or pluralistic education in Indonesia. Some obstacles are as followed:

- Discriminative situation in some schools or places that divide students begining elementary schools to high schools not to communicate with different students from different cultures and religions.
- Some teachers don't honor different peoples in front of students, so students learn bad example from their teachers;
- Closed culture, not open minded, so students don't like to contact with other people.
- Some parents don't allow their sons to play together with other kids from different cultures or background;
- Some teachers are discrimintive and not multicultural. They have no pluralistic spirit in their life.

Conclusion

Pluralistic and multicultural education is very important for Indonesia because this country consists of many different culture, religion, ethnics, and social situation. The pluralistic and multicultural education will improve student character that will easily accept other different friends.

The pluralistic and multicultural education will develop if their teachers are multicultural and pluralistic. Teachers should give good example on multicultural spirit to students. And to help teachers become pluralistic, teacher training institutes should be professionnal in trainning teachers on pluralistic and multicultural education. The most important in helping students to have more pluralistic and multicultural habit in their lives is by giving them experiences contact with other culture and live in the different culture places. There are still

many obstacles that should be erased in the Indonesian schools to be more pluralistic and multicultural education.

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TEACHING AND LEARNING SCIENCE: STUDENTS' PERSPECTIVE

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Abstract

There is widespread concern for the situation of school science regarding contents and teaching methods. In this study, based on open questionnaire data, we explore Indonesian students' difficulties and their learning preference in science at two secondary schools students. In this paper how students perceive science as a subject and how the science instruction are expected to happened in classroom setting are described and discussed. Based on findings, the teaching of science needs to be emphasized more on the relevancies to students' experiences and on knowledge in context.

Keywords: learning difficulty, learning science, science instruction

Introduction

Improving science education by emphasizing scientific inquiry, the education and science communities are challenged to transform students' experiences into science classrooms. New approaches to science teaching feature inquiry as essential for student learning. These approaches assume that students need to find solutions to real problems by asking and refining questions; designing and conducting investigations; gathering and analyzing information and data; making interpretations, creating explanations, and drawing conclusions; and reporting findings. Throughout improving the practices of science teaching, students learning are expected to be more active and relevant that will improve their achievement. However, poor performance on national and international tests, high dropout rates, lack of preparedness, and other pressing educational problems are still evident as an existing problem in massive efforts to realign approaches to excellence and equity (Fraser-Abder *et al.*, 2006).

It is quite often that in classrooms the student's voice is silent, except in giving rote answers to questions from their teacher. Teachers spend most of their time teaching knowledge-based science in a learning environment that ignores their students' experiences and provides few opportunities for conceptual development. Students do not fully engage mentally in classroom because teaching and learning do not fit into their range of experience and because their voices might often be unheard. Students are viewed as knowledge consumers. When students are viewed only as consumers, their voices are often reduced to responses to the questions of teachers who know the "right" answers in advance and what is expected of them, silencing student critical thinking and creativity

(Furman & Barton, 2006). Inquiry-based science teaching should put emphasis on student voices as a central place in the learning process. This occurs in learning when students pose questions, gather and analyze evidence and construct arguments based on it, and communicate their findings to others (Furman & Barton, 2006). Furthermore, science learning need to be connected with existing student's life so that students feel that science is practical, familiar with the beliefs and practices of their lives.

Engaging students in learning via a need learning environment may ensure that student could develop their personal involvement in fulfilling their needs. However, researchers and reformers recognize that what is missing in reform strategies is the creation of a personalized environment that promoting students' engagement and caring student–teacher relationships (Rascoe & Atwater, 2005). Moreover, students' interest in learning science has to come from their own "concerns, interests, and experiences". Otherwise students will feel that learning science is not a priority unless science learning is an extension of their community activity. It has also been discovered that currently, science learning in schools does not serve the needs of students so that students' lack of interest occur and science is often perceived as a difficult subject.

Students' Difficulties in Learning Science

The difficulties in learning science often referred to students' inabilities to understand science or ideas when they learn science. This students' difficulty in learning is a crucial problem in order to understand science concept. The influenced factors of learning problem could be student as a learner, science as body of knowledge, teacher and even institution (school) that deliver an unsuitable curriculum (Logan, 1981). In terms of the student as a learner, for example Logan (1981) described that students' learning difficulties include: lack of ability, low motivation, slow learner, unwillingness to study hard and bad or inappropriate study habits.

The way in which science is taught in school and science problems given by the teachers which are sometimes very vague (Ornek *et al.*, 2008), even incompatible with students' experiences in their daily lives are the common factors of students' difficulties. Teaching science in this situation, a mismatch between teaching approaches used by the teacher and the student's preferred learning could occur in the classroom context (Kempa, 1991). Teachers may have poor expectation, inappropriate communications and even poor teaching strategy and lack of appreciation of the students' background and culture.

In terms of teachers' communication, Kempa (1991) identified that language use, for example in relation to technical terms or the complexity of sentence structure and syntax used by the teacher (compared with the student's language), is the common problem. Students and their teacher might think differently in terms of difficulties which students faced in understanding science . It seems students and their science teachers live in different worlds. In some situations the difficulties in learning science could arise from the ways in which students use words with very different meanings from those used in the scientific community. Kempa also indicates that learning difficulties in terms of students' language and

communication are numerous. The students need to understand the meaning of words. They should transform their language to scientific ones or vice versa.

In terms of the science knowledge, for example Angell *et al.* (2004) found that students find science as a difficult subject which has a high workload. A high workload might refer to the demand that students have to contend with science at once with different representations such as experiments, formulas and calculations, graphs, and conceptual explanations. In terms of scientific language, the understanding of science concept could refer to understanding the connection of words with the real world and understanding the meaning of mathematical symbols which have specific meanings that depend on the context within which the symbols are used. Moreover, Lozano & Cardenas (2002) observed that students' difficulty is related to the students' understanding of the representation of the physics formulas or symbols that represent physics concepts.

According to Logan (1981), students in many developing countries face difficulties in learning science due to the incompatibility of their frame work that is related to language. The student's entire conceptual framework built in his own language is far different from the scientific framework. Furthermore Kempa (1991) identified that the nature of the students' ideas/knowledge system is inadequate with such knowledge in relation to the acquired science concept.

One of the other reasons that may be responsible for students' failure to learn science is their lack of interest and attention. For example in terms of learning the concept of electricity, von-Rhöneck *et al.* (2007) identified that interest is seen to have a positive effect on physics performance. However, students need to allow themselves to be motivated and sustained in their interest and values within a social climate of the student-teacher and even student-student relationship where the students are having good learning results.

Thus, it is important for a greater variety of learners that teachers are encouraged to identify students' experiences and culture, develop a suitable science instruction and improve students' attitudes and interest towards science when the teachers are working to improve the teaching of science. The science lessons that focuses on students' understanding which consider the nature of science, students' difficulties and appreciate their experiences and culture might have a positive impact on students' interests, learning outcome and satisfaction.

Method

This study took place in two sub-urban Junior High Schools in Indonesia. We administered a free-response questionnaire to approximately 107 students in the beginning of the second semester. The students were asked to write their responses to each of the questions related to their difficulties (included their reasons) to learn science topics and their reason, and their preferences (included their reasons) to involve in learning activities in classroom. Observations of teaching processes were also conducted to gain insight of what actually happen in learning activities. Questionnaires were administered to 36 students of grade VIII St. George Secondary School and 71 students of grade VII St. Paul Secondary Schools (both school names are pseudonyms). The responses to open questions were coded and categorized. The emerging themes are discussed. Since each

response on the open questions could consist of several statements and be coded into one or more categories.

Findings

Students' Difficulties in Science

Many students in this study had experienced that "Science (Physics) is difficult." Handling computation in solving problem is the most evident among the students many difficulties. This may indicate that students also have a minimum ability in mathematics understanding, the interaction between physics/science and mathematics and set up of a correspondence between a symbol and a property in physics equations. However, they believed that science is related to "the real world." The following excerpts provided evidence for this situation in this study:

> I have to elaborate laws, equations, and long complicated calculations. (Student Questionnaire_4, line 458)
>
> There are many equations and often consist of difficult equations (Student Questionnaire_4, line 430)
>
> I am always wrong in calculating using equation, because I do not understand the equation (Student Questionnaire_4, line 605)
>
> [the equations] are difficult. There are many calculations and I have to memorize the equations (Student Questionnaire_4, line 493)

This difficulty leads the students to feel that certain contents in physics are uninteresting. The following table provides evidence of characteristics of uninteresting contents as described by students.

Table 1: The characteristics of uninteresting science contents

	Total (N=107)	Male (N=55)	Female (N=52)
Difficult to understand	48 (45%)	20 (36%)	28 (54%)
Too many equations and computations	44 (41%)	27 (49%)	17 (33%)

The data in Table 1 show that more students faced the problem of learning difficulty, especially those who are from the lower performance school (St. Paul). There were 44% out of 71 students who had difficulty in handling computation. This may indicate that the students also have a minimum ability in mathematics understanding, and the interaction between physics/science and mathematics. There was another difficulty in the aspect of interpretation, that is, the setting up of a correspondence between a symbol and a property. Student felt that "*the symbol is difficult to understand and remember"* (Student Questionnaire_4, line

521). It was found that more girls (54% out of 52 girls) than boys (36% out of 55 boys) felt science was difficult.

Many students in this study said that "Physics is difficult." Even though students expressed that they saw physics as a difficult subject; they believed that science is still strongly related to "the real world." Based on the students' responses, the characteristics of physics contents are interesting to them as they are relevant to their daily life, easy to understand and interesting. As shown in Table 2, most students (46% out of 107) felt interested in science if teaching science makes them understand science in an easy way. A close investigation on students' responses regarding the characteristic of interesting science contents, it was obvious that based on their perspective, physics concepts that do not contain many equations is easy to understand. The students were uninterested in learning science that directly representing physics in the form of equations and computations (see data in Table 1).

Table 2: The characteristics of interesting science contents

	Total (N=107)	Male (N=55)	Female (N=52)
Easy to understand	49 (46%)	22 (40%)	27 (52%)
Relevant to daily life	22 (21%)	13 (24%)	9 (17%)
Interesting	19 (18%)	13 (24%)	6 (12%)
Others	16 (15%)	4 (7%)	12 (23%)

Students (21% out of 107) felt that approaching the physics concept through the context of everyday life made the content of physics more understandable and interesting. The following excerpts provided evidence for this argument:

> It is easy to understand, it is always done in everyday activity. Force influence our life so do our life influence force (Student Questionnaire_3, line 388-389)
>
> It is easy to be understood and applied in everyday life (Student Questionnaire_3, line 381)
>
> Content which relevant to things that I do and feel (Student Questionnaire_3, line 409)
>
> If it (the topic) much relates to nature and environmental around us, it is easier to comprehend and understand (Student Questionnaire_3, line 682-683)
>
> I often practices (the concept) directly in house and school (Student Questionnaire_3, line 360)

They were able to see how physics concepts are related to their interests outside school, such as playing a musical instrument. It enabled them to talk to scientifically-minded peers' out-of-school about the physics of music that were

related to students' knowledge of music and so they attempted the experiments in greater depth.

> …for example the topic of sound, because I often play some musical instruments, I like it more when explaining the concept of sound (Student Questionnaire_3, line 404-405)

Students, especially girls, seem to feel that "exotic" topics like astronomy are closer to their life-world than mechanics, electricity, etc. The following excerpts provided evidence for this opinion

> The nature is so beautiful and amazing, the mystery with in which no ending. It also teaches us to thank for a goodness and respect, and takes care of all the things in this nature that has been amazingly created by God (Student Questionnaire_3, line 444-449)

> I like the topic of solar system because I like planet. The planets are interesting because they have orbit, form and color even there is an existing ring with the planet. I wish to know their orbit and where they are from (Student Questionnaire_3, line 670-675)

> It is likely if we see the objects in the sky, they are very beautiful. It is likely that there is something hidden within. (Student Questionnaire_3, line 701-705)

> It is very amazing and I wish to know many things (Student Questionnaire_3, line 491)

Students' Difficulties in Learning Science

From this study, it was discovered that the students' difficulties in understanding science concepts are based on two reasons. First, was the difficulty due to uninteresting activities, and the second was due to their perceptions of the difficulties of science concepts.

In terms of learning science, solving problem and too much teacher talks are students' uninteresting activities. Solving problem was difficult, could not understand the problem, and memorizing required equations were all uninteresting activities. Furthermore, long periods of teacher talk was difficult to understand and boring. Moreover, the learning environment did not directly lead them to actively engage in deep and meaningful learning and they felt foreign or unfamiliar with their teacher's language of science.

Most students expected that the teaching process should be in the form of science experiment or other hands-on activities. Their responses demonstrated more informed view of students' preferences to the learning environment. This shows a critical problem in which learning revolves around the absence of access to participation in a meaningful science related activity.

Students prefer active learning strategies rather than the traditional method of teaching. Students viewed experiments in terms of feeling exciting, have the

benefit of activities, and help them to understand more of the concepts being learned. Students viewed that an experiment is the process of observation and drawing conclusions. Throughout this process and followed by comparing conclusions with other references provided, they expected to construct the concepts being learned. The students felt that this could make them to become an autonomous learner. Students need to have learning environment such as doing science that leads them to be actively involved in cooperating with their friends.

Students' Uninteresting Activities in Learning Science

There are two kinds of activities in learning science which students felt not interesting to be included in their learning. The activities were solving problems and too much talking by their teacher (See Table 3). Forty six percent (46% out of 107 students) of students from both schools felt that solving problems was not interesting to them. The students of St. George (31% out of 36 students) were not satisfied with the learning processes that include solving problems. In comparison, more students at St. Paul (54% out of 71 students) maintained that solving problems were not interesting activities. The boys (53% out of 55 boys) were less interested in solving problems than girls (38% out of 52 girls)

The students of St. George (72% out of 36 students) were not satisfied with the learning process that was dominated by their teacher. On the other hand, only a small number of students at St. Paul (15% out of 71 students) felt that teacher talk was not interesting. The students in St. George, whose parents are middle-class, usually experience parenting styles that allow them to be more self-directed. The percentage of boys and girls who were not interested in solving problem is nearly similar. Table 3 provides the data.

Table 3: Students' uninteresting learning activities

	Total (N=107)	Male (N=55)	Female (N=52)
Solving problem	49 (46%)	29 (53%)	20 (38%)
Teacher talk	37 (35%)	21 (38%)	16 (31%)

There are three main reasons why students find the activities in learning were not interesting; that is in terms of activities that do not require students to understand science, instead they only focus on memorizing facts and equations, and other boring activities (see Table 4). There were 67% out of 49 students who saw that solving problems was not interesting as they experienced difficulty solving problems. The students felt that attempting problem-solving activities in learning was not interesting due to the difficulties of the problems themselves. They could not understand the problems. Moreover, they also felt that they needed to memorize the equation. A total of 20% out of 49 students had experience that memorizing required equations was uninteresting. However, only 6% out of 49 students felt bored while solving problems.

In terms of uninteresting teacher's explanation or talk; most students had experiences that the teacher's talk was difficult to understand. A total of 32% out

of 37 students had this experience. From the students' perspective, the teacher's talk was also boring. Table 4 provides the students' reasons to uninteresting activities.

Table 4: Students' reasons on uninteresting learning activities

	Solving problem (N=49)	Teacher talk (N=37)
Difficult to understand	33 (67%)	12 (32%)
Memorizing	10 (20%)	3 (8%)
Boring	3 (6%)	7 (19%)

Even though sometimes the teacher's talk was clear enough for students to comprehend, however, the learning environment did not directly lead to the students actively engaging in deep and meaningful learning. The students' reflections of their previous learning experiences validate this situation, such as:

> … he [teacher] explained clearly, and also sometimes, there were students who did not pay attention to him. He only talked for himself. (Student Interview_3, line 12-13)
>
> … when we were learning with him, we were sometime sleepy. (Student Interview_3, line 14)
>
> … if he delivered a lesson, it looks like a monologue, unable to socialize to students. (Student Interview_2, line 7-8)

In terms of language, the students' responses showed that they felt differences or unfamiliar with their teacher's language. The following excerpts provide evidence for this situation:

> …if he talked, the level of his language was very high, it looks like not to talk for children … but for adult. …yes… when he taught… for example … gives an equation … then … his explanation … less likely..... difficult to understand. (Student Interview_2, line 13-17)
>
> …he usually …, if he explains …yes …likely his language is too high, but he let students – had a chat with friends (Student Interview_2, line 19-20)
>
> I had questions but I was afraid of him (Student Interview_3, line 22)
>
> I wish he repeated (his explanation), but I was afraid to talk to him (Student Interview_3, line 23)

Students' Learning Preferences

Most students expected the teaching process to be in the form of science experiments or other hands-on activities. Their responses demonstrated a more informed view of students' preferences for the preferred learning environment. There were 89% out of 107 students who prefer to learn science through hands-on activities. In other words, this showed a critical problem in learning which revolves around the absence of access to participation in meaningful science related activity. From classroom observation data in the early stage of this research, the traditional method of teaching science (chalk and talk method) which has been identified as teacher-centred is still dominant. This learning situation initiated different and varied responses among students. The students' responses to the questions which learning activities were not interesting, is as shown in Table 5.

Table 5: Students' interesting learning activities

	Total (N=107)	Male (N=55)	Female (N=52)
Doing Science	95 (89%)	49 (89%)	46 (88%)
Discussion and group work	17 (16%)	9 (16%)	8 (15%)
Teaching through story	3 (3%)	2 (4%)	1 (2%)
Solving problem	3 (3%)	1 (2%)	2 (4%)

Table 6: Students' reasons for interesting learning activities

	Doing Science (N=95)	Discussion and group work (N=17)
Cooperative	11 (12%)	11 (65%)
Interesting	27 (28%)	6 (35%)
Easy to understand	15 (16%)	0 (0%)

In terms of students' preferences in learning science, there were reasons that through the activities listed in Table 5, they would feel more interested, easy to understand the topics, and would make them collaborate. Table 6 provides the data of the students' opinions.

From the students' perspective, they prefer active learning strategies rather than the traditional method of teaching. Most responses (28% out of 95 students) indicated that students viewed experiments in terms of exciting feelings and are beneficial activities:

> … because we are enjoying -not merely confronted with blackboard but with equipments- ... thus we understand more through activity with the real things (equipments, procedures) (Student Questionnaire_1, line 333-334)

> It is not boring, exciting and we are able to cooperate more with friends (Student Questionnaire_1, line 434-435)
>
> … by doing a simple group activity/experiment, students shall not be bored and saturated. It is because up until now… it is seldom to learn physics through group-work and by doing experiment (Student Questionnaire_1, line 719-721)
>
> The experiment is exciting, the reason is we are usually lazy and sleepy to listen to teacher's explanation, but if we are doing experiment, our sleepiness becomes disappear because of our enthusiasm and curiosity (Student Questionnaire_1, line 742-744)

Some students (16% out of 95 students) emphasized that experiments help them to better understand the concept being learned. The students' responses are:

> [we] can clearly understand a phenomenon, can learn together in finding out the solutions of the problem, sharing ideas and questioning with other groups (Student Questionnaire_1, line 544-546)
>
> Because we can know and understand - we can discover something (Student Questionnaire_1, line 326)

> It also appeared that students saw the main aim of experimental work in school physics/science as "showing the theory in practice."
>
> [using experiment]… I can understand the theory more clearly and easily, so that it is easy for learning (Student Questionnaire_1, line 405)

Students viewed an experiment as the process of observing and drawing conclusions. Throughout this process, they participated by comparing conclusions with other provided references and eventually they expected to construct the concept learned. The students felt that this could make them become autonomous learners. The following excerpt provides evidence of the students' understandings:

> By doing the observation, finding conclusion, and finding a relevant concept in references by myself. The reason is that students can find relevant information by themselves and they do not depend on the teacher (Student Questionnaire_1, line 553-555)

Based on the students' position and perceptions, there appear to be a need to have a learning environment that also lead them to be actively involved in

cooperating with their friends. A total of 16% out of 95 students saw that doing experiments in science would lead them to cooperate with their friends while learning.

Discussion

Students' inability to understand science concepts or ideas when they learn science is referred as the difficulties in learning science. The relevant factors of this difficulty might be student as a learner, science as body of knowledge, teacher and even institution (school) that deliver an unsuitable curriculum.

The description of findings regarding students' difficulties in learning science reflected the students' real experiences in learning science in an ordinary science classroom. Many of the students in this study felt that "Physics is difficult". This difficulty leads to the situation where the students felt that certain components of the contents in physics were uninteresting and they faced problems in handling computation. The students' difficulty with doing-solving problem was due to the difficulty in understanding the problem and also the requirement to understand the meaning of equations being used. Angell *et al.*(2004) found a similar finding that students find science difficult because they have to contend with different representations such as experiments, formulas and calculations, graphs, and conceptual explanations at the same time. Moreover, they have to make transformations among them. This finding shows that students struggle with physics not only due to the complexities of the subject, but also due to inadequacies with their skills and knowledge of mathematics. This reflects the complexity of the interaction between physics/science and mathematics, as a valuable input to assist in the design of appropriate learning activities and materials for the development of specific scientific concepts. Furthermore, Villani (1992) points out the fact that it is common for students of science to show a reluctance to use mathematical language, basically due to the difficulties they have concerning its interpretation. This might indicate that students also have minimum ability in understanding mathematics, and the interaction between physics/science and mathematics. There was another difficulty in the aspect of interpretation; that is, the setting up of a correspondence between a symbol and a property. Attention need to be given by the science teachers to the importance of providing special attention to the interpretation of the symbolism that appears in such mathematical models. A greater attention should also be paid to this neglected area, especially in the earlier physics learning.

The symbolic language used in the formalization of certain components into equations became difficulties for the students' understanding of the symbol and its property. Sherin (2001) argued that in the teaching and learning of physics, learning to build mathematical models of the physical world is a central goal of physics instruction. The structure of the models inherent in physical principles and equations should be made explicit for students. Furthermore, this view can be seen as part of a more general movement that takes models, not necessarily formulated as equations, as the targets of science instruction.

One of the factors of students' difficulties is teaching strategy delivered by teacher. The way in which the teacher implemented science lesson in classroom

was not compatible with student. The findings in this study should be noted that students' difficulty in learning science might be parallel to their uninteresting learning activity. Two activities in learning science which the target students felt uninterested to be involved in are dominating teachers' talks and solving problems. The students just wrote what their teacher said without relating it to their experiences, and further applied it to their everyday lives. In this way, students did not understand science comprehensively. They only memorized facts and equations, and this was as boring activities. This finding supports the notion that teaching science in Indonesian schools has been reduced into a form of transmission of knowledge by delivering the content presented in school textbooks (Raka Joni, 2000, 2005; Semiawan, 2000). Similarly, Wahyudi and Treagust (2004) also found that most science teaching practices in rural lower secondary schools in Indonesia are teacher-centered and dominated by the traditional teaching method, namely, 'chalk-and-talk'. There were significant amount of evidence to suggest that this anomaly had occurred in Indonesian schools where the teaching and learning of science was concerned. Teaching which focused on students' activities was not considered. The teacher believed that students could memorize rules and they could do it quickly. This might be particular to Indonesia, 'culturally bound', perhaps due to the inheritance of the derivative of oral culture where knowledge was transmitted in similar ways.

It was obvious that the science lesson observed in this study relied on memorizing as a primary learning strategy, which reinforced the view that knowledge is an absolute truth, and there is always an 'expected answer'. This is known by those who are the authorities (teachers). This system of learning does not encourage variation in thinking; in fact it does not even allow questioning or debate. For each question or issue there is seen to be only one acceptable answer. In class, this is the teacher's answer, the teacher's point of view. This is also similar to a finding that was found, for example, in China. Chan (1999) states that students from Confucian cultures are ingrained with respect for knowledge transmitted by authority figures, including teachers and textbooks, rather than the desire to seek and initiate inquiry and investigation. Students from cultures that respect authority may be receptive to teachers telling and directing them, rather than to inquire, explore, and seek alternative ways (Lee & Fradd, 1998).

During the observation of the teacher's teaching, the lesson delivered by both teachers had left little time for students to acquire a deep understanding of the subject or to develop life-long skills such as critical thinking, problem solving, and communication. In general, the flow of the science classes went through a routine series of events that were constantly replicated. As a teacher entered the classroom, the students would automatically stand up as they responded to salutation and would wait for the silence indicating that, after taking the attendance, the class will continue on a linear path. In the case of going over a new topic, the teacher would introduce the topic by giving a short speech and writing the title on the blackboard. In case of difficulties, the teacher would be willing to help, which was something highly appreciated by the students. This situation fit well into what Tobin and McRobbie (1996) call "the cultural myths" in which teaching and learning science are heavily oriented towards the

transmission of knowledge, being efficient, maintaining the rigor of the curriculum, and preparing students to excel in tests. Teaching is not telling students what the teacher knows but involving students in activities to experience how to learn. Learning is not memorizing a set of facts, but the ability to use resources to find, evaluate, and apply information.

As identified by Logan (1981), in developing countries students faced difficulties in learning science due to the incompatibility of their frame work that related to language. Findings of this study show a parallel situation. Many of the students had difficulties in understanding their teacher oral explanation. In terms of language, the students' responses showed that they felt foreign or unfamiliar with their teacher's language. Kempa (1991) indicates that particular aspects of 'language and communication' which cause learning difficulties are numerous, extending beyond the student's understanding of the meaning of words: the students must face tasks requiring the transformation from one type of language to another. It is assumed that the word 'language' is used in a wide sense that includes all kinds of communication that can generate problems of interpretation during the teaching-learning process. For example as previously described, it can be pointed out that, certain specific problems concerning the use of mathematical language in Physics, especially problems that arise from the interpretation of its symbols. Throughout this finding, it seems that attention needs to be given by the teacher to the importance of providing the language scaffolding to facilitate the students' crossing the border into the language of science.

From this finding, the students seem to have learning difficulties related to the language used by the teacher and the scientific framework. The students described their teacher's language as "high-level language". The student's entire conceptual framework is built into his own language that might be far different from the scientific framework. In term of this learning difficulty, Kempa (1991) mentions various factors as responsible for the 'difficulties in the learning of physics/science', among which he mentions in the following:

> Communication problems arising from language use, e.g., in relation to technical terms or to general terms with context-specific specialized meanings, or the complexity of sentence structure and syntax used by the teacher (compared with the student's own language capacity) (p.120)

The students' difficulties in understanding their teacher's language might have further impact on their limited ability in understanding science by listening to the oral explanation. Oral physics/ science is closely related to language and literacy development (Lee, 1997). Students with limited literacy development in reading and writing often have not developed abstract and hypothetical reasoning. These students also experience difficulties understanding "appropriating" scientific modes of discourse. Thus, they face the challenge of learning to talk in physics/science as well as developing literacy simultaneously (Lee, 1997).

In actual classroom practices in both schools, the teacher's authority was observed as dominant, especially when the teacher is considered as being superior to all the students in the classroom. As this study was conducted in a Javanese

society and since both teachers are Javanese, the hierarchical order based on a person's position or status is highly respected in the Javanese culture. The Javanese culture emphasizes obedience to elderly and/or authoritative figures (Magnis Suseno, 1993; Mulder, 1992, 1996) including teachers. According to the Javanese world view, social relationships should be well ordered and combined into a harmonious totality. Such relationships are hierarchically organized, with people having certain status positions that relate to each other in morally unequal ways (Magnis-Suseno, 1993; Mulder, 1992, 1996). Everyone should know his or her place and duty, honoring and respecting those in higher positions, while remaining compassionate toward and responsible for, those in lower positions (Mulder, 1978). On the other hand, Javanese culture is not conducive for the development of critical thinking ability (Chandra, 2004). A Javanese student might take too much time building the courage to put him- or herself to take on the authoritative figures.

Even though students expressed that they saw physics as a difficult subject; they believed that science is still strongly related to the real world. Based on the students' responses, the characteristics of physics contents that were interesting to them were also relevant to their everyday life, easy to understand and interesting. For most students, to be interested in science, the teaching of science should make them understand science in an easy way, such as approaching everyday life in the form of science experiment or other hands-on activities. In this way, they were able to see how physics concepts related to their interests outside school as they experience everyday life activities.

Based on the beliefs and opinions of students in this study and findings from other research, it could be imagined that the value of supporting students in bringing their interests, experiences, ideas, and emotional responses to science, if they are to be producers of science (Fusco, 2001). Furthermore, Fusco (2001) indicated that, if students encountered any genuine problems they were likely to discharge their science experiences in school as boring or not related to their lives or futures. According to Fusco (2001), youths are disengaged from school science if their funds of knowledge were not incorporated into the science curriculum.

For students to develop their interest in science, their teacher needs to create space in which school science experience and students' funds of knowledge intersect. The students' funds of knowledge are acknowledged as integral and relevant to learning. In this way, the students will be comfortable drawing freely on their linguistic and socio-cultural repertoires to solve a variety of problems together (Basu & Barton, 2007).

Thus, interest in science is seen as a relation among other things by the knowledge a student has in the field; his or her science related self-concept, experience of competence, and self-determined engagement. It also includes various emotional and affective components. The interest could also emerge from the student's interaction with his or her environment.

Conclusion

Evidences from this study show that the students dislike the way in which their teacher relied heavily on the content of science in teaching. The broad

message seems to be that students dislike such activities as the repeated presentation of scientific topics and the dictating or copying of notes. Students expect the learning of science to be more relevant to their everyday life, to include more practical/hand-on activities, and to provide greater opportunity for discussion and participation. This finding validates the importance of incorporating students' cultures and experiences into teaching science that implement or ensure instructional congruence in the teaching of science in an Indonesian setting, which is expected to promote students' engagement in the learning of science and thus making science accessible to more students.

In making science more accessible to students, it is important for teachers implement various strategies and encourage student to take more responsibilities. In the study, however, a variety of teaching methods even all are valuable as instructional tools such as hands-on activities, discussion, experiments, and developing various teaching materials need further improvement. But to begin this job regarding better ways of incorporating students' cultures and experiences into teaching science, the teachers still need to improve and diversify their teaching strategies. They need to put a greater emphasis on delivering inquiry-based and science knowledge in context in their teaching. This effort is expected to allow students to be involved in activities both individually and cooperatively in groups. In order this to happen, teachers need clear instructions in order to facilitate student learning.

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INVESTIGATING NON-ENGLISH DEPARTMENT STUDENTS' MOTIVATION IN EFL WRITING

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Abstract

This research explores students' voices towards motivation in English writing. It particularly scrutinizes the factors influencing students' motivation in the teaching and learning process of writing. The participants of this study were 20 non-English department students enrolled in English IV subject which was a general English course offered by Language Training Centre of Muhammadiyah University of Yogyakarta. The data were collected through a questionnaire with open-ended questions in which the participants were asked to write their opinion and reflection with regard to the issue. The results of this study revealed that there were six factors fostering learners' motivation in EFL writing class. These factors were institutional demands, linguistic needs, enthusiastic and inspiring teachers, engaging activities and tasks, interesting topics, and positive learning atmosphere. The present study suggested that there should be a collaborative negotiation between the teacher and students to create an enjoyable learning atmosphere. This also necessitated teachers to examine learners' needs, institutional expectations, as well as their characteristics and voices in EFL writing.

Keywords: motivation, non-English department students, EFL writing

Introduction

Motivation has long been regarded as one of the primary factors in determining one's success in second and foreign language learning. To verify this view, a large body of literature has attempted to discover the role of motivation in fostering language learning process (see, for example, Dornyei, 1994; Ellis, 1994; Oxford & Shearin, 1996; Gass & Selinker, 2001). Dornyei (1994) asserts that motivation has become one of the principal determinants in learners' achievement in L2 learning. Similarly, Gass & Selinker (2001) propose that it is regarded to be one of predictors for the success of language learning. Oxford & Shearin (1996) believe that motivation determines the learners' active involvement in second or foreign language learning. In other words, they believe that unmotivated learners will not develop their potential ability in mastering L2. In terms of its flexibility, motivation is an area in which teachers can easily influence as it can change over time (Ellis, 1994).

In the principle, motivation is considered to cover broad and complex spectrum when it comes to the language learning process. Gardner (1993), as cited in O'Sullivan (2008), has defined motivation as a complex thing involving three main processes namely desire to accomplish the goal, the effort associated with achieving the goal, and the reinforcement of the act of learning. Dornyei (2014) offers three paradigm of understanding the complexity of motivation answering the major questions of why people behave in that way. Motivation, based on his framework, is responsible for responding "why people decide to do something", "how long they are willing to sustain their activity", and "how hard they are going to pursue it".

Considering its ultimate influence in language learning, several theories have been proposed in order to understand motivation in a deeper way. Thus, this has created some different types of motivation proposed. Gardner and Lambert's (1959) integrative and instrumental theory was the first one of its kind. They proposed that integrative motivation is related to one's desire to communicate in his/her immediate environment and to be able to be accepted in that community. While integrative motivation deals with one's inner aspiration, instrumental motivation includes pragmatic goals e.g. getting a job in the future. Subsequently, Noels' (2001) adaptation to the former framework of motivation has emphasized two dimensions of motivation namely intrinsic and extrinsic motivation. The former concept deals with fulfilling one's own sake e.g. to satisfy one's curiosity. The latter, on the other hand, focuses on the process of pursuing something as a means to achieve an end e.g. achieving some rewards.

Combining some current research findings in the area of SLA and psychology, Dornyei (2005) introduced a theory of L2 motivational system and possible shelves. This framework is aimed at integrating several factors related to the learners, their tasks, and their learning environment into one system. It starts with the essential concept in psychology called possible selves. Psychologically speaking, possible shelves comprise people's future vision of what they likely want and hope. Additionally, they also consist of some tangible images and senses making it more than just a long-term plan. These possible shelves are then realized into ideal self when it comes to the discussion of L2 learning. This is because it is the realization of the concept what people want to be in the future providing some powerful motivational guide for learners.

Further, the proposed L2 motivational system by Dornyei (2005, 2009) consists of three main elements mainly derived from the possible shelves concept. They include ideal L2 self, ought-to L2 self and L2 learning experience. As previously stated, ideal L2 self deals with learners' future vision of L2 which is considered to be a specific facet. This ideal L2 self is said to be a powerful motivator in achieving the success of l2 learning since it brings the actual and ideal self closer. The next concept, ought-to self L2, deals with learners' beliefs of what they need to hold in order to avoid some possible negative results. L2 learning experience is related to their current experience of learning English in their immediate context as well as their former experiences in L2 learning.

Another important concept of motivation framework in language learning is self-determination theory proposed by Ryan and Deci (2000). They emphasize the

importance of both intrinsic and extrinsic motivation to be taken into account by teachers and educators. Their self-determination model is a continuum showing the motivational change undergone by L2 learners. Their framework comprises three main elements namely amotivation, extrinsic motivation, and intrinsic motivation. Amotivation shows learners' lack of competence in completing something. Extrinsic motivation mainly deals with four aspects including external regulation caused by compliance and punishment, interjected regulation caused by self-control and ego-involvement, identified regulation grounded from personal importance and consciousness valuing, and integrated regulation rooted from congruence and awareness. The last of type of this kind, intrinsic motivation, is mainly rooted from interest, enjoyment, and inherent satisfaction in doing something.

Realizing the importance of motivation in fostering L2 learning, a number of studies have been conducted in this area providing different insights of motivation and its strategy in classroom context. Dornyei (1990) investigated learners' motivation in an English course in Hungary. He described that English was considered as foreign language in that country and hence provided very little opportunity for Hungarian students to be exposed to English. The results of his study revealed that instrumental motives play pivotal roles in fostering foreign language learning. The instrumental motives in Dornyei's study are referred to as instrumental motivational subsystem involving several extrinsic motives. Four dimensions of this subsystem are then identified including a general interest in foreign languages, cultures, and people, a desire to expand one's view to avoid isolation, a need of encountering new stimulus and challenges, and a desire to be accepted into certain target community.

Within another EFL context, Tran (2007) conducted a study exploring learners' motivation and identity in EFL writing classroom in Vietnam. The participants involved in her study were thirty English department students in a university in Central Vietnam. The findings of this research revealed that learners' motivation in EFL writing classroom is rooted from the combination of both extrinsic and intrinsic motivation. Extrinsic motivation refers to institutional needs, their linguistic needs, and social needs in learning EFL writing. Intrinsic motivation, on the other hand, involves learners' interest, passion, and inspiration. Another important finding of this study is that learners will perform their potential ability to write independently, creatively, and passionately if they are motivated.

Lai (2013) investigated Taiwanese university students' motivation of learning English seen from various motivational concept of L2. This study employed a survey research with a total of 267 undergraduate students of science and technology major participated. The results of this study showed that most of them study English for travel, instrumental, and integrative motives. Also, the majority of participants are motivated in learning English because of their intrinsic motivation and their ideal shelf. This research reveals that external pressure and ought-to L2 self factor of motivation do not contribute to motivate them in learning English. Though he conducted his survey with "day" and "night" school students, there was no significant difference in their motivation to learn English.

This study is aimed at investigating non-English undergraduate students' voices in writing. It particularly scrutinizes what motivates them in learning to write in English. It portrays some factors affecting and fostering their motivation without classifying motivation into three main categorizations previously mentioned i.e. instrumental and integrative (Gardner and Lambert, 1959), intrinsic and extrinsic (Noels, 2001), and L2 motivational system of ideal-self (Dornyei, 2005, 2009). This research is conducted in integrated English class where students learn writing as a part of four skills to be mastered. Therefore, the students participated in this study do not take writing as an individual skill-based course.

The findings of this study are expected to provide some insights to EFL teachers and some related parties in understanding factors contributing to students' motivation in writing. Pedagogically speaking, the results of this study are also addressed to provide teachers with some ideas of developing syllabuses and materials based on the students' lived experience. Also, appropriate classroom activities and strategies can be derived from the aforementioned facts. Taking into account these findings, writing activities in EFL classroom can be directed to foster students' motivation so that they will successfully master some required macro-and micro-skills of writing.

Research Methods

The present study is aimed at investigating non-English department students' motivation in EFL writing. This study used qualitative research paradigm employing situated approach which investigates the influence of immediate learning context influences learners' disposition and the how motivation affects the learning process in a classroom setting (Shoaib & Dornyei, 2005). Within this framework, the researcher investigated students' perspectives of what motivates the students in EFL writing. The factors perceived by them were some reflections of their learning experience of writing in a general English class over one semester.

The participants of this study were 20 undergraduate students (11 females and 9 males) of Agribusiness Study Program of Faculty of Agriculture, Muhammadiyah University of Yogyakarta. At the time when this study was conducted they were all in their fourth semester. They enrolled in English IV course, a general English course offered by the Language Training Centre of UMY at the academic year of 2015/2016. The reason for choosing the participants was the feasibility to meet them twice a week offering some flexibility in conducting this research. Also, the fourth-semester students were chosen since they have had some previous learning experiences of writing since the LTC UMY has offered six series of general English course. This meant that the students' experiences could help them reflect their motivations in EFL writing deeply.

The data were collected through a questionnaire consisting six open-ended questions following Tran's framework (2007). This technique was chosen to allow students to express their attitudes and perspectives in regard to motivation in EFL writing freely. In addition, Chamot (1995) believes that this would enable each voice of the participants to be taken in to be regarded and therefore recognizes their various attitudes towards the issue. The students participating in

this study were allowed to fill the questionnaire either in Bahasa Indonesia or English. By so doing, they were given more opportunity to reflect their own practices and experiences in learning writing. Therefore, the students would feel convenient in expressing their ideas in a more detailed way.

Findings and Discussion

The analyzed data showed that there are several main factors considered by the students to contribute as main themes concerning their voices and perspectives in learning EFL writing. They are categorized into institutional demands, linguistic needs, enthusiastic and inspiring teachers, engaging activities and tasks, interesting topics, and positive learning atmosphere.

Institutional Demands

Some students express their view that institutional demands play an important role in fostering their motivation. As previously mentioned, the students participated in this study was in their English IV course meaning that there will be two upcoming English classes later. Understanding some skills taught in this English course will become a basis for the next courses. Since this course contributed to their GPA later on, they had to perform well in all assignment and assessment including writing. The following extract from the students' questionnaire revealed their motivational attitudes affected by institutional demands.

> **Extract 1**
> *I want to succeed in this course because I will have two more classes in the next semester, so I have to be able to understand writing skills. (S5, translated by the researcher)*

> **Extract 2**
> *If do not pay attention to the teacher's explanation and practice my writing skills regularly, my grade will be lower than what I got last semester. (S1, translated by the researcher)*

> **Extract 3**
> *The English course offered by PPB (LTC UMY) is an integrated course in nature. Therefore, I have to learn and understand all skills including writing which is very important recently. (S17, translated by the researcher)*

Linguistic Needs

Based on the students' voices, linguistic needs also contributed to foster their motivation in the teaching and learning process of writing. There were three main themes emerging from the students' linguistic needs of mastering EFL writing. First, the students perceived that English has been regarded as an international language making it important to learn. With regard to the Southeast Asian context, they also added that the emergence of AEC (ASEAN Economic Community) has also fostered their motivation in learning EFL writing. Second,

they thought that English would be important in fulfilling the expectation of their future jobs. Some students even mentioned that they were willing to be a lecturer, agricultural researcher, and multinational company employee in the future. Third, the students were also motivated in EFL writing to tackle some opportunities coming upon their graduation. One of the most frequent answers related to the future chance was the availability of scholarship to study abroad provided by Indonesian government, institution, and other countries. To be able to study abroad, they need to achieve sufficient score in writing part of the accepted English proficiency test i.e. TOEFL and IELTS. The students' voices towards this issue could be seen from the following extracts.

Extract 4
In the AEC (ASEAN Economic Community) era, English is really needed in our everyday life both for formal and informal purposes. (S8, translated by the researcher)

Extract 5
Currently, English is an international language connecting many people from different countries. Therefore, mastering English and writing skills are very important. (S1, translated by the researcher)

Extract 6
I want to be a lecturer in the future. This requires me to be able to write in English since I have to submit papers and research reports as part of my obligation. (S4, translated by the researcher)

Extract 7
I want to continue my masters degree abroad and get a scholarship to finance my study there. To do so, I need to master writing since it is essential to make CV, study objective, and research proposal. It is also important to be mastered since it will increase my English proficiency (TOEFL, IELTS) score. (S2, translated by the researcher)

Enthusiastic and Inspiring Teachers

Enthusiastic and inspiring teachers were also found to foster students' motivation in EFL writing. Teachers' enthusiasm was realized in providing feedback and scaffolding the students in teaching and learning process. Feedback was perceived to help them monitor their progress in writing. Further, the students believed that by monitoring their progress they could see their own weakness so that they could be better a writer. Another indicator of teachers' enthusiasm perceived by the students was providing scaffolding. They believed that scaffolding provided them opportunity to do their writing systematically and thus improved their motivation. While teachers' enthusiasm was manifested in feedback, students also thought that teachers should incorporate sharing session on successful figure in writing. Based on their view, this could be done by telling

them the success story of someone winning a scholarship or someone becoming a well-known writer.

Extract 8
When I know my mistakes in writing, I will be motivated to learn and practice more. I also learn many things including grammar and other aspects through teachers' correction (feedback). (S10, translated by the researcher)

Extract 9
I like to get brainstorming activity at the beginning of the lesson since it helped me a lot to do writing process systematically. (S6, translated by the researcher)

Extract 10
A success story of certain people who win the scholarship or are famous writers improves my motivation in writing. When the teacher tells such story, I will do my best in writing. (S14, translated by the researcher)

Engaging Activities and Tasks

According to the students, engaging tasks and activities were one of the factors fostering their motivation in EFL writing. They preferred to be taught in an interesting way rather than simply followed what their course book suggested. Also, the students felt that teachers often used monotonous activities in practicing writing in the classroom. Based on their opinion, there were two main instructional activities considered engaging to be applied in the writing class. These included games and technology-based activities. In terms of technology-based activities, they proposed song, short movies, and videos in motivating them to write.

Extract 11
My teacher showed us a video at the beginning of the lesson. Then, he brainstormed the idea and asked us to write the explanation of the video. I think it is always interesting to learn English through video. (S3, translated by the researcher)

Extract 12
Games are exciting activities to be done in the class. This is because following the sequence of course book is sometimes boring so we need some enjoyable activities. (S2, translated by the researcher)

Extract 13
When the teacher only teach writing without games, I sometimes feel bored and thus makes me reluctant to write maximally. By playing games in the class, I will be more excited in writing English. (S8, translated by the researcher)

Interesting Topics

Topic selection was regarded by the students to motivate them in writing English. Interesting topics, based on the students' perspectives, were those related to their daily life and those dealing with college students' life. These aforesaid topics were familiar to the students and it also provided some background knowledge to them. In addition to the two topics previously stated, the students also mentioned entertainment, sport, technology, and future aspiration providing motivation for them in EFL writing. Previous studies suggested that when students are familiar to the topic, they will find it much easier to connect their experience to their writing. The students' perspectives towards this issue can be seen in the following extracts.

Extract 14

Topics related to daily life motivate me in writing rather than any topics I haven't known before. (S8, translated by the researcher)

Extract 15

I think I will be more interested in writing if the teacher some topics which are familiar to us including college life, students' organization, and our daily life. Topics like sport, entertainment, and future job are also interesting for me. (S11, translated by the researcher)

Positive Learning Atmosphere

The students also stressed the importance of positive learning atmosphere in the teaching and learning process of writing. Positive learning atmosphere was perceived to have a closer connection to the former factor contributing to foster students' motivation i.e. engaging tasks and activities as well as interesting topics. It included relaxing and less intimidating atmosphere considered to create conducive classroom environment. The students also indicated that sharing their ideas and works to other students provided more enjoyment in EFL writing.

Extract 16

I really like relaxing classroom where the teacher does not explain the theory of writing too much but guides us to practice our writing in systematic steps. (S12, translated by the researchers)

Extract 17

My motivation in writing improves when I can share my writing to other classmates. I can then get their comments in regard to the content of my writing. (S9, translated by the researcher)

The above finding is consistent with some motivational factors perceived by EFL/ESL learners as investigated in previous studies. Tran (2007) argues that learners' motivation in writing in the Vietnamese EFL context is generated from both extrinsic and intrinsic motivation. In other words, learners' motivation in EFL writing is shaped by both their personal and contextual aspects of writing.

She mentions that institutional needs (marks), linguistic needs, and social needs are essential in fostering learners' motivation in regard to the extrinsic motive. In addition to these factors, learners also believe that their intrinsic motivation such as interest, passion and inspiration contributes more significantly compared to those of aforesaid factors.

Conclusion

This study sought to investigate the factors influencing non-English department students' motivation in EFL writing. The data were derived from an open-ended questionnaire distributed to the fourth semester students enrolling in English IV course at LTC UMY. The findings of the present study indicated that there were six motivational factors fostering their motivation in EFL writing including institutional demands, linguistic needs, enthusiastic and inspiring teachers, engaging tasks and activities, interesting topics, and positive learning atmosphere. Taken into account these aforementioned motivational aspects in learning EFL writing, it is considered essential for teachers to scrutinize students' needs, institutional expectations, as well as their characteristics and voices. It is then suggested that teacher make a constructive collaboration in negotiating the activities, tasks, assignments, and assessment in the classroom in order to maximize and boost their motivation in EFL writing.

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PRIMARY SCHOOL PRE-SERVICE TEACHERS' PERSPECTIVES ON PRIMARY YEARS PROGRAM AND ITS IMPLEMENTATION

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Abstract

As one of the most widely used international primary curricula in the world, the Primary Years Program (PYP) introduced by the International Baccalaureate Organization (IBO) has significantly increased its number of world schools in the Asia Pacific region including Indonesia. With the increased number of IB World Schools in the country, there comes a need to prepare for teachers qualified for teaching using the PYP as their framework. Indonesian higher educational institutions are therefore required to not only prepare teachers qualified in their teaching profession but also those having an open mind towards international education in general. It is important, then, to have insights on what these pre-service teachers think about international primary education, especially about the PYP and its implementation in primary schools in Indonesia. These perspectives will make useful raw data on the characteristics of Indonesian primary pre-service teachers and their readiness to take their professional career in any international primary schools including the IB world schools.

Keywords: primary school pre-service teachers, Primary Years Program (PYP)

Introduction

In a globalized world where there is almost no barrier of communication between countries, there is a need for individuals to connect to each other and be part of the world. Responding to this situation, educational institutions are taking more and more responsibilities to prepare these individuals to take part in this global citizenship. They are liable to endue young generations attending schools with international-mindedness that will aid them to become more conscious of their roles and contributions as part of the globalized world and, thereby, as members of an international community.

The International Baccalaureate Organization (IBO) founded in 1968 is one non-profit educational organization concerned with this global citizenship issue. Having the mission to develop inquiring, knowledgeable and caring young people who help to create a better and more peaceful world through intercultural understanding and respect (International Baccalaureate Organization, 2007:4), it offers every level of education a program aiming to help schools across the world

develop active, compassionate students and lifelong learners who understand that other people, with their differences, can also be right. In general, it aspires to encourage well-rounded students with characters …

> … who respond to challenges with optimism and an open mind, who are confident in their own identities, make ethical decisions, join with others in celebrating our common humanity and are prepared to apply what they learn in real-world, complex and unpredictable situations. (International Baccalaureate Organization, 2012:2)

Inspired by this mission, many schools around the world have started to adopt at least one of the International Baccalaureate (IB) programs and have now called themselves IB World Schools. In the Asia Pacific region alone, its specialized program offered at the elementary level – the Primary Years Program (PYP) has undergone significant growth during the past ten years. By the end of 2013 the program has been adopted by more than 800 schools in the region compared to only 175 schools in 2004 (check http://ibo.org/facts/schoolstats/growth.cfm for more accurate current data). The substantial growth can also be witnessed in Indonesia since its first school authorization in 1978. Among 40 IB World Schools offering one or more of the three IB programs in the country, there have been 28 schools offering the PYP. This number will likely increase in the near future considering the fact that there are still a number of candidate schools waiting to be authorized as IB World Schools.

Considering its progressive mission as well as taking into account its significant growth in its number of schools around the world and specifically in Indonesia, the Primary Teachers Education Program of Sanata Dharma University Yogyakarta has the initiative to introduce the program to its junior or third-year students through an elective course labelled as Primary Years Program (PYP). It is expected that, by learning about the PYP, these primary pre-service teachers can also learn and have insight about a new curriculum other than the one issued by the Indonesian government. Further, by learning about this international curriculum, the students preparing themselves to be primary in-service teachers can broaden their understanding about how the educational world works and, thereby, can make better decisions concerning their teaching profession later in the future.

Along with the fast number of growth of primary schools adopting the PYP framework, it becomes essential to prepare teachers who are not only capable of teaching within the framework but also have an open mind to adapt themselves to the mission and vision of the IB PYP. Their perspectives on how the framework should be adopted and implemented by local schools becomes vital as they are likely to gain their teaching profession in their local context. Further, because these pre-service teachers will likely to be the spearheads in any educational institutions they will belong to, their views on the curriculum adopted and implemented becomes even more important as these views will affect the decisions and choices they make during the teaching and learning processes.

The Primary Years Program (PYP)

The Primary Years Program (PYP) is one of the four instructional programs offered by the International Baccalaureate Organization (IBO). It was pioneered by an idea for a program for students aged 3-12 discussed at the ECIS (European Council of International Schools) Conference in Rome in 1990. Kevin Bartlett from Vienna International School led a steering committeestarting the International Schools' Curriculum Project (ISCP) ages 3-12 in 1992 before the project was finally introduced by the International Baccalaureate Organization as the Primary Years Program in 1997. Along with its other three programs, i.e. Middle Years Program (MYP), Diploma Program (DP), and International Baccalaureate Career-related Certificate (IBCC), the PYP aims to develop knowledgeable and caring young generation who always inquires in order to help create a better and more peaceful world through respects and cross cultural understanding. It aims to develop learners who strives to be inquirers, knowledgeable, thinkers, communicators, principled, open-minded, caring, risk-takers, balanced, and reflective.

The PYP framework consists of three curricula, i.e. the written curriculum, the taught curriculum, and the assessed curriculum. The written curriculum is designed to answer the question "What do we want to learn?" as it serves as the framework identification of what is worth knowing. The taught curriculum is aimed at providing answers to the question "How best will we learn?" for it consists of the theory and application of good classroom practice. The assessed curriculum responses to the question "How will we know what we have learned?" by providing the theory and application of effective assessment. The relationship of these three interrelated curricula is depicted in the picture that follows.

Figure 1. PYP Definition of Curriculum (International Baccalaureate Organization, 2007:7)

The picture shows that the PYP curriculum is a composite curriculum where each component is equally valued. The double-headed arrows indicate that

developing, implementing, and assessing the curriculum is an iterative process where each component informs the other two. In all, this process is aimed at facilitating the learning process in which learners construct their own knowledge and understanding.

The written curriculum of PYP comprises five essential elements that students need to learn and acquire during their study at an IB school. Those elements are concepts, knowledge, skills, attitudes, and action. *Concepts* are solid ideas not only relevant to but also beyond subject matters. This means that students need to re-examine the ideas over and over so that they can construct deeper understanding of the subject matters in hand.*Knowledge* is all the relevant and significant information of which we want the students to know and inquire by taking into account their previous experiences and understanding.*Skills* are disciplinary as well as transdiciplinary abilities that students need to possess and demonstrate in order to be able to succeed in a challenging and continually changing world. *Attitudes* are dispositions which are expressions of fundamental values, beliefs, and feelings about learning, environment, and people. *Action* is demonstration of deeper learning in responsible behaviour through responsible action. It is a practical manifestation of the other four essentialelements.

The concepts element consist of eight notions significant for designing a transdisciplinary curriculum. The first four notions are *form*, *function*, *causation*, and *change* which signify the questions, "What it is like?", "How does it work?", "Why is it like it is?", and "How is it changing?" respectively. The other four notions are *connection*, *perspective*, *responsibility*, and *reflection*. Each of them correspondingly address the conceptual questions "How is it connected to other things?", "What are the points of view?", "What is our responsibility?", and "How do we know?".

The knowledge element elaborates the importance of traditional subject areas, i.e. language; mathematics; social studies; science; personal, social and physical education; and the arts. These areas are taught through a transdisciplinary model where there is no separation among them. This transdisciplinary model is achieved through six transdisciplinary themes considered essential in the context of a program of an international education. These themes are *Who We are*, *Where We are in Place and Time*, *How We Express Ourselves*, *How the World Works*, *How We Organize Ourselves*, and *Sharing the Planet*. The International Baccalaureate Organization selected these themes because they …

- have global significance—for all students in all cultures
- offer students the opportunity to explore the commonalities of human experience
- are supported by knowledge, concepts and skills from the traditional subject areas but utilize them in ways that transcend the confines of these subjects, thereby contributing to a transdisciplinary model of teaching and learning
- will be revisited throughout the students' years of schooling, so that the end result is immersion in broad-ranging, in-depth, articulated curriculum content

- contribute to the common ground that unifies the curriculums in all PYP schools

(International Baccalaureate Organization, 2007:11)

Along with the development of the conceptual knowledge, PYP students also need to develop their transdisciplinary skills such as *thinking skills*, *social skills*, *communication skills*, *self-management skills*, and *research skills*. Each of these five essential skills cover a number of specific skills and all of them are valuable, not only in the process of designing the lessons, but also for any teaching and learning activities that goes on within the classroom as well as in life outside the school (International Baccalaureate Organization, 2007:21).

The PYP framework recognizes that knowledge, concepts, and skills alone do not necessarily create an internationally-minded person. PYP learners need to develop personal attitudes towards other people, towards the environment and towards their learning itself. These attitudes should contribute to the well-being of the learners themselves as well as of the group of which they belong to. The attitudes that the PYP strives to nurture in its every learners are *appreciation*, *commitment*, *confidence*, *cooperation*, *creativity*, *curiosity*, *empathy*, *enthusiasm*, *independence*, *integrity*, *respect*, and *tolerance*.

The last element in the PYP framework is action. Responsible actions are believed to be the results of the learning processes initiated by students. The framework provides every student with the right and opportunity to be involved in the actions either individually or in groups. The action element can encompass services to self, to fellow students, to staff, or to community. Through this service, it is expected that students can develop themselves both individually and socially, develop their cooperative, problem-solving, conflict-resolution, as well as creative and critical thinking skills. The actions are ways of which students show their commitment to achieve the PYP learner profile and of which teachers always strive to encompass in every learning in every PYP class. Moreover, specific actions that students choose can be considered as the most significant summative assessment indicating the success of the implementation of the PYP framework. The PYP written curriculum and its essential elements can be summarized in the following picture.

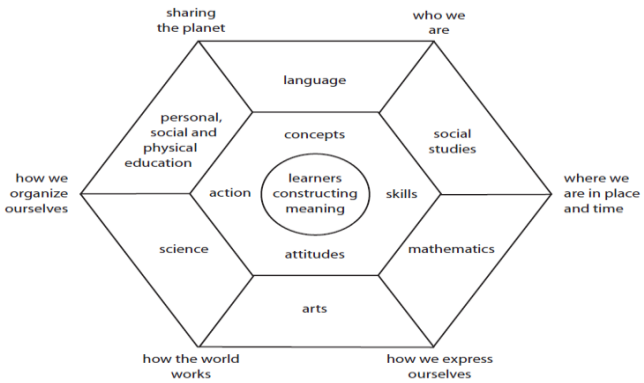

Figure 2. The Synthesis of the Essential Elements of the PYP (International Baccalaureate Organization, 2007:58)

The taught curriculum of PYP is basically its written curriculum in action. It synthesize five essential elements of learning in three main ways, i.e. through the learner profile, the exploration of conceptually based central ideas, and the collaborative planning process.The PYP believes that every student is a unique individual that actively involves in and takes responsibility for their own learning. Hence, students will become more enduringly skillful when the learning is authentic and in context. Parallel to this belief, the PYP intends to support students' efforts to construct meaning from the world around them by drawing on their prior knowledge, by providing provocation through new experiences, and by providing time and opportunity for reflection and consolidation (International Baccalaureate Organization, 2007:9). In short, PYP means to assist students to move from their current level of understanding to a new and deeper level of understanding through the processes initiated by the teacher or the students themselves. Simply put, it aims to facilitate students to use their background knowledge to approach new situations and to ask questions to find out more (Babin & Binns, 2011). In its broadest sense, then, this is known as the inquiry approach and has become the spirit of the PYP since its inception. The inquiry cycle in the PYP is depicted in the figure below.

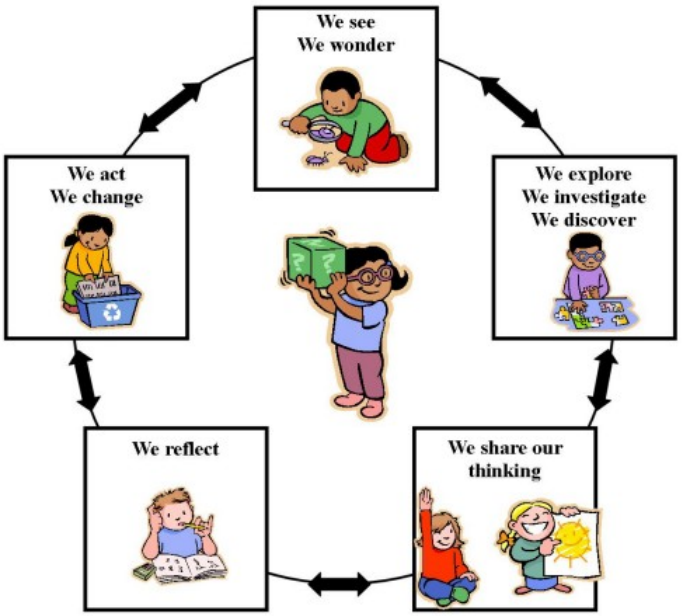

Figure 3. The Inquiry Cycle in the PYP (graphic fromhttp://www.summit.k12.co.us/Page/1714)

The cycle shows that students are triggered by what they see and what are interesting around them. As they observe this phenomenon or problem, they are guided to explore and investigate in order to discover answers to the observed phenomenon or problem. In the next phase of inquiry, teacher will need to encourage the students to share their thinking and findings and, later, reflecting on their as well as others' discoveries. This reflecting session is important because it

will empower the students to choose and act a certain action that will make a change, as small as it can be, to the world around them.

The assessed curriculum, as its name indicates, proposes to provide feedback on the students' learning process by collecting and analyzing information about students' performance. The PYP approach to assessment recognizes the importance of assessing the students' process of inquiry as well as the product(s) of inquiry and aims to integrate and provide support to both entities. As PYP focuses on students' learning, its assessment will consider obviously consider the nature of students' inquiry, students' awareness, and mastery of skills, comprehensive knowledge base, independence and their ability to work collaboratively. PYP teachers, as a consequence, are encouraged to use various types of assessment strategies (e.g. observations, performance assessments, process-focussed assessments, selected responses, open ended tasks, etc.) as well as assessment tools (e.g. rubrics, exemplars, checklists, anecdotal records, etc.).

Overall, and just like any other IB programs, the PYP is laden with three basic tenets underlying the IB philosophy. These beliefs, as Erickson (2008) elaborates, are *holistic learning*, *intercultural awareness*, and *communication*. By holistic learning, the IB PYP means to encourage students to consciously learn how to learn and use their metacognitive skills and prior knowledge to construct their own knowledge and, thereby, create deeper understanding. Through intercultural awareness, the IB PYP is committed to help students to develop attitudes, knowledge, and skills that reflect their international-mindedness and be ready to be part of global citizenship by knowing other cultures as well as their own, focusing on global issues, becoming informed and sensitive to the experiences of others, and providing service to local, national, or international communities. By means of communication, the IB PYP seeks to assist students to develop a strong command of verbal and nonverbal communication by encouraging their proficiency in one or more additional languages, promoting understanding and appreciation of the arts as well as information technologies as other modes of communication.

The Implementation of Primary Years Program in Indonesia

As mentioned previously, among all the IB world schools in Indonesia, the PYP framework is adopted by 28 schools of which most of them are labelled as international schools. These schools spread across the three biggest islands in Indonesia (i.e. Sumatra, Java, Kalimantan) and West Nusa Tenggara. Labelled as international schools, however, the schools adopting the PYP framework still strive to adopt the customs, cultures as well as local values of the societies where they are located. This is important because, in order to develop an individual with an international-mindedness, it is necessary to develop their awareness of the local values of the community to which they belong first.

In accordance with the framework, the learning and teaching processes in the schools are organized around six transdiciplinary themes with each theme encompasses one or more ideas of the five essential elements of the PYP framework. Working cooperatively, class teachers are responsible for developing

six units of inquiry – with each unit covering one transdisciplinary theme – specifically designed for their classes. Put together, all the units of inquiry that the teachers design for their classes will form the schools' program of inquiry.

Research Method

This research was a one-shot pre-structured qualitative survey aiming at studying the diversity of perspectives on the PYP framework and its implementation among primary pre-service teachers of Primary Teacher Training Program of Sanata Dharma University. Unlike statistical surveys, this qualitative survey aimed to determine the variation of the primary pre-service teachers' perspectives on the topic in question and does not mean to establish frequencies, means or other statistical parameters (Jansen, 2010). It was categorized as a pre-structured qualitative survey because, as further put by Jansen (2010), the categories of questions were defined beforehand and the identification of the answers to the questions was completed through a structured questioning protocol using a questionnaire. Further, this study was claimed to be one-shot survey for it only involved one empirical cycle of generating research question, data collection process, data analysis, and report writing. The steps of which it was conducted can be illustrated as follows.

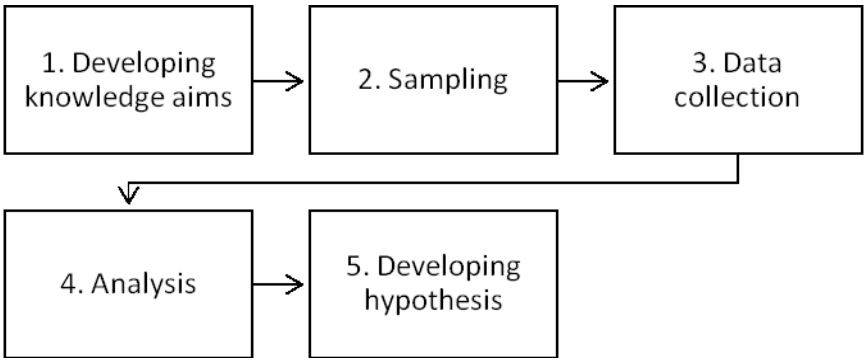

Figure 4. The Steps of Qualitative Survey (adapted from Jansen, 2010)

The figure shows that there are five main steps of which the study was proceeded. The first step of developing knowledge aims covers things like determining the topic (the PYP and its implementation) and its aspects (primary pre-service teachers' perspectives) under study. The sampling step encompasses the method of sample selection as well as the criterion of the size of the population. This study took 82 sixth semester students taking the PYP course as their elective subject as its subjects under study. Further, for the purpose of practicality, these students were chosen among all the six classes taking the course non-randomly. They were the students belong to the classes where the researcher taught the PYP course.

The third step of the qualitative survey procedure is the data gathering step. The step initiated with the construction of a questionnaire as the major instrument of this research. The questionnaire in question included both closed and open questions aiming at elaborating the perspectives of the research subjects on the

topic being investigated. It was constructed in the students' native language so that there was no misunderstanding about the instruction and the interpretation of the questions. Further, to ensure its response rate, the questionnaire was distributed as one of their compulsory assignments during the course.

Analysing the data gathered through the questionnaire is the next step in this research. This phase included coding the data and classifying them into categories. The result of the coding and categorization of data was then described and synthesized to form patterns and concepts. It was also the phase where the relationships between concepts and patterns were explained thoroughly based on the PYP literatures and practices. Once the explanation was complete, a hypothesis which was based on the data analysis could be formed as the last step of the research. The hypothesis then served as the conclusion of the research as well.

The instrument of this research was a questionnaire containing seven questions related to PYP and the students' perceptions on the curriculum as well as its possibility of implementation in their own local educational context. Before being distributed to the students, the questionnaire had been validated by two other lectures teaching the PYP course. The researcher had also tested its readability to two students chosen randomly from the other four classes not being used as the sample of the study.

As the aim of this research was to identify the variation of the primary pre-service teachers' perspectives on the topic in question, answers from the filled-out questionnaire gathered from the 82 studentswere categorized and analyzed based on their similarities and differences. The students' responds were grouped based on the seven questions in the questionnaire and then compared to see their resemblances as well as variances. As the patterns of resemblances and variances appear among their various responses, analysis on the patterns were made to answer the question proposed at the beginning of the study.

Results and Discussion

In response to the first question *What does the PYP look like?*, it could be summed up that the respondents viewed the PYP as a concept-based curriculum designed for students aged three to twelve years old. The curriculum encompassed six subjects, i.e. Language, Social Studies, Mathematics, Arts, Science, and PSPE (Physical, Social, and Personal Education), which are covered in six transdisciplinary themes, i.e. *Who We are*, *Where We are in Place and Time*, *How We Express Ourselves*, *How the World Works*, *How We Organize Ourselves*, and *Sharing the Planet*.

The respondents also shared beliefs that the PYP would help learners to have positive attitudes toward learning and, hence, would help them to be lifelong learners through its emphasis on inquiry learning. It was also agreed that ithelpedfacilitate learners to be global thinkers through the use of more than one language in its teaching and learning processes as well as through the exhibition project that the learners needed to organize at the end of their learning period. The followings are the excerpts taken from the respondents' responses showing the elaborated points.

> … dalam PYP sudah disepakati untuk menerapkan kurikulum yang dimotori oleh konsep sebagai sarana untuk mendukung inkuiri. Ada delapan konsep yang ditetapkan sebagai konsep yang sangat penting yaitu bentuk, fungsi, sebab akibat, perubahan, hubungan/keterkaitan, sudut pandang, tanggung jawab, dan refleksi/perenungan. Konsep tersebut diuraikan dalam bentuk pertanyaan-pertanyaan inti yang nantinya akan digunakan oleh guru dan siswa secara fleksibel ketika merancang unit yang berdasarkan inkuiri. (S166)
>
> Di tahun akhir program PYP, siswa akan membuat proyek sederhana, disebut *exhibition*, secara berkelompok. Tujuannya adalah untuk melatih siswa dalam menerapkan pengetahuan yang mereka dapat di kelas ke dalam proyek-proyek kreatif. (S233)
>
> Setiap siswa diharuskan mempelajari lebih dari satu bahasa yang terdiri dari satu bahasa utama dan minimal satu bahasa tambahan. Tujuannya adalah agar siswa mampu berkomunikasi di dalam dunia pergaulan internasional serta bisa menghargai keragaman budaya di dunia. (S258)

All in all, as indicated by the following quotation, the respondents agreed that the PYP aimed to develop learners who, as stated in its learner profile, were knowledgeable, caring, reflective, inquirers, open-minded, communicators, risk-takers, principled, balanced, and thinkers.

> Dalam kurikulum PYP ini, siswa diupayakan untuk memiliki rasa ingin tahu (*inquirers*), berpengetahuan luas (*knowledgeable*), berpikir kritis (*thinkers*), komunikator (*communicators*), berprinsip *(principled*), berpikiran terbuka *(open-minded*), memiliki kepedulian *(caring*), berani menanggung resiko *(risk-takers*), seimbang *(balanced*), dan reflektif *(reflective*). (S192)

The second question on the affordances and constraints of the PYP revealed more various responses. These issues of affordances and constraints were divided into three categories, i.e. those in the planning phase, in the teaching and learning processes, and those in the assessment phase. What follow are summaries of the respondents' responses concerning the strengths and weaknesses of each of the phases mentioned previously.

In relation to the planning phase, the respondents stated that one of the affordances of the PYP laid on its focus on its six transdisciplinary themes. It also had guidance on how to design a Program of Inquiry (PoI) for one year. It also came with a PYP planner which was very useful in creating a Unit of Inquiry (UoI). This UoI could last for several weeks and so there was no need to create a lesson plan every time the teacher came to class. Another strength, as the respondents expressed, laid on the requirement of collaborative planning on the part of the teachers to ensure the smoothness of UoI implementation in real classroom contexts. Below are the excerpts indicating the points.

> Perencanaan materi dalam PYP sudah tersusun secara jelas dan diimplementasikan dengan tema-tema … (S202)

> *Planner* dibuat dalam setahun sehingga guru tidak perlu membuat RPP setiap hari. (S135)
> … Dalam merencanakan kegiatan pembelajaran, guru kelas berkoordinasi dengan guru kesenian dan guru penjaskes sehingga kegiatan pembelajaran menjadi terarah dan menjadi satu kesatuan yang utuh. (S241)

Apart from its affordances, the respondents also noted some constraints. The most common statement found out through the documented responses was that planning in the PYP was harder than that in the national curriculum because it had to be detailed for every UoI. As a consequence, the planning phase would require more time than that of the national curriculum. The followings are the extracts illustrating the point.

> …Penyusunan rencana pembelajaran pada kurikulum PYP cukup rumit (dalam penyusunan membutuhkan pengetahuan dan keterampilan dalam penyusunan PoI yang harus mencantumkan 8 konsep secara merata) dibanding penyusunan rencana pembelajaran pada kurikulum Indonesia. (S192)
> Penyusunan rencana pembelajaran membutuhkan waktu lama. (S002)

Interestingly, while the respondents suggested that collaborative planning was one of the strengths of the PYP planning phase, it was also considered as one of its biggest constraints as shown by the excerpts below.

> ... harus melibatkan banyak guru yang terdiri dari semua kelas untuk membuat pembelajaran yang berbeda-beda, namun tetap berkesinambungan. (S012)
> Dalam membuat *planner* dibutuhkan kolaborasi dengan banyak guru, sedangkan kurikulum nasional guru mampu membuat planner tanpa bantuan kolaborasi. (S183)

Concerning its teaching and learning processes, the respondents noted that student-centeredness was one of the PYP affordances. Besides, as it lived on the spirit of inquiry, they reported that the PYP could enhance students' problem solving skills. This, as they suggested further, would encourage students to be reflective learners who were responsible for their own learning. Another affordance proposed by the respondents was the fact that the PYP could be made contextual to the students' circumstances, be it in their local state or in more global contexts. Accordingly, there were abundance of resources that could be used in the teaching and learning processes. The following are the quotations indicating these points.

> Pembelajaran berpusat pada siswa. Keterampilan analisa, membuat laporan, dan berpikir kreatif lebih dilatih. (S081)
> Siswa terlibat dalam penyelidikan dan pengembangan pembelajaran sehingga mereka memperoleh kesadaran dan pemahaman diri akan proses belajar yang mereka lalui, karena siswa di sini sebagai subjek pembelajaran (*student-centred*). (S159)

> … PYP memberikan provokasi agar siswa ingin tahu kemudian memberi waktu kepada siswa untuk melakukan refleksi dan konsolidasi. (S264)
> … mendorong siswa untuk mengembangkan kemandirian dan mengambil tanggung jawab atas pembelajaran mereka sendiri sehingga siswa akan lebih aktif. (S124)
> … bertumpu pada pengembangan kemampuan belajar siswa lewat pembelajaran secara inkuiri, siswa belajar dari konsep, ide, dan isu yang memiliki signifikansi lokal dan global sehingga dapat mengembangkan pemahaman di berbagai disiplin ilmu … (S196)
> … PYP menggunakan semua yang ada di kelas (baik guru maupun teman) dan di luar kelas (keluarga dan lingkungan) sebagai sumber-sumber belajar. Jadi sumber belajar bukan terbatas pada buku saja. (S270)

Despite affordances in the teaching and learning processes of the PYP, the respondents reported some notable constraints as well. One of them was the difficulty that local teachers might have to deal when they had to implement the PYP in a class with a large number of students. Unavailability of textbooks as well as affordable media and resources within the local frameworks made it more difficult for any local school wishing to adopt the curriculum. This was made even more difficult by the fact that, as the respondents underlined, the PYP required any internationally accepted language to be its medium of instruction. This was a quite noteworthy constraint because local teachers might not have enough proficiency in any of these languages. The excerpts below help clarifying the points.

> … untuk dapat memfasilitasi siswa tidak mudah, oleh karena itu jumlah siswa pada setiap kelas harus dibatasi supaya guru mampu melihat bagaimana perkembangan setiap siswa. … Media pembelajaran dan lingkungan belajarpun harus lebih diperhatikan … (S012)
> Panduan seperti buku ataupun fasilitas pendukung lainnya sulit didapat. Guru di Indonesia masih banyak yang kesulitan karena silabus, RPP dan materinya menggunakan bahasa Inggris. (S211)

The assessment phase of the PYP, as the respondents reported, comprised some affordances as well. The use of student portfolios in the process and product assessments as well as the use of such portfolios in the formative and summative assessment processes were among those affordances. Some ways of reporting the results of student assessment, such as the three kinds of conferences (i.e. teacher-student conference, teacher-parent(s) conference, and student-led conference) held in the PYP and also the exhibition served as demonstrations of what the students had learned throughout their learning journey in the PYP were also considered as affordances of the PYP assessment stage. Below are the excerpts suggesting the ideas.

> … kurikulum ini menggunakan teknik penilaian portofolio anak dan dapat ditambahkan juga dengan observasi kinerja anak. Jadi, dalam kurikulum ini yang dinilai adalah bagaimana siswa tersebut berproses dari hari ke hari setiap hari … bukan hanya sekedar hasil akhirnya saja yang menjadi penilaian bagi guru. (S012)
> Penilaian dilakukan melalui penilaian formatif dan sumatif, selain itu siswa melakukan pameran di akhir program. Pelaporan dilakukan melalui beberapa cara yaitu *student-led conference*, *teacher-parent conference*, *teacher-student conference*, *three-way conference* dan *written report*. (S135)

The assessment phase of the PYP, however, was not without constraints, as the respondents suggested. The two major limitations noted were the difficulties in developing rubrics for assessing the student performances and the amount of time and energy that teachers needed to allocate in observing or assessing their students. The following quotations will help clarify the points.

> Kendala guru yaitu membuat rubrik penilaian, karena yang dinilai mencakup beberapa ranah yaitu ranah kognitif, afektif, dan psikomotorik. (S091)
> Memerlukan pengamatan menyeluruh dalam penilaian, sehingga guru memerlukan waktu dan tenaga ekstra. (S004)

The third query about whether it was relevant or not for a school to adopt and implement the PYP derived two varied responses. The majority of the respondents (around 80 per cent) believed that it was appropriate to adopt and implement the framework because of its fun and innovative learning and teaching processes. Besides, they agreed that the inquiry practices in the curriculum would help students to develop their creativity, their critical thinking skills and their foreign language proficiency. They could also help shape their characters as well as help them to learn to appreciate differences among them. Further, they noted that the PYP would help students understand things better than simply knowing facts. They also suggested that the curriculum was applicable in the local contexts because of its resemblances to the 2013 Curriculum that the government had decided to put into practice earlier this year. Some extracts illustrating the points are presented below.

> Cara pengajaran yang lebih bervariasi, kreatif, dan inovatif membuat siswa senang dalam belajar, memudahkan siswa mencerna hal yang mereka pelajari … (S046)
> … dalam kurikulum PYP, siswa akan mendapatkan banyak pengetahuan yang lebih luas tetapi mandiri dan selalu mengajak siswa untuk berpikir kritis dan kreatif. (S185)
> … siswa tersebut menguasai bahasa Inggris dan IT yang baik tanpa meninggalkan unsur kearifan lokal … (S068)
> Dalam kurikulum PYP juga ada sikap-sikap yang hendak dicapai oleh siswa seperti toleransi, kreativitas, kerja sama, kepercayaan diri, empati, komitmen, kepedulian, dll., sehingga sangat baik jika

> dipelajari oleh siswa untuk mengembangkan karakter pribadinya. (S047)
> … siswa juga dilatih secara inkuiri (menemukan pemahaman sendiri) sehingga dapat peduli dengan lingkungan dan menghargai perbedaan. (S196)
> …kurikulum ini mengajarkan anak … untuk memahami dan bukan sekedar mengetahui … (S091)
> … PYP (*Primary Years Program*) menggunakan kurikulum tematik (*transdisciplinary theme*) di mana *framework*nya diadaptasi untuk penyusunan Kurikulum 2013 … (S175)

The 20 percent of respondents not supporting the adoption of the PYP pointed out two major things that might be the defects during its implementation. The first concerned with the professional abilities of the local teachers in putting the curriculum into practice as well as their familiarity with the curriculum itself. The second concerned with the facilities needed to support the implementation of the curriculum. These points are indicated by the quotations below.

> ... bahasa Inggris tidak diajarkan di semua sekolah, sehingga bila PYP diajarkan di Indonesia pelaksanaan tidak maksimal karena bahasa terbatas, guru sebagai fasilitator mungkin juga tidak banyak menguasai … (S283)
> … guru masih belum dapat sepenuhnya menjalankan *thematic integrative*, maka akan sulit bagi guru apabila menerapkan PYP dalam konteks pendidikan dasar di Indonesia. (S112)
> Dalam proses pembelajaran pun tidak sembarangan dapat dilakukan karena dari segi fasilitas pembelajaran diperlukan alat yang canggih dan modern. Guru yang mengajarkan pun harus melakukan *training* terlebih dahulu agar dapat mengajar sesuai program dan ketentuan dari IBO. (S202)

The fourth question on what things or conditions that might support the adoption of the PYP in the local contexts bore somewhat common responses from the respondents. They believed that one supportive condition for the adoption was some similarities between the PYP and the 2013 Curriculum. Just as the local curriculum, as the respondents noted further, the PYP also shed lights to contextual teaching and learning processes as well as to inquiry learning that focused on students as the centre of those processes. Besides, the respondents believedthat the good value of PYP that taught children how to learn to appreciate differences could be another thing that might support the adoption and implementation of the curriculum. The quotations depicting the points are presented as follows.

> … apabila Indonesia menggunakan kurikulum PYP tidak harus memulainya dari nol dan sudah ada panduaannya. Kurikulum di Indonesia (K 13) dengan PYP mempunyai pandangan yang sama bahwa dalam penilaian mengutamakan dari proses sampai produk. (S243)

> Wilayah Indonesia yang kaya dapat digunakan sebagai media pembelajaran kontekstual yang baik, (S115)
> … PYP mirip dengan kurikulum 2013 karena menyuguhkan inkuiri di dalamnya. (S202)
> … pembelajaran yang bersifat holistik, berpusat pada siswa dan dibangun dari kebutuhan siswa. (S031)
> … keanekaragaman Indonesia yang dapat dikaitkan dengan berbagai pelajaran dan kemudian dapat menumbuhkan sikap yang baik dari diri siswa. (S013)

While there were supportive conditions, the respondents also proposed some noticeable defects that might interfere with the efforts to adopt the PYP in the local contexts. The first concerned with the unfamiliarity that teachers and parents might experience with the framework. Another limitation was related to the proficiencies of the teachers, especially their proficiency in foreign languages – English, in this case. The unavailability of any definite textbooks might cause another problem for the teachers. Last but not least, the respondents presumed that the fully adoption of the PYP framework in the local contexts would be costly because any school wishing to adopt the framework needed to have a legal licence from the IBO itself. Below are the excerpts indicating the points.

> … biaya lisensi (ijin mengadopsi kurikulum) yang cukup mahal sehingga berpengaruh pada tarif biaya di sekolah yang menggunakan kurikulum tersebut. Selain itu juga masih perlu banyaknya sosialisasi yang dilakukan mengenai kurikulum tersebut kepada masyarakat karena belum banyak orang yang mengetahui tentang kurikulum tersebut. (S003)
> … kuikulum IB tidak ada buku panduan untuk setiap pembelajaran … (S054)
> … kurangnya tenaga pendidik yang mampu berbahasa Inggris dengan baik. (S242)

The question about what kind of knowledge and skills required from a PYP teacher posed somewhat common responses from the respondents as well. They believed that being a PYP teacher, someone should have knowledge about the curriculum as well as about planning lessons in the curriculum. A would-be PYP teacher, as the respondents further suggested, should also be proficient in English, have adequate teaching skills as well as decent life skills. The prospective teacher should be already familiar with things like inquiry learning, developing rubrics or using technology in education. He/she should also be able to perform critical and creative thinking skills as well as social skills, such as being responsible, being able to communicate and cooperate with others, and being able to perform self-management skills. The quotations below help illustrating the ideas.

> … pengetahuan yang dibutuhkan guru yang menerapkan PYP adalah pengetahuan dan pemahaman awal mengenai kurikulum PYP … kemudian bagaimana cara pembuatan perencanaan pembelajaran

> dalam kurikukum PYP itu sendiri, lalu kreativitas dan inovasi … (S185)
> … c. Pengetahuan mengenai pendekatan pembelajaran inkuiri karena PYP menggunakan pendekatan inkuiri; d. Keterampilan berbahasa Inggris karena bahasa pengantar pembelajaran dalam kurikulum PYP adalah bahasa Inggris; e. Keterampilan dalam teknologi karena dalam pembelajaran PYP, teknologi merupakan salah satu sarana pokok dalam mendukung kegiatan belajar mengajar … (S192)
> … keterampilan untuk memberi teladan *life skills* yang tertib, teratur, bertanggung-jawab, dll. … (S072)
> Selain itu guru harus dapat … membuat rubrik penilaian, mampu berkolaborasi dengan guru-guru yang bersangkutan dan mampu mengemas pembelajaran agar lebih menarik. (S018)
> Guru harus memiliki … keterampilan berpikir, keterampilan sosial, keterampilan memanajemen diri sendiri dan … keterampilan dalam berkomunikasi. (S112)
> Seorang guru PYP juga harus seorang pemikir kritis … (S004)

The last part of the survey concerned with what the respondents thought about what would be their advantages as well as limitations if they wished to be a PYP teacher. Responses to the question revealed more or less similar conditions of the student respondents themselves. They said that attending the PYP course offered to them during the semester. Along with their experiences in teaching elementary students they gained during their study had become their pluses. In addition, they also mentioned that their skills and knowledge in educational technology and their passion in teaching children could also be considered as their advantages if they were requested to teach using the PYP framework. Below are the quotations depicting their views.

> ... memperoleh pengetahuan dan informasi tentang PYP di bangku kuliah; pengalaman mengajar di SD … (S046)
> … memiliki kemampuan dalam menggunakan teknologi dan mengolah informasi … (S192)
> Pendukung lainnya adalah kecintaan saya terhadap anak-anak dan kecintaan saya dalam mengajar. (S135)

Aside from the advantages they proposed, the respondents mentioned that their biggest limitation lied on their proficiency in English. They also stated that the limited meetings of the PYP course which were only once a week were not enough to give them thorough and complete understanding of the framework. Further, having no experience in teaching within the PYP framework yet was also proposed as their constraint concerning the curriculum. The respondents further suggested that they needed to improve their English proficiency and increase their knowledge and skills in the PYP if they were requested to teach using the curriculum. The limitations and their wishes of improvement are shown in the excerpts below.

> ... belum mempelajari keseluruhan PYP karena saya mendapatkan hanya 1 semester saja dan menurut saya itu kurang karena banyak pengetahuan yang belum saya pahami dan saya mengerti dan menjadi guru PYP itu tidaklah gampang dan harus menggunakan bahasa Inggris yang benar. (S124)
> … saya belum mengetahui secara langsung gambaran mengenai kegiatan pembelajaran secara langsung di dalam kelas dengan menggunakan kurikulum PYP. (S280)
> Yang harus saya tingkatkan adalah saya harus mau dan harus mempelajari lebih dalam kurikulum tersebut supaya saya mempunyai pengetahuan yang luas … dan harus belajar bahasa Inggris yang baik dan benar. (S124)

The last question of the survey asking about what the student respondents had learned and gained so far from the PYP course they had attended revealed somewhat similar responses. They pointed out that during the one semester period of attending the course, they had learned about the similarities as well as differences between the PYP framework and the 2013 Curriculum implemented in the local schools. They also claimed that they had some insights on the possibility to combine both frameworks and implement the combination in the local contexts. Further, the respondents mentioned that they had learned how to plan lessons using the PYP framework. Their responses are shown in the following quotations.

> Saya dapat belajar membuat *unit of inquiry* dan *planners*. Saya juga dapat mengetahui kelebihan dan kekurangan PYP dibanding dengan kurikulum yang ada di Indonesia … saya dapat "mengawinkan" PYP dengan kurikulum nasional apabila diperlukan untuk menambah variasi dalam mengajar. (S015)
> … saya sudah belajar mengenai pengajaran mata pelajaran pada PYP, cara membuat RPP yang digunakan dalam kurikulum PYP, juga belajar tentang hal-hal yang membedakan kurikulum PYP dengan kurikulum di Indonesia. (S109)
> … ternyata Kurikulum 2013 ini mengimplementasi dari kurikulum PYP, yakni proses pembelajarannya menggunakan tema-tema dan mengaitkan ke setiap mata pelajarannya dan setiap tema-tema tersebut memiliki nilai-nilai yang akan diterapkan dalam kehidupan sehari-hari. (S088)

The data gathered from the survey showed that, generally, the student respondents had positive attitudes toward the PYP. They believed that the PYP would help foster students' development. This meant that the curriculum would assist students to improve their inquiry skills and so develop their creativity as well as enhance their senses of independence and responsibility. This was the case because within the inquiry approach, students had to conduct inquiry and research and, hence, show their independence in learning (IBO, 2007:4). The respondents also indicated that this curriculum would also help students to develop their ability

to identify and assume responsibility so that, as found in one of its key concepts (IBO, 2007:20), they were finally able to take socially responsible actions.

Next, the respondents viewed that the PYP could also help facilitate their students to be bilingual or even trilingual speakers because the framework, parallel to what was detailed in its *Guidelines for developing a school language policy* (IBO, 2008), required the use of at least one of the internationally accepted languages as its medium of instruction. Further, the PYP was viewed as having positive reception because of its commitment to create lifelong and internationally minded learners. Through the inquiry approach, the PYP would help learners to actively enjoy learning and would make any effort to make this love of learning to sustain throughout their lives (IBO, 2007:4). The PYP would also help students who grew up in a rapidly changing world to be internationally minded learners who were always aware of the pace of change surrounding them, both locally and globally (IBO, 2007:19).

Further, this curriculum gained positive appraisals because it had clear and detailed planning, which was considered important on the teachers' part. The teachers had guidelines not only on what concepts, knowledge, skills, and attitudes that should be covered during the teaching and learning processes but also on how to create a Program of Inquiry (PoI) and a detailed Unit of Inquiry (UoI) generated from the PoI. Last but not least, the respondents viewed that the fact that the PYP assessed students' performances as well as their products as another positive value of the framework. This way, students' progress will be able to be noted, recorded and given feedback wherever necessary (IBO, 2007).

These positive attitudes further lead to their support toward the possibility of implementing the PYP in their local contexts. They argued that one of the supporting factors' in implementing the curriculum was the resemblance that the local 2013 Curriculum bore with the PYP. Both curricula, as they indicated, were based on inquiry approach and, hence, were student-centred. In addition to the fact, the respondents also noted that the cultural diversity of the country could provide abundance resources for the learning and teaching processes and so help the students to develop their intercultural understanding and respect for individuals and their values and tradition (IBO, 2007:103).

However, the respondents also proposed some things which needed considerations when a school decided to adopt and implement the curriculum. The first thing needed to be thought over was the knowledge and skills of the teachers concerning the PYP. As the respondents suggested, PYP teachers were required to be familiar with implementing inquiry approach in class, including planning and assessing students within this inquiry framework. In order to be able to do this, these teachers needed skills, such as developing assessment tools and integrating technology in their teaching. PYP teachers also had to be creative and have adequate proficiency in any internationally accepted language (IBO, 2008).

Next, any school wishing to formally implement the PYP should also consider purchasing the license from the IBO which was quite costly. There was also problem concerning the unavailability of a detailed list of resource books used in the PYP. This was quite troublesome for most local teachers as they were

used to be provided with certain resource books when they had to teach certain subjects to certain classes.

Looking at themselves, though, the student respondents believed that they might have possessed qualities which might of great assistance to them when they were required to be a PYP teacher later in the future. They proposed that their experience in teaching elementary students, the information and knowledge of the PYP they had got so far, as well as their ability to use technology in class would facilitate themselves when they had to teach using the PYP framework. Apart from these supporting qualities, however, they still wished to deepen their knowledge and improve their skills on the PYP. As they considered the PYP a good curriculum, they hoped they could learn more about it. They would like to learn more about how to create the PoI and UoI so that they could, in any possible manner, combine the PYP with any curriculum implemented by their schools later.

Conclusion

The primary school pre-service teachers had positive perspectives toward Primary Years Program (PYP) as well as toward its implementation in Indonesian primary schools. The pre-service teachers believed that, bearing similarities with the 2013 Curriculum, the PYP would be able to assist students in being lifelong learners by developing their inquiry skills and proficiencies in language other than their mother tongue. They also acknowledged that, learning within the framework, would help the students to be more creative, independent, and responsible. All things considered, the pre-service teachers approved that the PYP would be helpful to create socially responsible as well as international-minded individuals who were ready to keep up with the fast changing world surrounding them.

The majority of the pre-service teachers also had positive perceptions toward the possibility of any Indonesian primary school striving to adopt and implement the PYP for the reason that it would give great encouragement to Indonesian primary school students to be lifelong learners who were active and understanding toward differences existing among people from different background and cultures. They, however, posed some notes concerning PYP implementation in any primary school within the Indonesian context. The first concerned with the professional abilities of the local teachers in putting the PYP into practice as well as their understanding of the framework itself. The second concerned with the facilities needed to support the implementation of the PYP which, they thought, could create problems for a number of schools in some areas. These, however, could be minimized by giving more thorough training on how to implement the PYP to the teachers so that, in any way, these teachers became familiar with the framework and, hence, were able to find ways to combine it with the 2013 Curriculum to minimize any constraint caused from the lack of facilities and resources in their areas.

Looking back at the results of this study, it is safe to imply that there is an urgency to develop programs aiming at enhancing the primary pre-service teachers' proficiency in any international language (e.g. English). Moreover, the Primary School Teacher Education Study Program of Sanata Dharma University

should consider the possibility to offer more courses on the PYP so that the pre-service teachers could learn more about the curriculum. They should also be given opportunities to practice teaching using the framework. This way, they would have experience implementing it in real classroom contexts.

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MATHEMATICAL LITERACY PROFILE OF GRADE VIII STUDENTS OF SMP PANGUDI LUHUR 1 YOGYAKARTA USING *PENDIDIKAN MATEMATIKA REALISTIK INDONESIA* APPROACH

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Abstract

This research aims to investigate mathematical literacy of students grade VIII SMP Pangudi Luhur 1 Yogyakarta before and after learning using the *Pendidikan Matematika Realistik Indonesia* (PMRI) approach. This research was a descriptive qualitative research. The research subjects were 36 students of class VIII-F, SMP Pangudi Luhur 1 Yogyakarta. This research was conducted in March until July of 2016. The data was collected through observation, instructional video recording, and the results of pretest and posttest. Pretest and posttest was designed based on the characteristics of PISA (Program for International Student Assessment) problem. Instructional video was analyzed in qualitative with making a transcript of the video, determining topics of the data, and categorizing the data. The results of pretest and posttest were analyzed qualitatively to determine the students' ability of mathematical literacy. The findings showed that before the implementation of PMRI the students get a better result in solving PISA problem level 2 compared with the result in solving PISA problem level 3, but after the implementation of PMRI the students get a better result in solving PISA problem level 3 compared with the result in solving PISA problem level 2. It is affected by PMRI learning which applied more focused to guide students to construct their mathematical knowledge instead of doing routine exercises of solving PISA problems.

Keywords: Mathematical Literacy, Cube, Cuboid, PMRI

Introduction

Education is one of things that affect the quality of human resources. As formulated in the preamble of 1945 Constitution and supported by Law No. 20 Year 2003 about National Education System in Article 3, education in Indonesia have goals that support qualified human resources. Therefore, a good quality education is one of the factors creating a good quality of human resources as well.

Effort to improve the quality of education at all levels of primary and secondary school is performed in all groups of subjects contained in the content standard (UNIMED, 2012). One of the discipline that can improve the quality of education is mathematics.

Mathematics is one of the subjects that must be learned in every level of education, starting from Elementary School, Junior High School, and Senior High

School. The reason is that mathematics is a universal science that underlies the development of modern technology. It has an important role in variety of disciplines and advances the power of human thoughts. According to NCTM (2000), in studying mathematics, students are required to have the capability of understanding the problem solving, communication, and mathematical connection.

The content standard of mathematics subject is contained in PERMENDIKNAS No. 22 Year 2006 states that the objective of mathematics subject is that students have the ability to understand mathematical concepts, using reasoning, problem solving, communicating ideas, and having a respect for the use of mathematics in life.

The purpose of mathematics education in primary and secondary schools above is in accordance with aspects of mathematical literacy. Mathematical literacy is ability of individual to formulate, use, and interprets mathematics in various contexts, including ability to perform reasoning mathematically and using concept, procedure, and fact as tool to describe, explain, and predict a phenomenon or event (OECD, 2003).

Mathematical literacy is very important for everyone associated with work and activity in daily life. Mathematical literacy is needed, not only the limitation of arithmetic understanding, but also require mathematical reasoning and problem solving, as well as control of logical reasoning to solve problems in daily life.

Thus, mathematical literacy is skill that should be owned by a person in order to be able to face all the problems that faced in daily life. However, based on several research projects worldwide, followed by Indonesia, one of them is PISA (Program for International Student Assessment) still shows unsatisfactory results. PISA is an international level study conducted by the Organization for Economic Cooperation and Development (OECD). PISA aims to assess what extent students study at the end of primary school (students aged 15) has mastered necessary knowledge and skills to be able to participate as citizens or community members who build and responsible (Sugandi, 2013: 2). The assessment of PISA includes mathematical literacy, reading literacy, and scientific literacy.

Indonesia mathematical literacy in PISA 2000, 2003, 2006, and 2009 successively occupy the seventh position from the bottom (Balitbang, 2011). Although, in PISA 2012 which puts mathematics as the main focus, Indonesia was ranked 64 of 65 countries with an average score 375, while the average of international score is 494 (The Guadian, 2013).

One of factors causing the students' low ability of mathematical literacy is students unusual to face questions that have substance contextual, demanding reasoning, argumentation, and creativity in finishing the questions (Balitbang, 2011). SMP Pangudi Luhur 1 is a private featured school in Yogyakarta. Based on the observation of syllabus and lesson plan which were designed by mathematics teacher at SMP PangudiLuhur 1, the syllabus is generally presents an instrument of learning which is substantially less associated with the context in daily life and less facilitate students in revealing the thinking process and giving argument. Also, based on the interview's results from some students, they have difficulties in understanding and preparing steps to resolve when the researcher gave story

questions related to cube and cuboid, in contrast, when the researcher gave a question clearly and directly without requiring reasoning toward the question.

Based on the above exposure should be improved upon learning of mathematics, especially things that related to mathematical literacy. Related to effort to improve mathematical literacy, the government is working with several universities in Indonesia that held a *Kontes Literasi Matematika* (KLM) which one of them was held at Sanata Dharma University, Yogyakarta. One of schools that participating in KLM held at Sanata Dharma University is SMP Pangudi Luhur 1 Yogyakarta. SMP Pangudi Luhur 1 Yogyakarta has followed KLM at Sanata Dharma University for 3 years consecutively in 2013, 2014, and 2015, but it is still not showing maximum results.

One model of learning mathematics that can lead to a positive impact on students' ability of mathematical literacy in problem solving is *Model Pembelajaran Pendidikan Matematika Realistik Indonesia* (PMRI) (Santika, dkk: 2012). The excellence PMRI as proposed by Wijaya (2012:20) is emphasizing "learning by doing", in accordance with the basic concepts of mathematics learning realistic expressed Freudental (Van Den Heuvel-Panhuizenthe: 1998) that "mathematics as a human activity" which means mathematics as a human activity where math is actually familiar with daily life activities. PMRI in measuring the students' ability is to use questions or problems that can be lifted from variety of situations, so it becomes a source of learning. This is consistent with how to measure the students' ability in PISA test. The assessment of PISA uses questions relating to real life. PISA refers to philosophy, mathematics is not an isolated science of human life, but it appears and useful in daily life (Wijaya, 2012: 2). It is related to what has been expressed by Marpaung and Hongki (2011) that in PMRI, learning as much as possible starting with presenting contextual/realistic problems. In PISA test is intended to see the students' ability to use mathematics that learned to solve the problems related to life (contextual). In PMRI, teachers give students opportunity to solve the problems in their own way while the objective of PISA assessment is to provide feedback on mathematics learning in schools. Some mathematical competences in PISA can be seen in Table 1.

Table 1. Levels 2 and 3 in PISA (OECD, 2010)

Level	Mathematic Competence
2	At level 2 students can intepret and recognize situations in context that require no more than direct inference. They can extract relevant information from a single source and make use of a single representational mode. Student at this level can employ basic algorithms, formulae, procedures, or conventions. They are capable of direct reasoning and making literal interpretations of the result.

3	At level 3 students can execute clearly described procedures, including those that require sequential decisions. They can select and apply simple problem-solving strategis. Students at this level can intepret and use representation based on different information sources and reason directly from them. They can develop short communication reporting ther interpretation, result and reasoning.

Therefore, learning using PMRI has close relationship with the students' mathematical literacy. PMRI learning implementation is expected to facilitate students to formulate, use and interpret mathematics in various contexts, including the ability to perform reasoning mathematically and using the concept, procedure, and fact as tool to describe, explain, and predict a phenomenon or event. Therefore, the implementation of PMRI learning can develop the components of the students and can support the students' ability of mathematical literacy itself.

From several reasons that already mentioned, PMRI is appropriate to use as one of approaches in effort to improve students' mathematical literacy. Based on the data and consideration above, it is necessary to research which examines students' mathematical literacy in learning using PMRI approach. This research is coupled with the title "Profile of Students' Ability of Mathematical Literacy Grade VIIIF SMP Pangudi Luhur 1 Yogyakarta in Learning Using PMRI (Pendidikan Matematika Realistik Indonesia) Approach, Subjects of Cube and Cuboid in Academic Year 2015/2016".

Method

The methodology of this research is descriptive qualitative approach with quantitative assisted. Descriptive research with quantitative approach is a study that aims to describe phenomena in real, where these phenomena are described based on the calculation of amount, size, or frequency (Nana Sukmadinata, 2012).

This research was conducted in SMP Pangudi Luhur 1 Yogyakarta in Academic Year 2015/2016 in class VIIIF. The data used in this research is students' answer sheet of pretest and posttest results. The data collection was conducted through pretest and posttest. There are 6 levels in mathematical competence in PISA, but in this research, the researcher focused on students' ability of mathematical literacy in finishing level 2 and level 3. Pretest consists of 3 questions where the question number 1 and number 2 are questions of level 2 and question number 3 is question of level 3. Posttest consists of type A and type B where question number 1 and number 2 are questions of level 2 and question number 3 and number 4 are questions of level 3.

Results and Discussion

Implementation of Learning Using PMRI Approach

The course always begins with greeting, delivering learning objectives and plan activities to be carried out, and then the teacher continues with the provision of context, so students can understand and imagine the materials that will be studied. Besides, giving context also shows the benefits of learning the material, so the students will be more motivated. The next activity was teacher gives

students questions to be solved with students' ability that they have already learned and their prior knowledge. From problem solving activities, the students got a model completion from students' construction; the model is called "model of". Then, the teacher improvised questions with a higher difficulty and the students solve the questions by developing a model that they have mastered previously, this model is called "model for". Learning using PMRI approach uses students' contribution especially in exploring idea of completion. The teacher stimulates students' knowledge to solve a problem through guided questions. In the process, the teacher facilitates better interaction and negotiation between teacher-student and even among students. Negotiation between teacher and student is done with active teacher around the classroom when group is working, while the interaction and negotiation among students are applied when the teacher gives questions from a student to another, or by asking if there is a different solution when a group presents their work. Another feature of learning using PMRI approach is the relation between mathematical concept with one another and linkages with material beyond mathematics. The teacher has linked mathematical concepts with other mathematical concepts, but the teacher has not been able to associate the material with other materials beyond mathematics.

Students' Mathematical Literacy

Here are the percentages of many students in each indicator of students' mathematical literacy:

Table 2. Percentage of Many Students in Each Indicator of Students' Mathematical Literacy Pretest Number 1 (Level 2)

Mathematical Literacy Ability	A	n	P
R1	11	36	30.55 %
R2	9	36	25 %
R3	3	36	8.33 %
R4	8	36	22.22 %
R5	3	36	8.33 %
TR	2	36	5.55 %

Table 3. Percentage of Many Students in Each Indicator of Students' Ability of Mathematical Literacy Pretest Number 2 (Level 2)

Mathematical Literacy Ability	A	n	P
R1	11	36	30.55 %
R2	14	36	38.88 %
R3	0	36	0 %
R4	6	36	16.66 %
R5	5	36	13.88 %
TR	0	36	0 %

Table 4. Percentage of Many Students in Each Indicator of Students' Mathematical Literacy Pretest Number 3 (Level 3)

Mathematical Literacy Ability	A	n	P
R1	4	36	11.11%
R2	3	36	8.33%
R3	4	36	11.11%
R4	13	36	36.11%
R5	10	36	27.77%
TR	2	36	5.55%

Table 5. Percentage of Many Students in Each Indicator of Students' Mathematical Literacy Posttest Number 1 (Level 2)

Mathematical Literacy Ability	Tipe A			Tipe B		
	A	n_A	P	A	n_B	P
R1	2	18	11.11 %	3	18	16.66 %
R2	1	18	5,.55 %	5	18	27.77 %
R3	3	18	16. 66 %	0	18	0 %
R4	2	18	11.11 %	2	18	11.11 %
R5	3	18	16. 66 %	2	18	11.11 %
TR	7	18	38.88 %	6	18	33. 33 %

Table 6. Percentage of Many Students in Each Indicator of Students' Mathematical Literacy Posttest Number 2 (Level 2)

Mathematical Literacy Ability	A	n	P
R1	5	36	13.88 %
R2	1	36	2.77 %
R3	8	36	22.22 %
R4	8	36	22.22 %
R5	0	36	0 %
TR	14	36	38.88 %

Table 7. Percentage of Many Students in Each Indicator of Students' Mathematical Literacy Posttest Number 3 (Level 3)

Mathematical Literacy Ability	Tipe A			Tipe B		
	A	n_a	P	A	n_b	P
R1	1	18	5.55 %	2	18	11.11%
R2	5	18	27.77 %	4	18	22.22%
R3	1	18	5.55 %	2	18	11.11%
R4	0	18	0 %	0	18	0%
R5	10	18	55.55 %	1	18	5.55%
TR	1	18	5.55 %	9	18	50%

Table 8. Percentage of Many Students in Each Indicator of Students' Mathematical Literacy Posttest Number 4 (Level 3)

Mathematical Literacy Ability	Tipe A			Tipe B		
	A	n_A	P	A	n_B	P
R1	4	18	22.22 %	1	16	6.25%
R2	1	18	5.55%	3	16	18.75%
R3	5	18	27.22%	2	16	12.50%
R4	1	18	5.55%	8	16	50%
R5	1	18	5.55%	2	16	12.50%
TR	6	18	33.33%	0	16	0%

Explanation of Students' Mathematical Literacy in Solving PISA test Level 2 and Level 3:
A: Number of students in group R1, R2, R3, R4, R5, or TR
n: Total number of students who take pretest or posttest in group R1, R2, R3, R4, R5, or TR
P: Percentage of students in group R1, R2, R3, R4, R5, or TR
$n_{A:}$ Total number of students who take posttest type A in group R1, R2, R3, R4, R5, or TR
$n_{B:}$ Total number of students who take posttest type B in group R1, R2, R3, R4, R5, or TR
R1: Students are able to provide answers and appropriate steps
R2: Students are able to provide the correct answer but there are steps that less appropriate.
R3: Students are not able to provide the correct answer but there are most appropriate steps.
R4: Students are able to provide the correct answer but most misstep.
R5: Students are not able to provide the correct answer and only there is a small portion in appropriate steps.

TR: Students are not able to provide the correct answer and use wrong steps or no answer.

Below are the examples of student's solving of pretests:

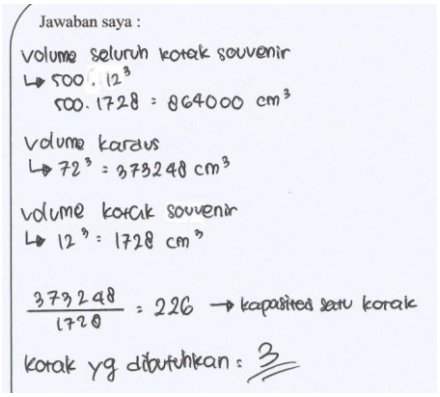

Image 1. Sample student's solving that belongs to R1

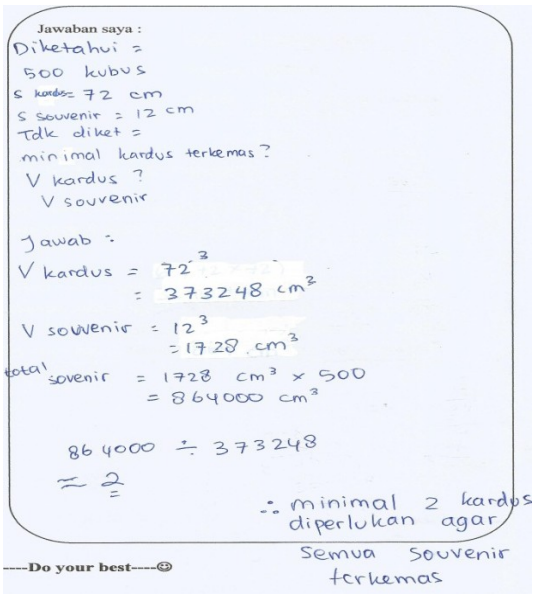

Image 2. Sample student's solving that belongs to R3

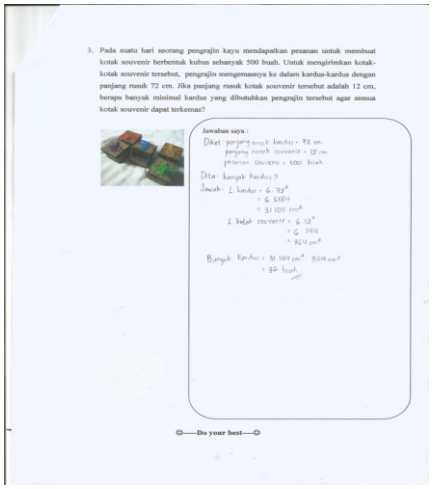

Image 3. Sample student's solving that belongs to TR

A students' mathematical literacy in solving question level 2 in pretest was good. The students were able to sort information from main sources. Furthermore, most of the students were also able to use the formula and complete the basic algorithm shown by most of the students was able to determine the exact volume of the cuboid. Students' mistakes that they did were technical mistakes, such as mistakes of writing unit, misconceptions about mathematical terms, and miscalculation. 66.65% of students were able to solve pretest level 2 well with most of the right steps. The students' ability of literacy in solving mathematical level 3 in pretest was poor. As many as 38% of students can solve problems with proper steps while most of them did mistakes conceptually. Other mistakes were mistakes in the calculation and inability of students to draw conclusions from the final answer that is obtained.

Students' mathematical literacy in solving question level 2 in posttest can be said to poor. 57% of students were not able to solve the questions well and using inappropriate steps. This is possibly due to a lack of preparation of students in doing posttest, the limitation of time in doing the test in which the same time (80 minutes), the amount of posttest more, and posttest requires understanding concept more deeply. In addition, in learning using PMRI approach, the teacher more focused on constructing students' mathematical knowledge instead of doing exercises and discussion about PISA problems. Students' mathematical literacy in solving posttest level 3 is better when compared to the students' literacy ability in solving mathematical pretest. This may be because teachers use problems are not accustomed pretest students met so that students are not accustomed to think contextually. Furthermore, in mathematics learning using PMRI approach, the teacher gives question or problem as a context and tool to train the students to use model (which previously had constructed their own) is resolving the problem. In addition, steps to resolve the posttest less when compared with the pretest, it is just that the level of difficulty to identify a resolution is more complicated and requires a deeper understanding of the concept. The steps that are not so long and

habits of students in solving level 3 during learning makes students' mathematical literacy in solving better posttest than pretest when solving problems.

Conclusion

Based on the analysis and discussion about profile of students' mathematical literacy grade VIII F SMP Pangudi Luhur 1 Yogyakarta in learning using the PMRI approach on the subject of cube and cuboid, it can be concluded as follows: a. Pretest: Students' mathematical literacy in solving level 2 was good enough. In contrast, students' mathematical literacy of level 3 was poor and b. Posttest: Students' mathematical literacy in solving level 2 was poor. It is caused to concept and technical errors, most likely also caused by learning that was done more focus on understanding concept and less focus on exercises, so the students are still less skilled in solving contextual problems. In addition, students' mathematical literacy in level 3 was better.

Based on the conclusions and limitation of the research, suggestions that can be given by the researcher are as follows. First, Mathematics teachers can use PMRI approach routinely to discover and train the students' mathematical literacy in order to further develop so that students are more creative in solving problems. Second, future researchers should take into account and prepare the time to do an interview, so researchers can confirm and explore students' completion strategy. Furthermore, the results of the interview compared with the results of pretest and posttest, so students' mathematical literacy data can be reasonably well described.

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THE DESCRIPTION OF TEACHERS' STRESSOR AND MANIFESTATION OF SPECIAL NEEDS TEACHERS IN INCLUSIVE AND SPECIAL SCHOOLS IN JAKARTA

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Abstract

Teachers for special needs children are needed in inclusive and also in special schools (SLB). In inclusive schools, teachers who teach special needs children usually the class teacher or subject teacher. They usually have general pedagogic educational background. They were not specialized in teaching exceptional children. While on SLB, teacher had educational backgrounds from special education pedagogic. Both of them were dealing with different characteristics and their respective obligations demands. This situation could become a stressor that could affect learning. This research is a descriptive study. Characteristics of the sample in this study are that teachers who are between 20 and 65 years old, men and women, who teach at the elementary nation Inclusion and SLB. Participants obtained by the accidental sampling method were 67 people. Study showed that their stressor was from specific events relating to work. Source of their mild stress was setting time balance between personal time and work. A manifestation of stress occurs in the form of fatigue arising with regard to the perceived pressure. To reduce or minimize the stress that arises, necessary training and seminars to enrich their knowledge were needed, their also need good communication between the teacher and the school and build tolerance among co-workers.

Keywords: stress, manifestasion, special needs teacher, inclusion, special school

Introduction

Being a teacher for children with special needs is one of the professions which cause high stress. Teacher for special education usually enjoys challenges in handling children with special needs (*Anak Berkebutuhan Khusus*). The teacher also has a chance to build close relationship with the children. This profession is usually appreciated, yet it also consumes energy physically or even emotionally ("Teacher-Special Education", 2009). A study conducted by Ken Mrozek shows that teacher is one of the professions which can cause stress. It is shown from the turnover percentage which is higher, compared to other social professions, such as translator and social worker. Specifically, according to turnover percentage, children with special needs teacher has high percentage to leave his/her jobs compared to other teachers, such as Homeroom teachers, Math teachers, Science

teachers, Elementary School teachers, English teachers and Social teachers (in Mrozek, n.d.).

In Indonesia, a teacher of children with special needs' is able to teach in special educational institutions, namely a special school (SLB) and inclusive school. SLB is a school designed for children with special needs from one type of disorders ("Mengenal Pendidikan", 2006). On the other hand, inclusive school is a school employing educational system in which children with special needs can learn together with normal children using many facilities in that school (Sanyoto, 2006). Inclusive Education is developed based on the basic principle that education is for all people. Besides, the curriculum is compiled based on the children's needs including special needs'. Therefore, it needs flexibility, creativity, and sensitivity (Skjørten, 2001).

In every special education service, teacher's role is a one of the factor which determines whether the learning process is success or not. Other factors are curriculum and learning strategy in class. Teacher is a human unit which is close to children in the daily education activities in school. Sometimes, children see teacher as identity figure, so that teacher can guide and lead children in the learning-teaching activity, and then it finally determines whether the children can achieve the goals or not (Direktorat Pembinaan Sekolah Luar Biasa, 2006).

Sudrajat (2008) states that a teacher should manage many things to support the learning process. The supporting things are formulating precise learning goals, selecting appropriate strategy or learning methods, giving guidance or counseling, facilitating and motivating students, assessing learning outcomes fairly, establishing a good interaction with the students, and creating conducive learning atmosphere. Creating conducive learning atmosphere depends on comfortable and fun learning conditions.

A teacher in Special school is a teacher having educational background in Special Education Major. Those teachers have already had some competences and abilities to handle children with special needs. On the other hand, teachers in inclusive school are homeroom teacher and subject teachers assisted by special education teacher. Based on the observation on 1 regular school which has one special student and 1 inclusive school, the teacher is not required to have special educational background.

Allen and Schwartz (2001) state the same thing that the teacher in either inclusive school or special school should be able to handle children with various abilities. According to Hargreaves, teacher's professionalism is exposed from the knowledge and ability in handling various students, and ability to support and develop each other. Moreover, teacher should be able to accept any criticism. This professionalism can generate positive emotion towards teacher (Troman & Woods, 2001). According to Woods and Jeffrey in the same source, teacher having positive emotion can inspire and motivate their students and also have close relationship. When teacher is not professional, the teacher will be led by negative emotion.

Kyriacou states that a negative emotion involving pressure, restlessness, anger, depression, and frustration because of certain experience and working condition is called stress (Giddens, 2005). In a study of stress among teachers,

there are 4 factors generating stress, namely student's behavior, limited facilities and time, less appreciation, and bad relation with other teachers (Kyriacou & Pei, 2004). Those things affect teacher's performance in the learning process. In school, manifestation which is not routed properly can induce careless or even aggressive attitudes towards colleague or students (Tsai, Fun & Chow, 2006).

Therefore, researcher is interested in analyzing the description of stress source and manifestation experienced by teachers of inclusive school and special schools. Thus, it can help teachers to identify the source and manifestation stress. The research question is: How are stress source and manifestation towards special needs' teachers in inclusive schools and special schools depicted?

This study is descriptive research aiming to discern the description of stress source and manifestation towards special needs' teachers in inclusive school and special school. This study gives contribution towards the development and improvement of inclusive and special schools in Indonesia. This study provides information for teachers in inclusive and special schools regarding the depiction of stress that teachers experience. This study also provides knowledge regarding the source of the teacher's stress so that they can design appropriate strategy for coping with the stress. Besides, this study can give suggestion towards engaged parties, such as headmaster and parents.

Method

This study is a descriptive research since the researcher intended to see the depiction of stress source and manifestation towards special needs' teachers in inclusive and special schools. This study employed quantitative and non-experimental approach since the researcher cannot manipulate the variable.

The researcher wanted to discern the depiction of stress source and manifestation towards special needs' teachers in inclusive and special schools. Thus, stress becomes the variable in this study. Operational definition of stress towards special needs' teachers in inclusive and extraordinary teachers is the total score of items in every domain which represent source and manifestation from uncomfortable experience. And then, it generates a negative emotion such as anger, frustration, restlessness, depression, and tense as a result of interaction because of teaching special needs' in inclusive and special schools.

The subjects in this study were special needs' teachers in inclusive and special schools having some criteria as follows: a. Subjects were homeroom teacher or subject teachers or special education teachers in inclusive schools and SLB and b. Subjects had at least one or more students categorized as children with special needs in one class. The numbers of subjects in this study were 31 subjects in SLB and 36 subjects in inclusive school.

Inclusive schools as the subject were public schools since these public schools had the same characteristics. Since the operational schools were paid by government, all supporting facilities will be similar. On the other hand, the special schools were private schools.

The data were collected through accidental sampling method, which is included as non-random sampling as the data collection technique. In this technique, the subjects are selected based on the location of the population, yet

they still meet the characteristics that researcher wants (Kumar, 1999). In this study, researcher visited the inclusive and special schools to ask teacher to fulfill the questionnaire.

The instrument used is Teacher Stress Inventory (TSI) to measure stress towards special needs' teachers in inclusive and special schools. TSI is an instrument to identify the stress source and its manifestation towards the stress. The domains in the instrument are Professional Investment, Time Management, Work-related Stressors, Discipline and Motivation, Professional Stress, Behavioral Manifestations as extended stress manifestation (Ritz, 2009 & Olivier, 2003). Domains of Manifestation towards stress are Emotional Manifestations, Gastronomical Manifestations, Cardiovascular Manifestations, and Fatigue Manifestations (Ritz, 2009 & Olivier, 2003). In TSI, those ten factors are represented in 49 items using 5 scales, namely do not very agree, do not agree, neutral, agree, and very agree. In this study, Reliability examination employed Cronbach's Alpha, 0.903.

Results and Discussion

Description of Demography Data

Seventy-one questionnaires were distributed to 8 schools (Inclusive school and Special School). Out of 71 questionnaires, 4 questionnaires were not used as the data. Overall, 67 questionnaires were used as the data. The following table shows demography description of subjects.

Table 1. The Description of Subject Demography Data

Age	**Inclusive**		**Special school**		**Total**
	f	**%**	**f**	**%**	
21-25	2	10,5	1	3,2	3
26-30	1	2,8	2	6,5	3
31-35	2	10,5	4	12,9	6
36-40	5	13,8	2	6,5	7
41-45	6	16,6	9	29	15
46-50	11	30,5	9	29	20
51-55	7	19,4	3	9,7	10
56-60	2	10,5	0	0	2
61-65	0	0	1	3,2	1
Sex	**Inclusive**		**Special school**		**Total**
	f	**%**	**f**	**%**	
Female	30	83,3	22	71	52
Male	6	16,7	9	29	15
Work experience	**Inclusive**		**Special school**		**Total**
Work experience (in years)	**f**	**%**	**f**	**%**	
0 – 5	20	55,6	3	9,7	23
6 – 11	16	44,4	3	9,7	19
12 – 17	0	0	9	29	9
18 – 23	0	0	7	22,6	7
24 – 29	0	0	7	22,6	7

30 – 35	0	0	1	3,2	1
36 – 41	0	0	1	3,2	1

School grade	**Inclusive**		**Special school**		**Total**
	f	**%**	**f**	**%**	
I	4	11,1	6	19,4	10
II	3	8,3	2	6,5	5
III	8	22,2	4	12,9	12
IV	8	22,2	4	12,9	12
V	6	16,6	8	25,8	14
VI	7	19,4	7	22,6	14

Educational Background	**Inclusive**		**Special school**		**Total**
	f	**%**	**f**	**%**	
S1 PLB	1	2,8	19	61,3	20
D1 PLB	0	0	2	6,5	2
D2 PLB	0	0	1	3,2	1
D3 PLB	0	0	2	6,5	2
S1 PGSD	14	38,9	0	0	14
D2 PGSD	6	16,7	0	0	6
S1 PAK	1	2,8	1	3,2	2
S2 PGSD	0	0	1	3,2	1
S1 PENJASKES	0	0	1	3,2	1
D2 PENJASKES	1	2,8	0	0	1
S1 MATEMATIKA	0	0	1	3,2	1
S1 BAHASA INDONESIA	2	5,5	0	0	2
S1 BAHASA INGGRIS	4	12,9	0	0	4
D3 SEKRETARIS	0	0	1	3,2	1
S1 IPS	1	2,8	0	0	1
S1 TEKNIK PERTANIAN	1	2,8	0	0	1
S1 BK	1	2,8	0	0	1
D3 AKUNTANSI	1	2,8	0	0	1
S1 PKN	1	2,8	0	0	1
D3 PMP	1	2,8	0	0	1
SMA	1	2,8	2	6,5	3

Number of students	**Inclusive**		**Special school**		**Total**
	f	**%**	**f**	**%**	
1	17	47,2	0	0	17
2	9	25	0	0	9
3	5	13,9	8	25,8	13
4	3	8,3	12	38,7	15
5	1	2,8	4	12,9	5
6	1	2,8	2	6,5	3
7	0	0	2	6,5	2
8	0	0	1	3,2	1
11	0	0	2	6,5	2

Table 2. The Description of the Numbers of special needs' Variation and Characteristic in 1 Class

Special needs	Inclusive		Special school		Total
	F	%	f	%	
1 type	15	41,7	30	96.8	45
2 types	17	47,2	1	3.2	18
3 types	4	11,1	0	0	4

Characteristic	Inclusive		Special school		Total
	F	%	F	%	
Visual impairment	0	0	0	0	0
Hearing impairment	1	1.6	8	25	9
Physical impairment	1	1.6	0	0	1
Gifted	0	0	0	0	0
Intellectual disorder	2	3.3	23	71.9	25
Slow learner	32	52.5	0	0	32
Learning difficulty	17	27.9	0	0	17
Communication disorder	2	3.3	0	0	2
Behavior problems	1	1.6	0	0	1
Others	5	8.1	1	3.1	6

This section shows the calculation based on the source of stress from 36 questionnaires in inclusive school and 31 questionnaires in Special School (SLB).

The Description of Comparative Stress Source

Table 3. The Description of Comparative Stressor in Inclusive School

Stress level	*Professional Investment*	*Time Management*	*Work Related Stressor*	*Discipline & Motivation*	*Professional Stress*
Mild	25 (69.4%)	29 (80.5%)	4 (11.1%)	26 (72.2 %)	13 (36.1%)
Medium	11 (30.6%)	6 (16.7%)	30 (83.3%)	10 (27.7 %)	23 (63.9%)
High	0	1 (2.8%)	2 (5.6%)	0	0

It shows that Time Management domain has the highest percentage as a stressor of special needs' teachers in inclusive school in the low level. In the medium and high level, Work Related Stressor has the highest percentage.

Table 4. Description of Comparative Stressor Source in Special school

Stress level	*Professional Investment*	*Time Management*	*Work Related Stressor*	*Discipline & Motivation*	*Professional Stress*
Mild	23 (74.2%)	27 (87.1%)	11 (35.5%)	24 (77,4 %)	17 (54.8%)
Medium	8 (25,8%)	4 (12.9%)	18 (58%)	6 (19,3 %)	14 (45.2%)
High	0	0	2 (6.5%)	1 (3,2 %)	0

It shows that the stressor of mild stress in special school is Time Management. Meanwhile, Work Related Stressor becomes the source of medium and high stress.

Table 5. The description of Comparative Stressor in Overall

Stress level	***Professional Investment***	***Time Management***	***Work Related Stressor***	***Discipline & Motivation***	***Professional Stress***
Mild	48 (71.6%)	56 (83.6%)	15 (22.4%)	50 (74.6 %)	30 (44.8%)
Medium	19 (28.4%)	10 (14.9%)	48 (71.6%)	16 (23.8 %)	37 (55.2%)
High	0	1 (1.5%)	4 (6%)	1 (1.5 %)	0

The table shows that Time Management becomes the stressor of mild stress. Meanwhile, the stressor in the medium and high levels is Work Related Stressor.

The Description of Comparative Stress Manifestation

This domain is measured through close-ended questions using Never, Seldom, Often, and Always scales. This section provides the calculation of 36 questionnaires in inclusive school and 31 questionnaires in SLB based on domain in the form of stress manifestation.

Table 6. The Stress Manifestation Forms in Inclusive School and SLB

Domain	**Average score**		**Significance**
	Inclusive	**Special school**	
Behavioral Manifestation	1.042	1.113	0.013
Emotional Manifestation	1.507	1.734	0.774
Gastronomical Manifestation	1.375	1.612	0.006
Cardiovascular Manifestation	1.625	1.532	0.586
Fatique Manifestation	1.763	1.935	0.471

It shows that fatigue manifestation has the highest average score. It means that physically response such as fatigue is the most frequent manifestation experienced by special needs' teachers in inclusive school. Meanwhile, behavioral manifestation has the lowest average score. It means that manifestation which is seldom emerged is behaviors such as consuming sedative and alcohol. The significant differences are in behavioral manifestation and gastronomical manifestation domains.

Discussion

The result of this study shows that there is similarity towards stressor and manifestation experienced by special needs' teachers in inclusive schools and special school (SLB). The most interesting thing is special needs' teachers experience medium and high stress because of specific jobs as teachers, such as teaching preparation, workload, classroom size, administrative task and responsibility towards school. On the other hand, time management between individual and educator activities becomes the cause of light stress. It is related to

additional time given to work on additional task as teacher. Usually, it is related to the excessive workload. A teacher who cannot have personal time usually experiences stress higher than the others (Boyer-Colon, 2009). The result of this study is different from what Boyer-Colon (2009) has stated. The results show that special needs' teachers can manage their personal time well although they face pressure and demand beyond their abilities.

In inclusive school and special school (SLB), a good time management is related to the teaching length, or the experience length as special needs' teacher. Someone can be easier to manage his/her time if they have already accustomed to that. According to Dr. Gersten, (in Giddens, 2005) teacher has stress when the teacher has little experience to handle students with various abilities. The majority of the teachers as subject in special school had 12-29 years of experience. Meanwhile, the teacher in inclusive school has 0-11 years of experience. The time experience in inclusive school is still short since inclusive school is still new in Indonesia, starting around 2004-2005 (Mengenal Pendidikan Inklusi, 2006).

The unprepared matter upon specific demands in work makes teacher feel stress. In inclusive school, the unprepared thing is an effect of the changing curriculum from homogeny class into heterogenic class. This changing is needed since heterogenic is one of the characteristics in inclusive school as suggested by Sapon-Shevin. In this case, teacher needs adaptation and when teacher cannot adapt, they will experience stress (Mengenal Pendidikan Inklusi, 2006). Adaptation will be difficult when there is no sufficient knowledge related to the job or work. Thus, training upon special needs' is needed. During this time, teachers still had difficulties to explain the concept of the subjects since the assigned teacher, notably non special education teacher, experiences some limitation in articulating a concept from a subject to the students with special needs ("Pendidikan Inklusi belum memadai", 2011). The subjects in inclusive school were homeroom teachers. The special education teacher (Guru Pendamping Khusus) as subject teachers was only one since GPK was not always provided in the school.

Meanwhile, in special school (SLB), the lack of preparation in handling specific demands is related to the numbers of special needs' in 1 classroom. The numbers of special needs' in one classroom were between 3-11 students. The more numbers of special needs' in the class, the more responsibilities for teaching preparation, workload, class size, and administrative task are needed. In SLB, there was no teacher assistant in 1 class. As well as inclusive school, teachers in SLB still need training. Based on the data, the majority of special needs' teachers, in both inclusive school and SLB, have not had any seminar or training related to special needs'.

Based on the calculation, the majority of special needs' teachers, in both inclusive school and SLB, experienced fatigue manifestation. It means that the most frequent manifestation which emerges towards special needs' teachers is the form of physical response, fatigue. Meanwhile, the minority experienced behavioral manifestation such as consuming sedative or even alcohol. Whatever the form of manifestation is, the most important thing is how to solve it. The form of manifestation which is left for a long time can cause serious pathology

symptoms. Moreover, it can cause self-destructive behavior, such as suicide. In the school, the manifestation which is not routed can cause careless or even aggressive behaviors towards colleagues or students (Tsai, Fung and Chow, 2006).

In this study, the researcher realizes that there are still many imperfections, such as the unfair distribution of subject sampling, especially in the inclusive schools. It is because inclusive school is not located in every region. Other imperfection related questionnaire distribution is researcher had to leave the questionnaires at school as suggested by the school. It makes the researcher cannot directly give clear explanation towards questionnaires. Should the imperfections above resolve, it can give better result for this study.

Conclusion

There are three conclusions that can be drawn from this study. First, there is a similar light stress experienced by special needs' teachers in Inclusive School and SLB regarding how teachers balance their time and activity as educators (Ritz, 2009). It also includes time to calm them, time to prepare, and other needed times (Oliver, 2003). Second, there is a similar trait of medium and heavy stress experienced by special needs' teachers in inclusive school and SLB regarding specific events related to their jobs (Ritz, 2009). For instance, teaching preparation, workload, classroom size, administrative tasks and responsibility towards school (Oliver, 2003). Third, the most frequent manifestation emerging in inclusive school and special school is fatigue regarding stress (Ritz, 2009). One of the forms is sleep disorder (Oliver, 2003).

As for the recommendations, it is better to increase the the number of special needs teachers, more heterogonous in special needs' characteristics, more even distribution in every regional in Jakarta to achieve more various descriptions. The direct instruction in filling the questionnaires is needed to anticipate misinterpretation within subjects. After collecting the data through questionnaire, interview is needed to investigate in depth the stress source and manifestation conducted by the teachers. In addition, it aims to add stress coping to depict better description. Developing the instrument, especially the behavioral manifestation domain should be more relevant and in line with the condition in Indonesia.

Regarding inclusive schools, it is good if government or school can provide training or seminar to enrich teacher's knowledge, especially, related to inclusive education such as curriculum or teaching method development. From teachers, they have to have willpower to learn about inclusive since it is still new in Indonesia. They also have to be open-minded to accept new information related to teaching special needs' since it may be different from their experiences. For special schools, the government or school is expected to provide training or seminars to enrich teacher's knowledge with much new information related to children with special needs, such as device development which can support every student needs. From teachers, they have to communicate every uncomfortable things to school, for example, providing facilities for teaching preparation. For both schools, all teachers are expected to establish tolerance among colleagues so

that they will establish empathy. Finally, colleagues can help each other to solve stress.

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TOLERATING STRUCTURAL AMBIGUITY IN GRAMMAR LEARNING

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Abstract

Teaching grammar is believed to be a way to help learners use English correctly and appropriately. However, as English teachers, we sometimes find that a word, phrase, or sentence is ambiguous as it has more than one meaning. The ambiguity, however, can be noticed if one really has a linguistic knowledge on how to analyze the phrase or sentence. There are two kinds of ambiguity (lexical and structural). This paper explores structural ambiguity. Structural ambiguity occurs when a phrase or sentence has more than one underlying structure. The phrase can be disambiguated by putting it in a sentence with some sort of formal indicator which helps the reader or hearer to recognize the sentence structure. Some of the signals include function words, inflections, affixes, stress, juncture, and punctuation. The rest of this paper discusses some types of structural ambiguity, how they differ, and some possible ways to resolve them in order to have understanding for the learners.

Keywords: grammar, ambiguity, sentences

Introduction

One of important things in life is language. People communicate to others by using language. They communicate with each other either spoken or written. But, sometimes people do not get what we have said to them. It is not because they do not hear it, but, it is because we utter a sentence which has more than one meaning. As the consequence, the listeners will have (some) different interpretations and this will make confusion for the listener. In this case, this misunderstanding is called an ambiguity.

Ambiguous sentences can be found in any circumstances. We may find it not only when people say something to us but we can also find ambiguous sentences in written forms, like in the books, newspapers, magazines, and so on. Ambiguous sentences occur if there is more than one meaning which can be interpreted by the people who read or listen to it.

There are three kinds of ambiguity according to Ullmann (as cited in Tambunan 202, 204); phonetic, grammatical or structural, and lexical ambiguity. According to Hurford and Hesly (1983:128), there are 2 (two) groups of ambiguity: lexical and structural ambiguity. Moreover, Kess (1992:133) classified ambiguity to be in 3 (three) groups. They are lexical ambiguity, surface structure ambiguity and deep (underlying) structure ambiguity.

As described above, this paper simplifies ambiguity into 2 (two) categories. They are lexical and structural ambiguity. Furthermore, ambiguity, either lexical or structural, contains two or more possible meanings. Principally, when a sentence has more than one reading, it is an ambiguous sentence.

Davidson (1975:18) explains a theory of semantics of a natural language aims to give the meaning of every meaningful expression, but it is a question what form a theory should take if it is to accomplish this. Since there seems to be no clear limit to the number of meaningful expressions, a workable theory must account for the meaning of each expression on the basis of the patterned exhibition of a finite number of features. But even if there were a practical constraint on the length of the sentences a person can send and receive with understanding, a satisfactory semantics would need to explain the contribution of repeatable features to the meaning of sentences in which they occur.

As described by Marckwardt (1966: 67), as we come to deal with composition, literature, and reading, we shall see that language, though important, is not always the sole factor, and we must be prepared to see this reflected in the size and nature of the part that linguistics plays. Teaching values: the student must know how to express himself cogently and articulately in order to perform effectively in the rest of his school subjects, to write papers and reports, to take examinations, and so on. This would be achieved though guided practice. Based on this idea, this paper emphasizes on how to tolerate structural ambiguity in grammar learning. This paper overviews five ambiguous sentences to be included in the discussion. Here are the 5 (five) samples of ambiguous sentences: *(1) Visiting aunties can be boring. (2) The teacher thanked the students who had given her some flowers. (3) I saw a girl with a telescope. (4) Sam loves the babies more than Katy. (5) Put the tumbler on the table in the kitchen.*

Previous Studies

In Teachers Training and Education Faculty and Literature Faculty of Sanata Dharma University, there have been four undergraaduate theses discussing about ambiguity. The first thesis is by Ni Putu Vitria Arizona (2016), The Lexical Ambiguity in Cosmetics Advertisement investigates the lexical ambiguity in cosmetics advertisement and then sees the readers' interpretation toward it. The second thesis is by Mutiara Sekar Utami (2013), Investigating lexical and structural ambiguity in the reader's forum of the Jakarta Post Newspaper which contains lexical or structural ambiguity analysis in one of rubric in Jakarta Post Newspaper. The third thesis is An investigation of structural ambiguity in phrases found in Indonesian authors` fan-fiction products by Rosa Wuri Amurti (2012). The fourth thesis is The Analysis of Moral Ambiguity Seen in Long Martha Silver`s Characterization in Robert Louis Stevenson`s Treasure Island by Ronny Santoso (2011).

The difference between those four theses from the writer's paper is that the writer focuses on structural ambiguity found in grammar learning. This paper overviews five ambiguous sentences to be included in the discussion as mentioned above.

Ambiguity means (an example of) the fact of something having more than one possible meaning and therefore possibly causing confusion (http://dictionary.cambridge.org/dictionary/english/ambiguity). According to Bloomer (2006: 22), ambiguity also occurs at the syntactic level. It entails two or more possible interpretations of the structure of a clause, as in *Hubert saw his grandmother with a telescope*. Syntactic ambiguity is of interest because it can tell us how our grammatical and semantic processing interacts. If we interpret a whole clause grammatically before we try to interpret it, then we should not expect to find any evidence of the semantic context having resolved the disambiguation before the clause has ended. Syntactic ambiguity, also called amphiboly or amphibology, is a situation where a sentence may be interpreted in more than one way due to ambiguous sentence structure.

Empson (1955: 4) further explains an ambiguity, in ordinary speech, means something very ponounced, and as a rue wittyand deceitful . Ambiguity must be distinguished from vagueness, although it is not always easy to decide whether a specific case of unclear meaning is one or the other. Ambiguous expressions have more than one distinct meaning; vague expressions have a single meaning that cannot be characterized precisely. (It is of course possible for an expression to be both ambiguous and vague, if it has multiple meanings, at least one of which cannot be made precise). If expressions are thought of as picking out regions in some semantic space, then ambiguous expressions pick out more than one region, whereas vague expressions pick out regions with fuzzy boundaries.

Not all ambiguities can be tied to specific lexical items. Structural ambiguities arise when a given string of words can be parsed in two different ways, with different meanings. Clear examples of this occur with coordinate constructions, where modifiers or complements on either periphery of the construction can be associated with either the whole coordination or just the adjacent conjunct. Let us see these examples:

1. The guards let small men and women exit first.
2. Teachers and students of the speaker received priority seating.

In (1), small may modify just men or men and women, and in (2) of the speaker may be the complement of just students or of teachers and students.

The first category of ambiguity is lexical ambiguity. Lexical ambiguity is the effect of an ambiguity of a word. One example is this following sentence: *They went to the bank.* The word "*bank"* in this sentence has two possible meaning. The first possible meaning is *the edge of a river*. The second possible meaning is *financial institution*. From this example, it is not easy to get the meaning of "*bank*". Additionally, it needs a further context to illustrate the implication of the sentence. This sentence is ambiguous as a result of the lackness of information. This sentence can be disambiguated by as long as additional information as in. Therefore, the disambiguated sentence is "They went to the bank to save some money".

In English grammar, syntactic ambiguity is the presence of two or more possible meanings within a single sentence or sequence of words. It is also called structural ambiguity or grammatical ambiguity. Ambiguity, that arises from the fact that two or more different syntactic structures, can be assigned to one string

of words. The phrase *old men and women* is structurally ambiguous because it has the following two structural analyses:
(a) old [men and women]
(b) [old men] and women

Ambiguous expressions that are not structurally ambiguous display lexical ambiguity. The concept of ambiguity is generally contrasted with vagueness. In ambiguity, specific and distinct interpretations are permitted (although some may not be immediately obvious), whereas with information that is vague, it is difficult to form any interpretation at the desired level of specificity. Context may play a role in resolving ambiguity. For example, the same piece of information may be ambiguous in one context and unambiguous in another.

Ambiguous words or statements lead to vagueness and confusion, and shape the basis for instances of unintentional humor. For instance, it is ambiguous to say "*I rode a black horse in red pajamas*," because it may lead us to think the horse was wearing red pajamas. The sentence becomes clear when it is restructured "Wearing red pajamas, I rode a black horse."

Similarly, same words with different meanings can cause ambiguity, like in "*Ron took off his trousers by the bank.*" It is funny if we confuse one meaning of "bank" which is a building, to another meaning, being "an edge of a river". Context usually resolves any ambiguity in such cases.

Crystal elaborates that phrase is a term used in grammatical analysis to refer to a single element of structure containing more than one word and lacking the subject-predicate structure typical of clauses. Furthermore, he classifies 5 (five) types of phrases which are noun phrase, verb phrase, adverbial phrase, adjectival phrase and prepositional phrase (1980: 170).

Crystal (1980:319) explains that sentence is the largest structural unit in terms in which the grammar of a language is organized. Additionally, he distinguishes sentence into four types: statement, question, command and exclamatory.

Method

The aim of this study is to describe structural ambiguity through 5 (five) sentences. The writer uses 5 (five) sample of sentences which most likely contain ambiguous meaning and she will analyze them based on the structural ambiguity. This research is a qualitative study. The data of this study are collected by using: sample. The sample sentences are analyzed though structural analysis.

Structural Analysis

Structural analysis and its main concern are to investigate the distribution of forms in a language. The method involves the use of "test-frames" that can be sentences with empty slots in them as it is explained by Yule (2010:90). For example:

The	*makes a lot of noise.*
I	*heard a yesterday.*

There are a lot of forms that can fit into these slots to produce good grammatical sentences of English (e.g. car, child, donkey, dog, radio). As a result, we can propose that because all these forms fit in the same test-frame, they are likely to

be examples of the same grammatical category. The label we give to this grammatical category is, of course, "noun." Furthermore, the sample sentences are about to describe by using syntactic analysis.

Symbols used in syntactic analysis
This paper uses some list of common symbols and abbreviations that are summarized as follows:

S *sentence*	NP *noun phrase*	PN *proper noun*
N *noun*	VP *verb phrase*	Adv *adverb*
V *verb*	Adj *adjective*	Prep *preposition*
Art *article*	Pro *pronoun*	PP *prepositional phrase*

* *ungrammatical sentence*
→ consists of / rewrites as
( ) optional constituent
{ } one and only one of these constituents must be selected

Findings and Discussion
Types of Structural Ambiguity
From many types of structural ambiguity, 5 (five) sentences are explored in this paper only include:
Type 1 : Gerund + VP
Type 2 : NP + Adj. Clause
Type 3 : VP + NP + PP
Type 4 : VP + NP + more…than + NP
Type 5 : VP + NP + PP1 + PP2

Type 1: Gerund + VP
Sample sentence (1) *Visiting aunties can be boring*.

Visiting aunties	can be boring.
Gerund	VP

The second type of ambiguity has the construction a gerund followed by a verb. The example sentence is ambiguous because 'visiting aunties' can be understood in two ways: as a compound noun and as a noun phrase consisting of a modifier plus a noun. In writing, it is hard to eliminate the ambiguity, but in speaking, it can be cleared up by using intonation pattern. When it is pronounces with / 2 – 3 1 ↑ / pattern, the utterance indicates a compound noun, which means 'the action of visiting aunties'. However, when it is pronounced with / 3 2 – 1 ↑ / pattern, the utterance implies a noun phrase, which means 'relatives who visit'.

Below are other examples which also indicate ambiguity of a compound noun and a noun phrase (taken from Simatupang, 2007: 101).

- Flying object:
  An object to fly
  An object that flies
- Moving car:
  A car for moving

A car that moves

Type 2: NP + Adj. Clause
Sample sentence (2): *The teacher thanked the students who had given her some flowers.*

The teacher thanked	the students who had given her some flowers.
NP	Adj. Clause

This fifth sentence can be ambiguous because it can be written in two versions with absolutely different meaning:

a) The teacher thanked the students who had given her some flowers.
b) The teacher thanked the students, who had given her some flowers.

In spoken language, the first sentence is uttered without juncture, while the second with juncture between the antecedent (NP) and the Adjective clause. The interpretation of the first sentence, the adjective clause 'who had given her some flower' restrict NP 'the student' to give important information 'which students' the teacher thanked. It implies that the teacher thanked only some students who had given her some flowers (not those who didn't give her flowers). The adjective clause in the second sentence does not restrict the antecedent 'the student', thus, it gives further information which is not needed to identify the person. It means that the teacher thanked all of the students (and all of them gave her flowers). This shows the importance of proper punctuation in writing, and juncture in spoken utterance.

For Indonesian learners, however, the different meaning of restricted and non restricted adjective clauses is still a problem unless their linguistic knowledge is adequate. Here are some other examples:

- Carl got into the car which was parked behind the house:
  There are many cars parked behind the house.
- Carl got into the car, which was parked behind the house:
  There is only one car parked behind the house.
- In *Indonesian Idol Contest*, Joy waved her hands to her fans who shouted at her: (*Joy waved her hands only to some of her fans.)*
- In *Indonesian Idol Contest*, Joy waved her hands to her fans, who shouted at her: (*Joy waved her hand to all of her fans.)*

Type 3: VP + NP + PP (prepositional phrase)
Sample sentence (3) *I saw a girl with a telescope.*

I	saw	a girl with a telescope
VP	NP	PP

The sentence may mean 'Somebody was seeing a girl by using a telescope' or 'somebody was seeing a girl who is holding or bringing a telescope'. This type of ambiguity occurs since the prepositional phrase 'with a telescope' can modify two nouns 'I' or a 'girl', either of which can be treated as its antecedent. In the sentence there is no clue to which noun the PP modifies. In other words, 'with a telescope' can modify the nouns of 'I or a girl'. This type of structural ambiguity

results from the lack of information in the construction. If additional information is added to it, the sentence becomes unambiguous:

a) I saw a girl with a telescope. The telescope is broken.
b) I saw a girl with a telescope. The girl is pretty.

In a), 'with a telescope' refers to 'I'; and in b), to 'a girl'. Other examples of the same sort (*prepositional phrase that can modify two noun phrases*) are:

- The girl hit the boy with a book:
  Using a book, the girl hit the boy.
  The boy is bringing a book when the girl hit him.
- Jimmy harms Mira with a cutter:
  Using a cutter, Jimmy harms Mira.
  Mirais holding a cutter when Jimmy harms her.

Type 4: VP + NP + more … than + NP
Sample sentence (4): *Sam loves the babies more than Katy.*

Sam loves	the babies	more than Katy
VP	NP	NP

This third type of ambiguity concerns comparative degree. It is ambiguous because the shortened version may function as the subject of the second (shortened) clause or as the object of the verb 'love' which is in comparative relation with 'the babies'. The rule is if the comparative clause is identical to the main clause except for a contrasted phrase; optionally remove everything from the comparative clause except for this contrasted phrase. In other words, when one makes a sentence using comparative degree, he/she will use the sentence, for instance, 'Linda hates Karin more than Eric', rather than 'Linda hates Karin more than he hates Eric' to avoid repetition of similar words. From the example of type 3 above, because of the removal of similar words, the sentence has two meanings.

a) Sam loves the babies more than Katy loves the babies.
b) Sam loves the babies more than He loves Katy.

To make it unambiguous, the shortened version should be added some missing information. The shortened version of 'Sam loves the babies more than Katy loves the fans' should be 'Sam loves the babies more than Katy does'. If we mean 'Sam loves the babies more than He loves Katy', the sentence cannot be shortened.

The followings are other examples of ambiguity of comparative clauses:

- Martha listens to jazz music more often than her mom:
  Martha listens to jazz music more often than her mom listens to jazz music.
  Martha listens to jazz music more often than he listens to her mom.
- Harry loves Aurel more than Louis:
  Harry loves Aurel more than Louis loves Aurel.
  Harry loves Aurel more than Harry loves Louis.

Type 5: VP + NP + PP1 + PP2
Sample sentence (5): *Put the tumbler on the table in the kitchen*.

Put	the tumbler	on the table	in the kitchen
(VP)	NP	PP1	PP2

The sentence above is ambiguous since the first modifier 'on the tumbler' can modify the closest NP or PP2. It is not clear whether 'on the table' modifies 'the tumbler' or 'in the kitchen'. If it modifies 'the tumbler', it means that the bottle is already on the table and should be put in the kitchen. On the other hand, if it modifies 'in the kitchen', it means that the tumbler should be put from somewhere else to the table which is in the kitchen.

The ambiguity can be resolved by placing a terminal juncture between the first and the second modifier. Thus, the sentence may mean 'Put the tumbler on the table / in the kitchen'. The juncture shows that the tumbler is already on the table and then to be put in the kitchen. The second interpretation, is 'Put the tumbler / on the table in the kitchen'. It means that the tumbler should be put on the table, and the location of the table is in the kitchen (not the table in the bedroom).

The followings are other examples of ambiguity with two modifiers.

- Place the hat in the drawer in the bed room:
  To place the hat inside the drawer, this is located in the bedroom.
  The hat is already in the drawer and should be placed in the bedroom.
- Put the book on the box in that room:
  To put the book on the box, this is located in that room.
  The book is already on the box, and it should be put in that room.

Piantadosi, et al point out that there are many features that can contribute to the amount of effort involved in using a word. These include length, phonotactic complexity, and number of phonologically and/or semantically similar words. It is easier for language learners, as well as for speakers and hearers, if words that are easy on these dimensions are used frequently. This can include using one form for multiple meanings, so long as the meanings are sufficiently distant from one another to make confusion regarding which is intended relatively rare. This reasoning predicts that properties like word length and phonotactic complexity should correlate negatively with number of meanings. Piantadosi, et al test several such predictions against dictionaries of English, German, and Dutch, getting generally confirmatory results.

Conclusion

We sometimes do not know if a sentence has a clear message or ambiguity. Whether or not we recognize the ambiguity depend on our linguistic knowledge. For English learners, however, it is still not easy to know if a sentence is ambiguous or not. Having adequate proficiency of English, we are aware of the ambiguity, and try to avoid them, if possible. In writing, for example, we need to use some formal signals (e.g. punctuation) to tolerate ambiguous sentences.

The five types of ambiguity presented in this paper are only some examples of some types of structural ambiguity. Piantadosi, et al (as cited from Wasow (2015:12) provide another simple, but persuasive, explanation of why languages are ambiguous. To achieve maximal efficiency as a medium of communication, a language should not convey unnecessary information. (Recall Grice's Maxim of

Quantity, half of which says: "Do not make your contribution more informative than is required.") Since the context of use generally contributes a considerable amount of information about what the speaker is likely to be talking about, utterances should omit such information. Consequently, many sentences, taken in isolation, are ambiguous, although hearers have no difficulty in understanding what meaning was intended on particular occasions when they are used.

There is, however, one aspect of meaning in which ambiguity is characteristically avoided, namely, argument structure – who did what to whom. Evidently, this is such acentral component of what is communicated that it is normally obligatorily marked – at least in simple declarative clauses without ellipsis. But, as noted above, ambiguities do arise even in this domain. So although grammars contain mechanisms to minimize this one type of ambiguity, ambiguity avoidance is widely overrated as a factor in language structure and use. As stated by Mckay (1985: xix) the purpose of grammar learning is the variety of realistic situations in order to learn to communicate effectively. Thus, tolerating structural ambiguty in grammar learning means getting better understanding of the English language.

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A COMPARATIVE STUDY ON DIGITAL-BASED AND NON-DIGITAL-BASED LEARNING MANAGEMENTS IN SANATA DHARMA UNIVERSITY YOGYAKARTA

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Abstract

This study aims to: 1) determine whether there is a significant difference in effectiveness of learning management by lecturers of USD who use Digital Learning Resources (SBD) with those who do not use SBD based on the students' perception; 2) determine whether there is a significant difference in the ability of the lecturers who use the SBD and those who do not use SBD in managing the courses according to the students' perception; 3) determine whether there is a significant difference in the ability of the lecturers who use SBD and those who do not use SBD in empowering students according to the students' perception. This study analyzes the effectiveness of learning management among 38 lecturers USD who consisted of 19 lecturers who use SBD and 19 lecturers who do not use SBD. The data analysis uses independent difference sampling t-test technique. The results of the study are as follows: First, there is a significant difference in the effectiveness of the lecturers who use SBD with those who do not use SBD in learning management according to the students' perception with t-value of 2.405 and asymptote significance (2-tailed) of 0.022 smaller than alpha 0.05. Second, there is a significant difference in the ability of lecturers who use the SBD with those who do not use SBD in managing the course according to the students' perception with t-value of 2.210 and asymptote significance (2-tailed) of 0.041 smaller than alpha 0.05. Third, there is no significant difference in the ability of lecturers who use SBD with those who do not use SBD in empowering students with t-value of 2.627 and asymptote significance (2-tailed) 0.013 smaller than alpha 0.05.

Keywords: learning management, course management, student empowerment, digital learning resources.

Introduction

The development of information and communication technology has brought a tremendous change for the advancement of education (Hidayatullah, 2013). Along with these developments, lecture methods also undergo many developments, either in the aspects of the person, the media or the process. The form of information technology development in education is e-learning. E-Learning is an innovation that has contributed greatly to the change of learning activities (P3MP-LPM, 2012). Students no longer only listen to lectures but also

perform other activities such as observing, simulating, demonstrating and others. The visualization of teaching materials can be in various formats and forms that are more dynamic and interactive so that the learners will be motivated to engage further in the process of the lecture.

Currently, Sanata Dharma University is optimizing information technology infrastructure to support lectures by using Exelsa Moodle (P3MP-LPM, 2012). With Exelsa Moodle, lecturers can interact with students without any need of physical meeting. Exelsa Moodle allows lecturers give out materials, assignments, as well as grade online. This facility also facilitates students to access learning resources online. However, this has not been optimally used by all lecturers and students in their courses.

Learning management can be done using digital learning resources (SBD) by relying on the applications such as hot potatoes and Moodle-based Exelsa. Hot potatoes is a tool to create question bank. It consists of six applications that can be used to create interactive web-based teaching materials. These six applications included in this software are jcloze, jquiz, jcross, jmatch, jmix, and the masher (P3MP-LPM, 2015). Meanwhile, the Moodle-based Exelsa is developed using plug-in activity big blue button that allows the learning activities to be conducted through streaming (P3MP-LPM, 2012).

However, not all lecturers in Sanata Dharma University utilize this facility. Based on the data from the Center for Development and Learning Quality Assurance (P3MP) LPM USD in 2015, only 35 out of 350 lecturers used Exelsa in managing learning, which consisted of 16 lecturers in odd semester of 2015/2016 and 19 lecturers in the even semester of 2015/2016. That means only 10% of lecturers took advantage of these learning resources. Most lecturers have not utilized this learning management system.

This study compares the learning management conducted by groups of lecturers who used SBD Exelsa and those who did not use it. The lecturers who used this SBD were those who received grants from P3MP LPM USD in odd semester of 2015/2015, as many as 19 lecturers. This study is based on students' perception in 3 aspects: 1) the effectiveness of the lecturers in managing the overall course, 2) the ability of the lecturers in managing subjects and, 3) the ability of the lecturers in empowering students.

This research is expected to provide information on the learning management that takes place among lecturers who utilized SBD because of the grant and those who did not utilize Exelsa. The lecturers in Sanata Dharma University Yogyakarta have to teach, train, and guide students who live in the era of digital technology. The ability of the lecturers to adapt and deliver materials using digital technology is expected by the students. The students are presumed to prefer learning with lecturers who could use digital technology interestingly, creatively, and innovatively rather than those who still use conventional method with lecturing. Furthermore, the use of technology-based media and multimedia allegedly tends to be preferred by students rather than just using white board. Lecturers who use interactive PowerPoint media, internet, digital learning resources, and instructional videos can attract more students to learn rather than those who use only conventional media. Based on the aforementioned

background, the researchers are interested in doing in-depth study on "A Comparative Study on Learning Management between Lecturers Using and Lecturers Not Using Digital Learning Resources in Sanata Dharma University Yogyakarta".

Based on the aforementioned formulation, the following are the problem formulations: 1) Is there any significant difference in effectiveness of learning management based on the students' perception? 2) Is there any significant difference in the ability of the lecturers who use the SBD and those who do not use SBD in managing the courses according to the students' perception? 3) Is there any significant difference in the ability of the lecturers who use SBD and those who do not use SBD in empowering students according to the students' perception?

There are several definitions of learning management proposed by education experts. Majid (2007: 6) suggested that learning management is a process of organizing the interaction of learners with teachers and learning resources in a learning environment. One of the competencies required from teachers is competence in managing learning that includes: 1) preparation of lesson planning, 2) implementation of teaching and learning interactions, 3) assessment of learners' learning achievements, 4) implementation of the follow-up assessments (Majid, 2007: 111). In learning activities, management of learning is necessary for learning activities to run well as planned. Therefore, teachers should have a good functional command on approaches to teaching systems, procedures, methods, teaching techniques, teaching material structure and utilization of learning facilities.

Similarly, Rohani (2004: 123) proposed that learning management covers all activities which are directly intended to achieve the specific goals of teaching. The activities include: 1) determination of learners' entry behavior, 2) preparation of lesson plans, 3) provision of information, and 4) assessment. Learning management is intimately associated with classroom management. Through good classroom management, teachers can create a classroom atmosphere which is conducive for the learning process to take place smoothly and systematically.

Bced website (1999) defined learning resources as follow:

> *Learning resources are defined as information, represented and stored in a variety of media and formats, that assists student learning as defined by provincial or local curricula. This includes but is not limited to, printed materials, video, and software formats, as well as combinations of these formats intended for use by teachers and students.*
> *(http://www.bced.gov.bc.ca/irp/appskill/ asleares.htm January 28, 1999).*

Learning resource is defined as information presented and stored in a media which could help students. The media is not only limited to a certain form, it could be printed, video, software or even combination of various kinds of form that could be used in learning process. Sadiman, et.al. (2008) defined learning resource as anything that could be used for learning, which can be a person, an object, a message, a material, a technique, or even a background.

Juraman (2014: 12) defined educational information as knowledge and insight that contain many things about education. This educational information

can be accessed on the internet either through a computer or through a smartphone. Especially for android-based smartphones, it can be used to access educational information because it has supporting applications as follows: 1) wiki encyclopedias, 2) online and offline dictionary, 3) digital library, 4) playstorebook, 5) KBBI android, 6) detik.com, 7) open office, 8) PDF reader, 9) google chrome, 10) Mozilla Firefox, and 12) google translate. Further, Juraman (2014: 12) revealed a number of educational information that can be accessed via android smartphones, namely: 1) academic portal, 2) scientific articles, 3) information on scholarships, 4) wikipedia.org, 5) detik.com, 6) google books, and 7) e-journal. These various types of educational information can be easily accessed by smartphone provided if it is connected to the internet.

Research Method

This is a comparative study comparing the effectiveness of lecturers' learning management between those who used SBD and those who did not use SBD. The aspects being compared include: 1) overall assessment on learning management effectiveness, 2) lecturers' ability to manage courses, and 3) lecturers' ability to empower students.

The population of this study includes all lecturers, full-time and candidature, in Sanata Dharma University, as many as 350 lecturers. The sample of this research were lecturers who were chosen with specific purpose. The researchers employed purposive sampling because they want to examine the effectiveness of lecturers' learning management among those who used SBD and those who did not use SBD. There were 38 lecturers in this study, 19 of them used SBD and the rest did not use SBD. The sampling was based on data provided by P3MP LPM USD showing that in the odd semester of 2015/2016, there were 19 lecturers who used SBD; therefore, for comparison, the researchers selected 19 others who did not use SBD. The lecturers who used SBD were those who won the grant provided by P3MP LPM USD. The selection of the other group of lecturers was based on the home base of the lecturer who used SBD. Further, the researchers also considered similarity of courses and relative age of both groups. Therefore, both groups of lecturers have relatively the same characteristics.

The study was conducted at Sanata Dharma University which included five campuses: Mrican 1 and 2, Paingan, and Kota Baru. The study was conducted from April 2015 until February 2016. The data collected in this research used the data evaluation filled out online by the students based on a structured and closed questionnaire managed by LPM P3MP USD. The data used was the learning evaluation data in the odd semester of the academic year 2015/2016. In addition to the data from the closed questionnaire, the researchers also used the data in the comments, criticisms, and suggestions of students for each lecturer in which subjects they participated.

The variables and operational definitions in this study were as follows: 1) The effectiveness of learning management is the lecturer's ability to manage learning activities in accordance with the learning objectives that have been delivered at the beginning of the semester. The indicators: the clarity of description of course content and the clarity of description of the overall learning

activity; 2) The ability to manage the course, namely the expertise of lecturers in managing the dynamics of class for one semester. The indicators: a clear learning objective, depth of knowledge, clarity of concept taught, clarity of content and the sequences; 3) The ability to empower students was lecturers' expertise to design and implement learning scenarios with a focus on involving and enabling all students to participate in class. Indicators: develop critical thinking/creativity, conceptual understanding, and relevance between topics/themes.

The data analysis employed descriptive analysis technique and different independent sample t-test. The descriptive analysis technique was employed to describe the lecturers' ability to manage learning based on the students' perception. It was done using percentage analysis. The lecturers' ability in managing learning was divided into five categories (Arikunto, 2003: 264), i.e.: Very High with score of 6.30-7.0; High with score of 5.60-6.29; Moderate with score 4.55-5.59; Low with score of 3.85-4.54; and Very Low with score of <3.85. The descriptive analysis was used to analyze the first problem of this study.

The different independent sample t-test was used to compare the differences of learning management between groups of lecturers who used SBD and those who did not use SBD. The formula of the test is:

$$t = \frac{X1 - X2}{S_X - x}$$

Legend:
t = t value
X1 = average of group 1
X2 = average of group 2
$S_{X\text{-}X}$ = standard error of both groups

This test was employed to analyze the problems number two to five in this study. The criteria: if t value is bigger than t table, so there is a significant difference in the effectiveness of learning management between groups of lecturers who used SBD and those who did not use SBD.

Findings and Discussion

Characteristics of the Research Subjects

This study involved 38 USD lecturers as subjects, consisting of 19 lecturers who utilized SBD and 19 others who did not use SBD. The second group was taken from the same study program and those who have more or less the same characteristics in terms of courses and work period. The characteristics of the subject based on their study program is shown in the following table.

Table 1. Characteristics of the Research Subject Based on Their Home Base

No	Study Program	Frequency	Percentage (%)
1	Mathematics Education	6	15.8
2	Biology Education	6	15.8
3	English Language Education	6	15.8
4	Catholic Religion Education	2	5.3
5	Elementary School Education	6	15.8
6	Economic Education	4	10.5
7	Accounting	2	5.3
8	Management	2	5.3
9	Psychology	4	10.5
	Total	**38**	**100**

Source: primary data of P3MP LPM USD, processed in 2016

From the table above, it can be seen that the subjects were taken from nine study programs in Sanata Dharma University. The subjects were mostly from four study programs, i.e. 1) Mathematics Education, 2) Biology Education, 3) English Language Education, and 4) Elementary School Education. In each study program, there were three lecturers who utilized SBD and when being combined with the lecturers who did not use SBD, it became six in each study program. There were three study programs in which two lectures were chosen, i.e. 1) Catholic Religion Education, 2) Accounting, and 3) Management. In these study programs, there were only one lecturer who used SBD and when being combined with that who did not use SBD, it became two in each study program.

The small number of subjects in this study showed that there was small number of lecturers who used SBD. Further, it also showed that there is a small number of study program that utilized SBD. Even overall in USD, there was a large number of lecturers from 20 other study programs who did not use SBD. This implied that most lecturers did not utilize Exelsa, the web-based SBD.

Data Analysis

1. Comparative Analysis of Learning Management Effectiveness

The mean, deviation standard, and test result of differences on lecturers' ability in managing learning according to students' perception could be seen below:

Table 2. Mean and Deviation Standard of Overall Assessment

Group Statistics					
	Category Group	N	Mean	Std. Deviation	Std. Error Mean
Overall Assessment	Using Digital Learning Resources	19	6.0368	.45730	.10491
	Not Using Digital Learning Resources	19	5.7211	.34412	.07895

Source: primary data of P3MP LPM USD, processed in 2016

According to the table above, it can be seen that the overall assessment of the ability of lecturers who used SBD has a mean value of 6.0368 and the standard deviation of 0.45730. Meanwhile, lecturers who did not use SDB has a mean value of 5.7211. The benchmark using Reference Manual Type I showed that both groups of lecturers who used SBD and those who did not use SBD were high. However, to determine whether there is a significant difference in the ability of lecturers to manage the overall learning, difference test was conducted.

Table 3. Difference Test of Lecturers' Ability in Managing Learning

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Overall Assessment	Equal variances assumed	3.135	.085	2.405	36	.021	.31579	.13130	.04950	.58207
	Equal variances not assumed			2.405	33.436	.022	.31579	.13130	.04879	.58278

Source: primary data of P3MP LPM USD, processed in 2016

Based on the difference on the test table above, it can be seen that on the column of equal variance not assumed, the t value was 2.405 and asymptote significance (2-tailed) of 0.022. Because the value of asymptote significance (2-tailed) is smaller than the alpha of 0.05, it can be concluded that there was a significant difference between the learning management abilities of lecturers who used SBD with those who did not use SBD according to students' perception. The mean value of learning management by lecturers who used SBD was higher than those who did not use SBD. In other words, the overall learning management undertaken by lecturers who used SBD was rated better by the students rather

than those who did not use SBD.

2. Comparative Analysis of Lecturers' Ability in Managing Courses

The comparison of course management ability of lecturers who used SBD and those who did not use SBD could be observed from the mean and deviation standards in the following table:

Table 4. Mean and Deviation Standard of Lecturers' ability in Managing Course

Group Statistics					
	Group Category	N	Mean	Std. Deviation	Std. Error Mean
Ability in Managing Course	Using Digital Learning Resources	19	5.7158	.51883	.11903
	Not Using Digital Learning Resources	19	5.3895	.42543	.09760

Source: primary data of P3MP LPM USD, processed in 2016

Based on the table above, it can be seen that the ability of lecturers who used SBD in managing course had a mean value of 5.7158 and deviation standard of 0.51883. Meanwhile, for lecturers who did not use SBD, the mean was 5.3895 and deviation standard of 0.42543. From the mean value, it was seen that the ability of lecturers who used SBD is higher than those who did not use SBD. Referring to PAP type I, the mean of lecturers who used SBD was categorized as high and that of lecturers who did not use SBD was moderate.

To identify whether there is a significant difference between lecturers who used SBD and those who did not use SBD in managing courses, difference test was conducted and could be seen below:

Table 5. Difference Test of Lecturers' Ability in Managing Course

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Ability in Managing Course	Equal variances assumed	1.012	.321	2.120	36	.041	.32632	.15393	.01414	.63849

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Ability in Managing Course	Equal variances assumed	1.012	.321	2.120	36	.041	.32632	.15393	.01414	.63849
	Equal variances not assumed			2.120	34.670	.041	.32632	.15393	.01372	.63891

Source: primary data of P3MP LPM USD, processed in 2016

From the table above, it is known that in the column of equal variances not assumed, t value was 2.210 and asymptote significance (2-tailed) of 0.041. Because asymptote significance is smaller than alpha 0.05, it can be concluded that there was significant difference in the ability of lecturers who used SBD with those who did not use SBD in managing the course according to students' perception. In the previous table, it was understood that the mean of lecturers' ability who used SBD in managing the course was higher than those who did not use SBD. In other words, the lecturers who utilized SBD were considered more competent to manage the course rather than those who did not use SBD.

3. Comparative Analysis of Lecturers' Ability in Empowering Student

The following section shows the comparative analysis of the ability of lecturers who used SBD and those who did not use SBD in empowering students during class activities. The comparison could be seen from the mean value and deviation standard in the following table.

Table 6. Mean and Deviation Standard Lecturers' Ability in Empowering Students

Group Statistics					
	Group Category	N	Mean	Std. Deviation	Std. Error Mean
Ability in Empowering Students	Using Digital Learning Resources	19	5.8474	.44268	.10156
	Not Using Digital Learning Resources	19	5.5211	.31195	.07157

Source: primary data of P3MP LPM USD, processed in 2016

From the table above, it can be seen that the mean value for lecturers who

used SBD in empowering students was 5.8474 with deviation standard of 0.44268. Meanwhile, the mean value of those who did not use SBD in empowering students was 5.5211. From the mean values, it could be seen that lecturers who used SBD had higher value than those who did not use SBD. Referring to PAP type I, the score for lecturers who used SBD in empowering students belonged to high category; meanwhile, for those who did not use SBD belonged to moderate category. To find out whether there is significant difference of the lecturers' ability in empowering students according to students' perception, difference test should be conducted.

Table 7. Difference Test of Lecturers' Ability in Empowering Students

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Ability in Empowering Students	Equal variances assumed	2.797	.103	2.627	36	.013	.32632	.12424	.07435	.57829
	Equal variances not assumed			2.627	32.340	.013	.32632	.12424	.07335	.57928

Source: primary data of P3MP LPM USD, processed in 2016

From the table above, it can be seen that in the column of equal variances not assumed, the t value was 2.627 and asymptote significance (2-tailed) was 0.013 smaller than alpha 0.05. Therefore, it can be concluded that there was a significant difference on the ability to empower students between lecturers who used SBD and those who did not use SBD. The mean value of those who used SBD is higher than those who did not use SBD. Therefore, it can be concluded that lecturers who used SBD had better ability in empowering students than those who did not use SBD.

Discussion

1. Comparison on the Effectiveness of Learning Management

From the data analysis, it is known that there was a significant difference between the effectiveness of learning management between lecturers who used SBD with those who did not use SBD. Learning management effectiveness of lecturers who used SBD was perceived higher than those who did not use SBD by students participating in the course. The lecturers who used SBD is generally perceived by the students as more qualified to manage learning in comparison to

those who did not use SBD.

The aspects perceived by students as part of management of this course covered two things: 1) clarity of course content description and; 2) clarity of description of the overall learning activity. A positive perception of the students related to the ability of lecturers who used SBD in managing the course was apparent from criticism, suggestions and comments on the online learning evaluation organized by P3MP LPM USD. Here are some examples of comments from the students on the effectiveness of the learning management by lecturers who used SBD: "For me, this learning management is perfect, although the content material is not easy but the lecturer's approach and how to deliver the material has made all the students interested and can understand very well". Another example of the comments: "The learning process went well. I thought I will sleep in this class, but I got carried away so I was not sleepy at all. The lecturer understands how to attract the attention of students". The learning management by lecturers who used SBD was perceived more clearly and systematically because the students have been given the overall picture of the learning activities to be undertaken during the semester. Learning management by lecturers who used SDB was perceived more effective due to the design of the learning activities that were arranged systematically and tailored for the competencies to be achieved.

For the lecturers who did not use digital learning resources in managing learning, there were some criticisms and suggestions, for example: "The flow was less coherent, and during the learning process students did not get basic knowledge or concepts in planning for learning". Another example of the criticism and advice was: "I am disappointed because what we did was not really given reinforcement by the lecturer. I do not fully know the difference of SBC or K13".

However, there are also some positive comments on the management of learning by lecturers who did not use SBD, for example: "This course has helped me in the future to be a creative educator, because here we are taught to create and innovate". Other example of positive comments: "I appreciated very much the ways of learning in the classroom during this time, because the lecturer was always firm and did not allow students to relax".

2. Analysis on Lecturers' Ability in Managing Course

From the data analysis, it is known that there was significant difference in the ability of lecturers who used SBD with those who did not use SBD in managing the course according to students' perception. The ability of lecturers who used SBD in managing the course was perceived higher than those who did not use SBD by students participating in the course. The lecturers using SBD was generally perceived by the students better in managing the course compared to those who did not use SBD.

The aspects perceived by students in the management of the course cover five things: 1) ability of the lecturer in explaining the objective of learning; 2) the breadth and depth of knowledge of the lecturer on the course; 3) the clarity of concept taught by the lecturer; 4) the clarity of the material being taught by the

lecturer; 5) the clarity of sequences in learning. A positive perception of the students related to the ability of lecturers who used SBD in managing the course was apparent from the criticism, suggestions and comments on the online learning evaluation organized by P3MP LPM USD.

In general, the students participating in the course with the lecturers who used SBD feel that the management of the course organized by the lecturers had clear objective, material taught and sequences. Here are some examples of comments from students who attended a course by a lecturer who used SBD: "The flow of material is very neat, so the students are at ease in understanding and following the lesson". Other comment was "Please keep the online tasks". Another example was "The social activity to Panti Cacat Ganda or SLB further enhances the knowledge and understanding of the genetic material. In addition, mutual caring and respect for others with special needs are also fostered through this social activity". There were still many other positive comments about lecturers who used SBD. However, there were also some negative comments for the lecturers who used SBD, for example: "Please don't make the online assignments weekly because there are still many assignments from other courses".

For the group of lecturers who did not use SBD, there were some criticisms and suggestions, for example: "How to teach needs to be clarified. Make it more relaxed and not tense". Other suggestion was as follows: "The learning sequence was less coherent, and during the learning process the students did not get the basic knowledge or concepts in planning learning". Another example was: "The way of teaching is good enough although I have trouble understanding the material, it may be too fast".

However, there were also some positive comments on the lecturers who did not use SBD: "During the lecture, the lecturer always explained very well. I felt very comfortable as a student here. The lecturer always welcomes the questions asked by the students. Most importantly, the lecturer was very discipline." Other positive comment stated that: "The lecturer absolutely understood how to deliver the materials to the students".

There were more positive comments regarding the ability of the lecturers in managing the courses for the lecturers who used SBD. It happened because the requirements that should be developed and implemented by the SBD grant participants include a systematic description of learning outcomes, clarity of concepts taught along with the online assignments, and course sequencing. The online activity was also supported by Exelsa Moodle and hot potatoes that can be used to upload the material, assignments, quizzes, and a series of lectures systematically. Thus, it is understood that the management of the courses which utilized SBD was perceived better by students than those that did not utilize SBD.

3. Comparative Analysis of Lecturers' Ability in Empowering Students

From the data analysis, it was known that there was a significant difference in the ability of the lecturers who used SBD with those who did not use SBD in empowering students. The lecturers who used SBD had better score than those who did not use SBD in empowering students. Referring to PAP type I, the score of the lecturers who used SBD in empowering the students was in the high

category, while the lecturers who did not use SBD was included in moderate category. The aspects examined in regard with the ability of the lecturers in empowering the students cover three things: 1) the ability of the lecturers to encourage the students' critical/creative thinking, 2) the ability of the lecturers to improve the students' conceptual understanding, and 3) the ability of the lecturer in showing the relevance between topics/themes.

In general, the students provided positive comments on the ability of lecturers who used SBD. It appeared from some examples of the comments as follows: "This course is a subject that interests me, especially the practicum experience that is new for me". Other positive comment was: "I love the learning activities done in the classroom, it encourages students to actively think and being skillful in listening to the materials being taught." Another comment was: "Improve teaching method that is fun and not boring and stressful".

Nonetheless, there were some negative comments for some lecturers who used SBD, for example: "I am happy with how the lecturer teaches. If possible, while teaching in the classroom, do not just keep quiet and look at the students and busy with the laptop". Other feedback from the students was: "This subject had too many assignments that were considered very burdensome for the students". Another comment was: "The method used by the lecturer I guess was less attractive, and cannot build curiosity, but I keep trying to be curious with the questions given".

On the other hand, for the group of lecturers who did not use SBD, there were some positive comments as well related to the ability to empower students in the learning process, for instance: "This course really helped me to become a creative teacher, because here we are taught to create and innovate, either that in making the materials, a game that includes materials given, poetry, and many more that can be applied in the future". Other positive comment was: "This lecture encouraged me to be able to think critically. I am used to lectures that are not demanding. This subject really requires students to think critically and creatively, and seek learning".

However, there were also some suggestions addressed to some lecturers who did not use SBD, for example: "The teaching method was very monotonous that made us sleepy in class, but we can understand the material". Another suggestion was: "For the future, please don't be monotonous, because during the learning process in class the students got bored".

From the description above, it is understood that the comments for the lecturers who used SBD in empowering the students were more positive because the learning facilities available at Exelsa allow students to upload assignments, make videos and upload them, do online crossword, online quizzes, and online exams. In addition, SBD also encourages students to actively open SIA since the lecturers do not always tell if there are tasks that must be submitted online. SBD facility using Exelsa encourages students to be active both inside and outside the classroom.

Conclusions

Based on the findings in this study aforementioned in the data analysis

and discussion, it can be concluded that:

First, there was a significant difference between the effectiveness of learning management by the lecturers who used SBD with those who did not use SBD. Learning management effectiveness by the lecturers who used SBD was perceived higher than those who did not use SBD. The lecturers utilizing SBD were generally perceived by the students as more qualified to manage learning in comparison to those who did not use SBD. The aspects perceived by students in the course management includes two things: 1) clarity of description and course content and 2) clarity of description of the overall learning activity. The learning management by the lecturers who used SBD was perceived more clearly and systematically because the students have been given the overall picture of the learning activities to be undertaken for the whole semester. The learning management by the lecturers who used SBD was perceived more effective due to the design of learning activities that were arranged in a systematic way and tailored to the competencies to be achieved.

Second, there was a significant difference in the ability of the lecturers who used SBD with those who did not use SBD in managing the course according to the students' perceptions. Lecturers utilizing SBD in managing subjects were perceived more capable of managing subjects than those who did not use SBD. The aspects perceived by students include five things: 1) the ability of the lecturer in explaining the learning objectives; 2) the breadth and depth of lecturers' knowledge of the subject; 3) the clarity of the concepts taught; 4) the clarity of the materials being taught; and 5) the clarity of course sequencing. Using SBD, the lecturers should include a systematic description of learning outcomes, clarity of concepts taught along with the online assignments, and course sequencing. In addition, the online learning is also supported by Exelsa Moodle and hot potatoes that can be used to upload the material, assignments, quizzes, and a series of course activities systematically.

Third, there was a significant difference in the ability of lecturers who used SBD with those who did not use SBD in empowering students. The lecturers who used SBD got better score than those who did not use SBD in empowering students. The score of lecturers who used SBD was put in the high category, while the lecturers who did not use SBD were included in the moderate category. The aspects examined in regard to the ability of the lecturers in empowering the students include three things: 1) the ability of the lecturers to encourage critical/creative thinking of the students, 2) the ability of the lecturers in improving students' conceptual understanding, and 3) the ability of the lecturers to show the relevance between topics/themes. The learning facilities available at Exelsa allow students to upload assignments, make videos and upload them, and do online crossword, online quizzes, and online exams. The learning facilities in Exelsa encourage students to be active both inside and outside the classroom.

Suggestions

There are some suggestions that can be proposed from this study for the lecturers, study programs, university and the students. ***First***, the lecturers are expected to be more willing in utilizing SBD in managing learning. The

utilization enables lecturers and students to be well prepared with the overall picture of the learning process from the beginning to the end of the semester. SBD facilitates the lecturers to prepare all course material for the whole semester and then upload them in Exelsa. On the other hand, the students are conditioned to always upload assignments, quizzes, and tests online. Thus, learning can take place more effectively.

Second, the lecturers are expected to be more willing to take advantage of SBD in managing the courses. It is necessary because there are many benefits to be gained by managing SBD courses. The utilization of SBD enables the lecturers to manage the course online, the students to be more engaged, interactions between lecturers and students to be more intensive both inside and outside the classroom, as well as content and evaluation of learning to be understood by the students from working quizzes, assignments and exams that can be done off campus. The lecturers are also encouraged to be more open and to develop the willingness to learn to use SBD as an online learning tool given that the lecturers educate students who live in the digital age.

Third, the heads of the study programs as well as the lecturers are expected to improve the ability in utilizing SBD through participation in many trainings on SBD utilization, video making, and interactive ppt. If all heads of study program encourage their lecturers to take advantage of the SBD, undoubtedly USD will be a campus that optimally utilizes SBD and implements online learning. Thus, the use of SBD becomes a collective movement to optimize the guidance and services for the students.

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