THE EFFECT OF GENERATING INTERACTIONS AMONG SCHEMATA, TEXT, AND BELIEFS ABOUT LANGUAGE LEARNING ON READING COMPREHENSION

Luh Diah Surya Adnyani
Luh_diah@yahoo.com
Ganesha University of Education

Abstract

This study concerned with experimental research which investigated whether or not there was any effect of Generating Interaction between Schemata and Text (GIST) and beliefs about language learning on reading comprehension, and to investigate the relationship between the use of GIST, conventional reading technique and beliefs about language learning. This study was carried out in Ganesha University of Education (Undiksha) Singaraja on 2nd semester students at English Education Department through a 2X2 true-experimental research design. A two-way ANOVA test indicated that the students who were taught using GIST outperformed the students who were taught using conventional reading technique, and there was interaction between kinds of strategy and students' beliefs about language learning. In terms of beliefs about language learning, the result of Tuckey test showed that for the students who hold positive beliefs, GIST gave better contribution to reading comprehension than the conventional reading technique. While for those who hold negative beliefs, there was no significant difference in reading comprehension between the students who were taught using GIST and conventional reading technique.

Key words: *GIST, beliefs about language learning, reading comprehension.*

1. Introduction

Reading is one of four language skills which are taught at school. Connecting the ideas in the text to the background knowledge is an essential task for students. English Education Department students are expected to retain more and more of what they read. The university students are expected to use English in a way that they may obtain more advanced information concerning their own special fields, and then they may put the newly learnt knowledge into practice. Therefore, it is essential for university students to improve the English reading ability (Jing, 2003).

In the field of cognitive science, reading can be viewed as a literacy process inextricably connected with cognition (Ruddell, 2005 in Lin, 2008). The internal cognitive operations the reader engages can be labeled variously in terms of different reading task demands and different levels of cognitive behavior. For example, as Fagan (1987) in Lin (2008) proposed, these processes included attending, analyzing, associating, predicting, inferring, synthesizing, generalizing, and monitoring and these processes require knowledge.

Prior knowledge will then be added as a factor influencing the operation of theses cognitive processes. The background knowledge, which is also known as prior knowledge, world

knowledge, memory storage, or experiential background, refers to all the knowledge which readers have acquired through their life (Porter, 1994), and that knowledge can be helpful when the readers deal with new material.

According to schema theorists, all knowledge is packaged into units which are called schemata. Embedded into these units of knowledge is information on how this knowledge is used. That knowledge is used in the contextualization step, before reading new material.

Schema is one factor that influences EFL reading comprehension (Hong Yun and Ping, 2007). The other factors are vocabulary and motivation. According to their previous studies, those three factors have a significant correlation with reading achievement. Besides, Lenz (2005) added other factors that can influence reading comprehension are the quality of reading text, decoding ability, instruction, and the strategy used in teaching reading.

Based on researcher's experience in teaching Reading 1 course as well as personal interview or personal communication with the lecturing team of Reading 1 course in Undiksha, it was found that the common strategy used in teaching was conventional reading technique, in which the students were mainly assigned to read the passages and dealt with questions related to those passages. In other words, there had been a convention that a class

was always started with reading the passage and continued by answering the questions. It was considered to be conventional, as a matter of fact; a reading exercise should become a vehicle for the students to expand their knowledge and experience with the language in addition to comprehension. Therefore, it is necessary to find other strategy which can optimize the factors which can influence students' reading comprehension.

One teaching strategy that is considered useful to improve students' reading comprehension and involves students' prior knowledge, synthesizing and generalizing cognitive operation is Generating Interaction between Schemata and Text (GIST) strategy, which was proposed by Cunningham in 1982 (Cecil and Gipe, 2003). This strategy is stated useful to identify or generate main ideas, connect the main or central ideas, eliminate redundant and unnecessary information, help students remember what they read, and record a summary of the material they just read.

GIST strategy (the strategy that was considered beneficial in improving students' reading comprehension involving prior knowledge through synthesizing process) and the beliefs about language learning were considered to have a great influence toward language learning. Therefore, it was important to conduct a study to find out evidence on whether the implementation of GIST strategy and beliefs about language learning could give a significant contribution on the reading comprehension. The

research was conducted in reading 1 course classes in English Education Department Undiksha Singaraja in the academic year 2009/2010.

The aims of this study were to find out whether or not there was a significant difference in reading comprehension between the students who were taught by conventional reading technique and GIST, to find out whether or not there was a significant difference in reading comprehension between the positive beliefs students who were taught by conventional reading technique and who were taught by GIST, to find out whether or not there was a significant difference in reading comprehension between the negative beliefs students who were taught by conventional reading technique and who were taught by GIST, and to find out whether or not there was a significant interaction between GIST and beliefs about language learning in reading comprehension.

This study used reading theory proposed by Gillet and Temple (1994), Martin (1991), Pressley (2001), Mikulecky & Jeffries (1996). Hong Yun and Ping (2007), and Lenz (2005). The GIST theory by Cunningham 1982 in Cecil and Gipe (2003), Herrell and Jordan (2004), and Rhoder (2002). Theories about conventional reading technique were proposed by Kohtz (2006) and Perkins (1993). The last but not least, theory about beliefs about language learning was proposed by Richardson (1996) in Bernat (2006),

Agathopoulou (2007), Bernat & Gvozdenko (2005), Horwitz (1983) in Altan (2006).

2. Research Method

This study was designed in an experimental design, involved an experimental and a control group. Those groups were assigned through random sampling, and at the end of the treatment, a posttest was conducted to each group and the result was measured in order to reveal whether there was different achievement between the two groups. The achievement of each group was regarded as data.

The 2x2 factorial were applied in this study. There were three variables to be studied, two independent variables and one dependent variable. The first independent variable was kinds of strategy in teaching reading, which were classified into groups taught by using Generating Interaction between Schemata and Text (GIST) and conventional reading technique. The second independent variable was students' beliefs about language learning, which were classified into positive beliefs and negative beliefs. And the dependent variable was reading comprehension.

Population[1] of this study was all students who took Reading 1 course[2] in English Education Department Undiksha Singaraja. The population consisted of four classes of second semester students of English Education Department Undiksha Singaraja and several seniors who had not passed the course in the previous year. The total number of this population was 131 students.

Random sampling technique[3] was applied to obtain sample[4] of this study. One of the suggestions given by Roscoe (1982) in Sugiyono (2009) was for simple experimental study which involved experimental and control groups, the number of sample per cell ranged from 10 to 20. Ten was the minimum number of sample.

This study involved 10 participants in each cell and 20 participants in each group because the researcher would like to maximize the treatment process considering the limited time. In the last five meetings in experimental group, the participants did individual presentation about their chosen website article and their

---

[1] *Population refers to all individuals who have certain characteristic (or a set of characteristics). Those characteristics can differentiate a particular population from the others (Fraenkel and Wallen, 1993)*
[2] *Reading 1 course is one of the courses offered in the second semester.*
[3] *Random sampling is the best way to obtain a representative sample (Wiersma, 1986).*
[4] *Somantri (2006) stated that sample is a part of population that is taken by using certain procedure to be able to represent the whole members of that population.*

gist or summary. Four presenters in one meeting were considered the most ideal one. The presentations began in the eighth meeting because the previous meetings were used to discuss and practise about the skills of reading comprehension.

There were two kinds of research instruments used in this study, namely: data collection instruments and treatment instruments. There were two kinds of data collection instruments[5] needed in this study, namely: English reading test as dependent variable instrument, and adapted version of Beliefs About Language Learning Inventory or BALLI as moderator variable instrument. And there were two treatment instruments used in this study, namely: GIST template and teaching scenario.

In this study, the researcher looked for the validity[6]; content validity[7] and item validity, and reliability of reading test and adapted version of BALLI questionnaire. The face validity was included in the content validity, in which the expert judges

---

[5] *Data collection instruments are instruments used to collect data.*

[6] *Validity is the most important quality of any test. Validity is concerned with the extent to which an instrument measures what it is designed (Wiersma, 1986). In other words, validity refers to the appropriateness of the implementation of the result of a test and it is specific to the intended use.*

[7] *Content validity is the degree to which a test intended content area (Gay, 1987). It means that a test with good content validity must be appropriate with the purpose of measurement. Content validity is measured by describing all the content area that must be measured to the respondents and then identifying all of the items.*

examined face validity of the instruments at the same time they examined the content validity.

The obtained data were then analyzed using two forms of statistical analysis, namely: descriptive statistic analysis and inferential statistic analysis. Descriptive statistics was used in order to organize and summarize the data of the sample, while inferential statistics was administered to infer and draw conclusion about the population based on the samples data.

3. Findings and Discussion

The result of students' reading comprehension test showed that the students who were taught by GIST (A1) showed better achievement in reading comprehension than the students who were taught by conventional reading technique (A2). While the students who hold positive beliefs about language learning (B1) showed better achievement then the students who hold negative beliefs about language learning (B2). For those who hold positive beliefs, the students who were taught by GIST (A1+B1) showed better achievement than the students who were taught by conventional reading technique (A2+B1). While for those who hold negative beliefs, the students who were taught by conventional reading technique (A2+B2) showed better achievement in reading comprehension then the students who were taught by GIST (A1+B2).

After completing the requirements of homogeneity of the variable and normal distribution, a two way ANOVA statistical analysis was administered at 5% level of significance, and if there was an interaction, it would be followed by Tukey test to get data of the effect of interaction.

From the analysis, $F_A = 4.469$ while $F_{cv\ (1;36;0,05)} = 4,11$. Here $F_A > F_{cv}$ so H_0 was rejected. It meant there was any significant difference in students' reading comprehension between the students who were taught by GIST and those who were taught by conventional reading technique. The students' reading comprehension which were taught by GIST ($\overline{X}_{A1} = 75.25$) was higher than the students' reading comprehension who were taught using conventional reading technique ($\overline{X}_{A2} = 69.80$).

It could be stated that GIST strategy was effective to improve students' reading comprehension. The implementation of GIST could make the students became active readers; they actively searched the important information from the text, eliminated the unimportant information, and used their prior knowledge to be able to propose the summary of the text. The different summary among the students could enrich their insight, sharpen their critical thinking, challenge them to actively search the best summary, and some others that could not be facilitated by the conventional reading technique, which mostly used lecturer centre activity.

The summarizing activity could activate the schemata of the students. It could facilitate the use of students' prior knowledge in various ways, like relating incoming information to already known information, allowing them to predict the continuation of both spoken and written discourse, and as a basis for comparison and a foundation in the students' brain which helps to predict what is to be expected and looked for in certain situation.

It had been stated that GIST had significant influence in the achievement of students' reading comprehension; however, in this study, the students' reading comprehension was also influenced by other factor, it was students' beliefs about language learning. From the second hypothesis analysis, it was found that beliefs about language learning gave contribution to reading comprehension. The students with positive beliefs who were taught by GIST showed a better achievement than those who were taught by conventional reading technique. It was proven by the students' mean score in which the students with positive beliefs who were taught by GIST showed higher mean score ($\overline{X}_{A1B1}$ = 82.60) than those who were taught by conventional reading technique ($\overline{X}_{A2B1}$ = 68.50).

Moreover, the difference was analyzed using Tukey test, and the result of the analysis showed Q_{ob} = 5.469. Next, this score was compared to Q_{cv} that at 0,05 level of significance with df1 = 2 dan df2 = 10 was 3.03. It was found that Q_{ob} was higher than $Q_{cv,}$

therefore, H_a "the students with positive beliefs who were taught by GIST showed a better achievement than those who were taught by conventional reading technique" was accepted. It meant that there was any significant difference in students' reading comprehension between the students with positive beliefs who were taught by GIST and those who were taught by conventional reading technique.

The result of this analysis supports what had been stated by Banya and Chen (1997) in Bernat (2006) that students' beliefs have significant influence to their motivation, attitude, strategy used, anxiety, and English achievement, and all of them influence their success in language learning. They explain that the students with positive beliefs about language learning tend to have stronger motivation, hold favorable attitude and higher motivational intensity, use more strategies, are less anxious, and have better language achievement.

On the other hand, the negative beliefs could decrease motivation, lead frustration and anxiety, may lead to a reliance on less effective strategies and resulting a negative attitude toward learning. The third hypothesis concerned to the negative beliefs students. The analysis showed that Q_{ob} = 1.241, and this score was then compared to Q_{cv} that was at 0,05 level of significance with df1 = 2 dan df2 = 10 was 3.88 It was found that Q_{cv} was higher than $Q_{ob,}$ therefore, H_0 "there was no significant difference in

students' reading comprehension   between the students with negative beliefs who were taught by GIST and those who were taught by conventional reading technique", was accepted. It meant that there was no significant difference in students' reading comprehension between the students with negative beliefs who were taught by GIST and those who were taught by conventional reading technique. The students with negative beliefs who were taught by conventional reading technique ($\overline{X}_{A2B2} = 71.10$) showed higher mean score than those who were taught by GIST ($\overline{X}_{A1B2} = 67.90$). In other words, it could be said that there was no significant difference in students' reading comprehension between the students with negative beliefs in GIST and conventional groups, although it was found that the students who were taught by conventional reading technique showed better achievement in reading comprehension than the students taught by GIST.

This result supported the previous statements. The students with negative beliefs about language learning did not have similar characteristics as students with positive beliefs, such as; they did not have strong motivation, positive attitude toward language learning, did not have high motivational intensity, did not use more strategies, have anxiety, and did not have better language achievement. Whatever strategy used in teaching, the negative beliefs students would not show significant difference in language learning.

The result of the second and third hypothesis analysis led to the forth hypothesis about the interaction happened between GIST and beliefs about language learning. From the analysis, F_{AB} = 11.258 while $F_{cv\ (1;36;0,05)}$ = 4.11. Here, $F_{AB} > F_{cv}$ so H_o was rejected. It meant that there was significant interaction between kind of strategy and beliefs about language learning in improving the students' reading comprehension.

The significant interaction among reading comprehension, GIST, and beliefs about language learning meant that the students would have good comprehension on a reading texts if they were taught by GIST and they hold positive beliefs about language learning. It was because GIST could help them synthesize the most important information from the text and eliminate the unimportant ones, and try to summarize the points of each paragraph or stopping point by their own word. GIST also provided them chance to use higher order thinking skill and to be critical in discussing the summary with other group to choose or propose the best summary.

Besides, GIST let the students to be more independent when they arrived in the last steps when they should choose one article from website, summarize it, and prepare for the presentation. It required them to use an appropriate learning strategy, be aware of the motivation, anxiety, and attitude. These independent steps of GIST differentiated this study from previous

studies, in which the previous studies did not include the steps proposed by Rhoder. However, the result of this study supported the results of other studies that without considering students' beliefs about language learning, Generating Interaction between Schemata and Text (GIST) was an effective strategy to get better achievement in reading comprehension

Based on data analysis, this study had found that kind of strategy used had signifficant influence to students' reading comprehension. Overall, without considering moderator variable, beliefs about language learning, the reading comprehension of the students who were taught by GIST was higher than those who were taught by conventional reading technique. For the students who hold positive beliefs about language learning, GIST group showed higher mean score of reading comprehension than the conventional reading technique. On the other hand, for those who hold negative beliefs about language learning, there was no significant difference between the students who were taught by GIST and taught by conventional reading technique.

4. Conclusion

Based on the previous data and result of the analysis, the conclusions of this study are as follows.

1. Generally, students who were taught by GIST showed a better achievement than those who were taught by conventional reading technique. Therefore, it was concluded that GIST was better than conventional reading technique.

2. In term of students' beliefs about language learning, it was found that for the students who hold positive beliefs, GIST gave better contribution to reading comprehension than conventional reading technique.

3. For the students who hold negative beliefs about language learning, there was no significant difference in reading comprehension at 0.05 significance level between those who were taught by GIST and by conventional reading technique.

4. There was significant interaction between kind of strategy and beliefs about language learning in improving the students' reading comprehension. Students' beliefs about language learning had contribution to the kind of strategies.

Based on the finding of the analysis and the implication, it is suggested to the lecturers of Reading 1 course English Education Department Undiksha Singaraja to minimize the usage of conventional reading technique in teaching reading 1, and they are suggested to use GIST since it involves activity that can increase students' critical thinking through summarizing and sharing activity, and activate the schemata which can facilitate the use of students' prior knowledge in various ways, like relating incoming

information to already known information, allowing them to predict the continuation of both spoken and written discourse, and as a basis for comparison and a foundation in the students' brain which helps to predict what is to be expected and looked for in certain situation. In addition, GIST had been proven in this study that it is an effective technique in reading comprehension.

Besides, the lecturers of Reading 1 course are also suggested to be aware of beliefs about language learning students bring to the classroom, because they may have different beliefs based on their background, environment, and expectation. The awareness the lecturers have may lead them to have more effective instructional planning and implementation.

For the institution, the result of this study is hoped to give contribution and support the postgraduate program as a reference. Lastly, the result of this study is also expected to be used as a reference by the other researchers in conducting the study related to the teaching reading using different technique, different moderator variable, and different students with different characteristic to obtain different insight on how to improve students' reading comprehension.

References

Agathopoulou, L. (2007). *University Students' Beliefs About Language Learning and the Effect of a Language*

Acquisition Course. Retrieved   15 January 2010 from *Http://my.enl.auth.gr/gala/ppts/Agathopoulou.ppt*.

Altan, M. (2006). Beliefs About Language Learning Of Foreign Language-Major University Students. *Australian Journal Of Teacher Education*. Vol 31, No 2, 2006. Retrieved 8 January   2010   from Http://Ajte.Education.Ecu.Edu.Au/Issues/PDF/312/ Altan.Pdf.

Bernat, E. (2006). Assessing EAP learners' beliefs about language learning in the Australian context. *Asian EFL Journal*. Vol8 issue2 article9. Retrieved 20 October 2009 from *www.asian-efl-journal.com/ June_06_eb.php*.

Bernat, E. & Gvozdenko, I. (2005). Beliefs about Language Learning: Current Knowledge, Pedagogical Implications, and New Research Directions. *TESL-EJ*.9(1). Retrieved 30   November   2009   from   www.tesl-ej.org/wordpress/volume9/ej33/ej33a1/

Cecil, N. L., & Gipe, J. P. (2003). *Literacy in the intermediate grades: Best practices for a comprehensive program.* Scottsdale, AZ: Holcomb Hathaway. Retrieved 28 November   2009   from *http://education.uncc.edu/kdwood/GIST.pdf*. Accessed on

Cunningham.   (2001).   "Description, Rationale, Instructional Moves, and References for Generating Interactions between Schemata and Text (GIST)"

Fraenkel and Wallen. (1993). *How to Design and Evaluate Research in Education.* Singapore: Lane Akers Inc

Gay, L. R. (1987). *Educational Research: Competencies for Analysis and Application.* 3rd edition. Ohio:Merril Publishing Company

Gillet, J. and Temple, C. (1994). *Understanding Reading Problem: Assessment and Instruction.* America: Harper Colling College Publisher.

Herrell, A., Jordan, M. (2004). *Fifty Strategies for Teaching English Language Learners.* New Jersey: Parson Education, inc.

Hong-yun, W & Ping, H. (2007). *"Major Factors Influencing Reading comprehension: A factor Analysis Approach"* Vol 4:9. Sino-US English teaching. Retrieved 20 November 2009 from *www.linguist.org.cn/doc/su200709/su20070902.pdf*.

Jing, C. (2003). *Grasp reading Skills to Improve Reading Ability.* Retrieved 20 November 2009 from *www.celea.org.cn/pastversion/lw/pdf/caojing.pdf*.

Kohtz, C. (2006). *Alternative pedagogies and non-conventional teaching methods in education: Unplanned and limited change.* Retrieved 28 November 2009 from *http://gradworks.umi.com/32/44/3244013.html*.

Lenz, K. (2005). *An Introduction to reading comprehension.* Retrieved 29 November 2009 from *http://www.special connections.ku .edu/cgi-bin/cgiwrap/specconn/main.php? cat= instruction&section=rc/main.*

Lin, Lu-Fang. (2008). The Study of English Learners' Synthesizing Process While Reading. *Asian EFL Journal 10(1).* Retrieved 30 November 2009 from http://www.asian-efl-journal.com /March_08_lfl.php.

Martin, D. (1991). *How to Improve Reading Comprehension.* Retrieved 20 November 2009 from *http://www.marin.cc.ca.us/%7Edon/Study/7read.html*.

Mikulecky, B. and Jeffries, L. (1996). *More reading Power.* America: Longman.

Perkin, D. (1993). "Teaching for Understanding." Retrieved 20 November 2009 from *http://www.exploratorium.edu/IFI/resources/workshops/teachingforunderstanding.html*.

Porter, K.(1994). *Pre-Reading strategies.* Retrieved 20 November 2009from *http://departments.weber.edu teachall/reading/prereading.html*.

Pressley, M. (2001). Comprehension instruction: What makes sense now, what might make sense soon. *Reading Online, 5*(2). Retrieved 20 November 2009 from

http://www.readingonline.org/ articles/art_index.asp?HREF=/articles/handbook/pressley/index.html.

Purcell, V. (1997). *There's Reading and Then There's Reading: Process Models and Instruction.* Retrieved 28 November 2009 from *http://www.ncsall.net/fileadmin/resources/ teach/read_diff_role.pdf.*

Rhoder, C. (2002). Mindful reading: Strategy training that facilitates transfer. *Journal of Adolescent & Adult Literacy*, *45*, 498–512. Retrieved 30 November 2009 from www.readwritethink.com/lesson.

Somantri, A. (2006). *Aplikasi Statistik dalam Penelitian.* Bandung*:* Pustaka Setia

Sugiyono. (2009). *Metode Penelitian Pendidikan: Pendekatan Kuantitatif, Kualitatif, dan R&D.* Bandung: Alfabeta.

Wiersma, W. (1986). *Research Methods in Education: An Introduction.* 4th edition. Massachusetts: Allyn and Bocon.