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The context of students following the introduction probability theory course in the reflective pedagogy perspective

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Abstract: the introduction of the probability theory course aimed to equip the mathematics education students about the probability theory basic knowledge. This subject was important, as it contained a pre requisite knowledge for the elementary statistics course, the statistical methods course, and the practicum of statistical methods course, and a provision for students in mathematics education department to teach the probability theory in high school and / or vocational school. The nature of this course was mandatory to pass, meaning that if a student wants to graduate from this course, then he or she should get the value of C for this course. From the experience of previous years, there were still many students who had difficulty to understand the material from this course. From the experience of previous years, the difficulty experienced by students was to translate the problems into mathematical symbols corresponding existing in the probability theory. In general, if a student had been able to translate problems into mathematical symbols, then the student would be able to resolve the problem. In the implementation of teaching learning process by using pedagogy reflective, there were five steps that need to be implemented, that were to know the context of the learner, provide experience to students, ask students to reflect, ask students to do actions, and evaluate of the learner achievements. In this paper, the author would only present about how the researcher could recognize the context of students who followed the introduction probability theory and what were the students' context profiles. The results obtained by the researcher in this study were as follows: (1) the results of the reseacher tracking through academic information system (SIA) about the context of the area of origin of students that obtained by the reseacher were as follows: (a) there were five students from Sumatra, (b) 18 students from Java, (c) five students from East Nusa Tenggara, (d) four students from Kalimantan, (5) one student from Sulawesi, and (e) four students from Papua, (2) the results of the researcher tracking through SIA about the students' GPA were (a) two students had GPA between 3.50 to 4.00, (b) 11 students had GPA between 3.00 to 3.49, (c) seven students had GPA between 2.50 to 2.99, (d) 13 students had GPA between 2.00 to 2.49, and (e) four students had GPA below 2.00. In addition to the data from the SIA, the researcher also conducted a test to determine the pre-ability of the students on the multiplication principle, permutations, and combinations. Results obtained were as follows: (1) 14 students could use the multiplication principle to solve a problem; (2) no student could use the multiplication principle and permutations to solve a problem; (3) five students could use cyclical permutations to solve a problem; (4) six students could use permutations if contains the same elements to solve the problem; and (5) no student could use the multiplication principle and combinations to solve a problem.

Keywords: reflective pedagogy, context, experience, reflection, action and evaluation.

1. Introduction

The introduction probability theory course aimed to equip the mathematics education students about the probability theory basic knowledge. This subject was important for them, as it contained a pre requisite knowledge for the elementary statistics course, the statistical methods course, and the practicum of statistical methods course, and a provision for students in mathematics education department to teach the probability theory in high school and / or vocational school. The nature of this course was mandatory to pass, meaning that if a student wants to graduate from this course, then he or she should get the value of C for this course.

From the experience of previous years, there were still many students who had difficulty to understand the material from this course. From the experience of previous years, the difficulty experienced by students was to translate the problems into mathematical symbols corresponding existing in the probability theory. In general, if a student had been able to translate problems into mathematical symbols, then the student would be able to resolve the problem.

2. Research Question

What was the context of students taking the introduction probability theory course?

3. Theory Framework

Pedagogy was the efforts made by teachers in assisting students in their growth and development and closely related to the beliefs and vision of teachers about a personal ideal figure to be formed through a teaching and learning process (Komunitas Studi dan Pengembang PPR Yogyakarta, 2012).

According to Father Arrupe (in Komunitas Studi dan Pengembang PPR Yogyakarta, 2012), the aim of Jesuit education was to form men and women for others. Father Kolvenbach (in Komunitas Studi dan Pengembang PPR Yogyakarta, 2012), formulated in more detail that the purpose of education of the Jesuits was to form leaders of ministry that modeled in Jesus Christ, men and women who were competent in their fields, have a conscience that was true, and has a concern growing and love of neighbor.

There were three main elements in the implementation of teaching learning process by using Reflective Pedagogical Paradigm (PPR), which is experience, reflection, and action. In carrying out the three main elements, the lecture assisted by elements of the student context understanding before the teaching learning process was began, and the evaluation of the student achievement undertaken by the lecture after the teaching learning process was finished (Suparno, 2015).

In preparing the learning process by PPR, a teacher needed to recognize the context of students. The following points should be considered a teacher or lecturer in knowing the context of students: (1) the student context, (2) the concept and initial understanding of students, (3) the economic, social, political, cultural, and media context, (4) university environment, and (5) the educational context in Indonesia (in Komunitas Studi dan Pengembang PPR Yogyakarta, 2012, and Suparno, 2015). The lecture's efforts knowing the context of students who followed the course would help the lecture to design the teaching learning activities that could provide an experience that was consistent with the students' context.

There were some expert opinion on why the lecture important to know the students' context as followes:

a. Skemp (2009) states that
    1) Mathematics was a way of using the human mind which greatly increases the strength of the human way of thinking.
    2) Mathematics should be taught in ways that allow students to use their intelligence and not just rote learning.

Proceeding ICMETA: Volume 1/2017, June 27th 2017 ISBN 978-602-397-058-2

3) There were two principles in the mathematics teaching learning process, namely:
   a) The mathematics concept level which was higher than the students' mathematics concept level could not be communicated to them by giving a definition, but to provide a sample set accordingly.
   b) Because one mathematics material could become conditional for other materials, the lecture should ensure that other concepts that have been formed in the minds of learners first.

b. Bruner (in Dahar, 2011: 75) said the knowledge construction process was done by connecting the new information with the information that already exists within him or her.

c. Ausubel (in Dahar, 2011: 95) said a person would be learned significantly if he or she could establish a connection between the new information it receives with the relevant concepts that already exist in the cognitive structure of the person.

d. According to Suparno (1997, 2001), schema or schemata (plural) was a mental or cognitive structures in which someone intellectually adapt and coordinate the surrounding environment. Scheme would adapt and change over a person's cognitive development. According to Suparno (2001), more and more experienced in life and to make contact with the environment, the scheme someone will multiply.

e. According to Skemp (2009), a scheme had three functions: (1) integrating existing knowledge; (2) a tool for learning; and (3) making a person could understand something.

4. Research Methodology

To answer the research question, the researcher would perform the following steps:

a. The lecturer find data of students who followed the introduction probability theory course through the Academic Information System (SIA). The students data was about the students' hometown and the students' GPA.

b. Ask students to answer five questions relating to the material Probability Theory at the high school level.

5. Research Results

a. The students' hometown and GPA contexts

The results obtained by the researcher in this study were as follows:

1) The results of the researcher tracking through academic information system (SIA) about the context of the area of origin of students that obtained by the reseacher were as follows:
   a) Five students from Sumatra.
   b) 18 students from Java.
   c) Five students from Nusa Tenggara.
   d) Four students from Kalimantan.
   e) One student from Sulawesi.
   f) Four students from Papua.
2) the results of the researcher tracking through SIA about the students' GPA were as follows:
   a) Two students had GPA between 3.50 to 4.00.
   b) 11 students had GPA between 3.00 to 3.49.
   c) Seven students had GPA between 2.50 to 2.99.
   d) 13 students had GPA between 2.00 to 2.49.
   e) Four students had GPA below 2.00.

Proceeding ICMETA: Volume 1/2017, June 27th 2017 ISBN 978-602-397-058-2

b. The students' ability about the probability theory on senior high school level

Before starting the lecture, the lecturer gave five questions about the probability theory on high school level. The purpose of the provision of these problems was to give an overview to the beginning student ability on the probability theory on senior high school level. The problems were as follows:

1) How many the letter arrangement that could be formed by the letters in the word RESIKO without any repetition, if the first letter is a vowel?
   The indicator which would be measured for this problem was students could use the multiplication principle to solve the problem.
2) There are 5 Mathematical books, 4 Physical books and 3 Chemistry books that would be compiled into a rack that could hold all the books. How many possible arrangements if similar books must be arranged side by side?
   The indicator which would be measured for this problem was students could use the multiplication principle and permutations to solve problems.
3) Six people would sit down with a circular position. If there were two friends who always sat side by side, how many sitting arrangement that could be made?
   The indicator which would be measured for this problem was students could use to solve the cyclical permutations problem.
4) How many of the letter arragenment that can be compiled from word Mississippi.
   The indicator which would be measured for this problem was students could use permutations if contains the same elements to solve the problem.
5) There were 20 dancers in a studio. At the same time they danced in the hotel A and B. In the hotel A, they need five dancers, and in the hotel B, they need nine dancers. How many dancers arrangement could be set up for dancing in the hotel A and B?
   The indicator which would be measured for this problem was students could use the multiplication principle and combinations to solve problems.

The student answer description for those problems were as follows:

1) How many the letter arrangement that could be formed by the letters in the word RESIKO without any repetition, if the first letter is a vowel?
   a) First answer:
      The arrangement of letters that could be formed by the letters in the word RESIKO without any repetition, if the first letter was a vowel was $3 \times 5 \times 4 \times 3 \times 2 \times 1 = 360$ arrangements.
      There were 12 students who answered that way.
   b) Second answer:
      E → 5! = 120;
      I → 5! = 120
      O → 5! = 120 +
      360 arrangements.
      There was a student who answered that way.
   c) Third answer:
      The arrangement of letters that could be formed by the letters in the word RESIKO without any repetition, if the first letter was a vowel was $3 \times 5 \times 4 \times 3 \times 2 \times 1 = 180$ arrangements.
      There was a student who answered that way.
   d) Fourth answer:
      The arrangement of letters that could be formed by the letters in the word RESIKO without any repetition, if the first letter was a vowel was $6 \times 5 \times 4 \times 3 \times 2 \times 1 = 720$ arrangements.
      There was a student who answered that way.
   e) Fifth answer:
      $P_{(6,3)} = \frac{6!}{3!} = \frac{6 \times 5 \times 4 \times 3!}{3!} = 120$ arrangements.

Proceeding ICMETA: Volume 1/2017, June 27th 2017 ISBN 978-602-397-058-2

There were six students who answered that way.

f) Sixth answer:
There were three vowels.
$C_{(6,3)} = \frac{6!}{3!} = \frac{6\times5\times4\times3!}{3!} = 120$ arrangements.
Having regard to the above requirements, then the arrangement of letters that could be established was $\frac{120}{3} = 40$ arrangements.
There was a student who answered that way.

g) Seventh answer:
There were three vowels.
$C_{(6,3)} = \frac{6!}{3!(6-3)!} = \frac{6\times5\times4\times3!}{3!3!} = 20$ arrangements.
There was a student who answered that way.

h) Eighth answer:
There were three vowels.
$P_{(6,3)} = \frac{6!}{3!(6-3)!} = \frac{6\times5\times4\times3!}{3!3!} = 20$ arrangements.
There was a student who answered that way.

i) Ninth answer:
There were six letters in the word RESIKO consisting of three vowels and three consonants.
$\frac{6!}{3!3!} = \frac{6\times5\times4\times3!}{3!3!} = 20$ arrangements.
There were three vowels, so the arrangement of letters that could be formed by the letters in the word RESIKO without any repetition, if the first letter was a vowel was $20 \times 3 = 60$ arrangements.
There was a student who answered that way.

j) Tenth answer:
$C_{(3,1)} + C_{(3,1)} = \frac{3!}{1!2!} + \frac{3!}{1!2!} = 3 + 3 = 6$ arrangements.
So, there were six arrangement of letter that could be formed by the letters in the word RESIKO without any repetition, if the first letter was a vowel.
There was a student who answered that way.

k) Eleventh answer:
RESIKO = $3 \times 3 = 9$ arrangements.
There was a student who answered that way.

l) Twelveth answer:
720 arrangements of letter that could be formed by the letters in the word RESIKO without any repetition, if the first letter was a vowel.
There was a student who answered that way.

m) Thirteenth answer:
IR, IS, IK, IRS, IRK, ISK, ER, ES, EK, ERS, ESK, ERK, OR, OS, OK, ORS, ORK, OSK, IRSK, ERSK, ORSK.
There were two students who answered that way.

n) There were six students who did not answer it.

2) There were 5 Mathematical books, 4 Physical books and 3 Chemistry books that would be compiled into a rack that could hold all the books. How many possible arrangements if similar books must be arranged side by side?

a) First answer:
The number of book arrangement was $3 \times 2 \times 1 = 6$ arrangements.
There were eleven students who answered that way.

b) Second answer:

Proceeding ICMETA: Volume 1/2017, June 27th 2017 ISBN 978-602-397-058-2

The number of mathematical book arrangement was $C_{(5,2)} = \frac{5!}{(5-2)!2!} = \frac{5\times4\times3!}{3!2!} = 10$ arrangements.
The number of physical book arrangement was $C_{(4,2)} = \frac{4!}{(4-2)!2!} = \frac{4\times3\times2!}{2!2!} = 6$ arrangements.
The number of chemistry book arrangement was $C_{(3,2)} = \frac{3!}{(3-2)!2!} = \frac{3\times2!}{1!2!} = 3$ arrangements.
So, the number of book arrngement was 10 + 6 + 3 = 19 arrangements.
There were three students who answered that way.

c) Third answer:
The number of mathematical book arrangement was $\frac{5!}{(5-2)!2!} = \frac{5\times4\times3!}{3!2!} = 10$ arrangements.
The number of physical book arrangement was $\frac{4!}{(4-2)!2!} = \frac{4\times3\times2!}{2!2!} = 6$ arrangements.
The number of chemistry book arrangement was $\frac{3!}{(3-2)!2!} = \frac{3\times2!}{1!2!} = 3$ arrangements.
There was a student who answered that way.

d) Fourth answer:
The number of mathematical book arrangement was $5 \times 4 \times 3 \times 2 \times 1 = 120$ arrangements.
The number of physical book arrangement was $4 \times 3 \times 2 \times 1 = 24$ arrangements.
The number of chemistry book arrangement was $3 \times 2 \times 1 = 6$ arrangements.
So, the number of book arrangement was 120 + 24 + 6 = 150 arrangement in one possibility.
So, all of the book arrangement was 150 × 6 = 900 arrangements.
There was a student who answered that way.

e) Fifth answer:
The number of book arrangement was 5! + 4! + 3! = $5 \times 4 \times 3 \times 2 \times 1 + 4 \times 3 \times 2 \times 1 + 3 \times 2 \times 1$= 120 + 24 + 6 = 150 arrangements.
There was three students who answered that way.

f) Sixth answer:
The number of book arrangement was 5! + 4! + 3! +3! = $5 \times 4 \times 3 \times 2 \times 1 + 4 \times 3 \times 2 \times 1 + 3 \times 2 \times 1 + 3 \times 2 \times 1 = 60 + 24 + 6 + 6 = 96$ arrangements.
There was a student who answered that way.

g) Seventh answer:
The number of book arrangement was $5 \times 4 \times 3 = 60$ arrangements.
There was two students who answered that way.

h) Eighth answer:
The number of book arrangement was $\frac{5\times4\times3}{2} = \frac{60}{2} = 30$ arrangements.
There was a student who answered that way.

i) Ninth answer:
The number of book arrangement was two arrangements.
There was a student who answered that way.

j) Tenth answer:
The number of book arrangement was $C_{(12,2)} - C_{(5,2)} - C_{(4,2)} - C_{(3,2)} = \frac{12!}{2!10!} - \frac{5!}{2!3!} - \frac{4!}{2!2!} - \frac{3!}{2!1!} = 66 - 10 - 6 - 3 = 50 - 3 = 47$ arrangements.
So, the number of book arrangement was 47.
There was a student who answered that way.

Proceeding ICMETA: Volume 1/2017, June 27th 2017 ISBN 978-602-397-058-2

k) Eleventh answer:
The number of book arrangement was $C_{(12,10)} = \frac{12!}{10!2!} = \frac{12\times 11\times 10!}{10!2!} = 66$ arrangements.
There was a student who answered that way.

l) Twelveth answer:
The number of book arrangement was $\frac{12!}{3!4!5!}$ arrangements.
There was a student who answered that way.

m) There were nine students who did not answer it.

3) Six people would sit down with a circular position. If there were two friends who always sat side by side, how many sitting arrangement that could be made?

a) First answer:
The number of sitting arrangement was $2 \times (5-1)! = 2 \times 4! = 2 \times 4 \times 3 \times 2 \times 1 = 2 \times 24 = 48$ sitting arrangements.
There were five students who answered that way.

b) Second answer:
The number of sitting arrangement was $(5-1)! = 4! = 4 \times 3 \times 2 \times 1 = 24$ sitting arrangements.
There was a student who answered that way.

c) Third answer:
The number of sitting arrangement was $(6-1)! = 5! = 5 \times 4 \times 3 \times 2 \times 1 = 120$ sitting arrangements.
There were nine students who answered that way.

d) Fourth answer:
The number of sitting arrangement was $2 \times (6-1)! = 2 \times 5! = 2 \times 60 = 120$ sitting arrangements.
There was a student who answered that way.

e) Fifth answer:
The number of sitting arrangement was $6! = 6 \times 5 \times 4 \times 3 \times 2 \times 1 = 720$ sitting arrangements.
There were two students who answered that way.

f) Sixth answer:
The number of sitting arrangement was $\frac{6!}{2} = \frac{6\times 5\times 4\times 3\times 2\times 1}{2} = \frac{720}{2} = 360$ sitting arrangements.
There was a student who answered that way.

g) Seventh answer:
The number of sitting arrangement was $(4-1)! = 3! = 3 \times 2 \times 1 = 6$ sitting arrangements.
There was a student who answered that way.

h) Eighth answer:
The number of sitting arrangement was $P_{(4,2)} = \frac{4!}{2!} = \frac{4\times 3\times 2!}{2!} = 12$ sitting arrangements.
There were two students who answered that way.

i) Ninth answer:
The number of sitting arrangement was $P_{(6,2)} = \frac{6!}{(6-2)!} = \frac{6\times 5\times 4!}{4!} = 30$ sitting arrangements.
There were two students who answered that way.

j) Tenth answer:
The number of sitting arrangement was $P_{(5,2)} = \frac{5!}{(5-2)!} = \frac{5\times 4\times 3!}{3!} = 20$ sitting arrangements.

Proceeding ICMETA: Volume 1/2017, June 27th 2017 ISBN 978-602-397-058-2

There was a student who answered that way.

k) Eleventh answer:

The number of sitting arrangement was $C_{(6,2)} = \frac{6!}{4!2!} = \frac{6\times5\times4!}{4!2!} = 15$ sitting arrangements.

There was a student who answered that way.

l) Twelveth answer:

The number of sitting arrangement was $C_{(6,2)} = \frac{6!}{2!} = \frac{6\times5\times4\times3\times2!}{2!} = 360$ sitting arrangements.

There was a student who answered that way.

m) Thirteenth answer:

The number of sitting arrangement was $4 \times 3 \times 2 = 24$ sitting arrangements.

There was a student who answered that way.

n) Fourteenth answer:

The number of sitting arrangement was $4 \times 2 = 8$ sitting arrangements.

There was a student who answered that way.

o) Fifteenth answer:

The number of sitting arrangement was $5^2 = 25$ sitting arrangements.

There was a student who answered that way.

p) There were six students who did not answer it.

4) How many of the letter arragenment that can be compiled from word Mississippi.

a) First answer:

The number of the letter arrangement was $\frac{10!}{4!4!} = \frac{10\times9\times8\times7\times6\times5\times4!}{4!4!} = 6300$ letter arragenments.

There were six students who answered that way.

b) Second answer:

The number of the letter arrangement was $\frac{10!}{2!4!} = \frac{10\times9\times8\times7\times6\times5\times4!}{2!4!} = 75600$ letter arragenments.

There were three students who answered that way.

c) Third answer:

The number of the letter arrangement was $10! = 3628800$ letter arragenments.

There were seven students who answered that way.

d) Fourth answer:

The number of the letter arrangement was $(n-1)! = (10-1)! = 9! = 110880$ letter arragenments.

There was a student who answered that way.

e) Fifth answer:

The number of the letter arrangement was $2 \times 4 \times 10 = 80$ letter arragenments.

There was a student who answered that way.

f) Sixth answer:

The number of the letter arrangement was $C_{(10,2)} = \frac{10!}{8!2!} = \frac{10\times9\times8!}{8!2!} = 45$ letter arragenments.

There were four students who answered that way.

g) Seventh answer:

The number of the letter arrangement was $C_{(10,3)} = \frac{10!}{7!3!} = \frac{10\times9\times8\times7!}{7!3!}$ letter arragenments.

There was a student who answered that way.

h) Eighth answer:

Proceeding ICMETA: Volume 1/2017, June 27th 2017 ISBN 978-602-397-058-2

The number of the letter arrangement was $P_{(10,4)} = \frac{10!}{(10-6)!} = \frac{10!}{4!} = 10 \times 9 \times 8 \times 7 \times 6 \times 5$ letter arragenments.
There was a student who answered that way.

i) Ninth answer:
The number of the letter arrangement was $P_{(10,4)} = \frac{(10-4)!}{4!} = \frac{6!}{4!} = 30$ letter arragenments.
There was a student who answered that way.

j) Tenth answer:
The number of the letter arrangement was $\frac{10!}{(10-4)!} = \frac{10\times9\times8\times7\times6!}{6!} = 5040$ letter arragenments.
There were two students who answered that way.

k) Eleventh answer:
The number of the letter arrangement was 10^{10} letter arragenments.
There was a student who answered that way.

l) Twelveth answer:
The number of the letter arrangement was $\frac{10!}{3} = 1209600$ letter arragenments.
There was a student who answered that way.

m) Thirteenth answer:
The number of the letter arrangement was 4! = 24 letter arragenments.
There was a student who answered that way.

n) There were six students who did not answer it.

5) There were 20 dancers in a studio. At the same time they danced in the hotel A and B. In the hotel A, they need five dancers, and in the hotel B, they need nine dancers. How many dancer arrangement could be set up for dancing in the hotel A and B?

a) First answer:
The number of dancer arrangement was $C_{(20,5)} + C_{(15,9)} = \frac{20!}{5!(20-5)!} + \frac{15!}{9!(15-9)!} = 15504 + 5005 = 20509$ dancer arrangements.
There was a student who answered that way.

b) Second answer:
The number of dancer arrangement was $C_{(20,5)} + C_{(20,9)} = \frac{20!}{5!(20-5)!} + \frac{20!}{9!(20-9)!}$ dancer arrangements.
There were two students who answered that way.

c) Third answer:
The number of dancer arrangement was $(20 - 14)! = 6! = 6 \times 5 \times 4 \times 3 \times 2 \times 1 = 720$ dancer arrangements.
There were two students who answered that way.

d) Fourth answer:
The number of dancer arrangement was $C_{(20,14)} = \frac{20!}{14!6!} = 26760$ dancer arrangements.
There was a student who answered that way.

e) Fifth answer:
The number of dancer arrangement was $C_{(20,13)} = \frac{20!}{13!7!}$ dancer arrangements.
There was a student who answered that way.

f) There were 29 students who did not answer it.

6. Conclusions

From the previous description, the researcher obtained the students' context profiles taking the introduction probability theory course were as follows:

Proceeding ICMETA: Volume 1/2017, June 27th 2017 ISBN 978-602-397-058-2

1. 18 came from the Java Island.
2. 19 came from outside the Java Island.
3. 13 students had GPA between 3.00 to 4.00.
4. 20 students had GPA between 2.00 to 2.99.
5. Four students had GPA below 2.00.
6. 14 students could use the multiplication principle to solve a problem.
7. A student could use the multiplication principle and permutations to solve a problem.
8. Five students could use cyclical permutations to solve a problem.
9. Six students could use permutations if contains the same elements to solve the problem.
10. No student could use the multiplication principle and combinations to solve a problem.

References

[1] Dahar, Retno Wilis. 2011. *Teori-teori Belajar dan Pembelajaran*. Jakarta: Erlangga.

[2] Komalasari, Kokom. 2010. *Pembelajaran Kontekstual: Konsep dan Aplikasinya*. Bandung: PT Refika Aditama.

[3] Komunitas Studi dan Pengembang PPR Yogyakarta. 2012. *Paradigma Pedagogi Reflektif*. Yogyakarta: Penerbit Kanisius.

[4] Solso. 1991. *Cognitive Psychology*. Boston: Allyn and Bacon.

[5] Skemp, Richard R. 2009. *Psychology of Learning Mathematics.* New York: Routledge Taylor & Francis Group.

[6] Suparno, Paul. 1997. *Filsafat Konstruktivisme dalam Pendidikan*. Yogyakarta: Penerbit Kanisius.

[7] Suparno, Paul. 2001. *Teori Perkembangan Kognitif Jean Piaget*. Yogyakarta: Penerbit Kanisius.

[8] Suparno, Paul. 2015. *Pembelajaran di Peguruan Tinggi Bergaya Paradigma Pedagogi Reflektif*. Yogyakarta: Penerbit Universitas Sanata Dharma.