Vol. 1 · January 2013
Print ISSN 2244-1824 Online ISSN 2244-1816
doi: http://dx.doi.org/10.7719/irj.v1i1.200

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by AJA Registrars, Inc.

Graphic Materials as Catalyst in Reading Comprehension

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ABSTRACT

The study embarked on graphic materials as a catalyst in reading comprehension. Unknown to many, graphic materials are effective media in teaching the language. The study was conducted in 2010 to Bachelor of Science in Applied Statistics students at Benguet State University, La Trinidad, Benguet, Philippines. A 50-item test which consisted of comprehension of tables, graphs/charts, instructions, diagrams, pictorial illustrations, maps and notices/common signs was administered to determine their comprehension level with 10 items each. The test on graphic materials was taken from various local and national reading materials. Results showed that the most difficult task to comprehend by the respondents was the tables while instructions were the easiest. A significant difference was noted in the performance of the students as influenced by their year level. Hence, it is recommended that any authentic material should be used in teaching the language. Language teachers should also utilize any graphic materials, multiple media, art, multidisciplinary thematic units, and even games in designing classroom tasks to promote reading comprehension skills. They should likewise provide interesting language lessons using newspapers, magazines or any graphic materials as input in developing comprehension skills.

Keywords - Graphic Materials, Reading Comprehension, authentic materilas, reading materials, reading comprehension, skills, quasi-experimental design, Philippines

INTRODUCTION

Background of the Study

Researches on reading comprehension in general have been over populated, but few have ventured on testing reading comprehension using graphic materials as input. Graphic materials are indispensable tools in the language class in order to help students understand and remember what they read.

Zwiers (2010) quoted Gardner (1999) who said that all learners have varying degrees of what is called visual intelligence. Zwiers emphasizes that visual intelligence is the mental skill a learner uses to organize and process information by seeing and creating images. He contends that teachers must be adept at developing visual lesson components that help students cultivate their visual abilities as they learn. Hyerle (2008) also aversed that graphic materials such as pictures, videos and maps show connections between pieces of information. These make complex comprehension strategies more tangible to students. Indeed, graphic materials used as aid in teaching facilitate comprehension allowing the students to create a mental picture of what is being discussed.

Graph comprehension, on the other hand, involves reading and making sense of graphs seen in real life situations (newspapers and media) as well as constructing graphs that best convey data. Graph is a concrete example of an authentic material. It is actually a tool in teaching English as a Second Language. Hutchinson and Waters (1987) emphasized that materials provide a stimulus to learning and provide models of correct and appropriate language use.

In the study of Hogan et al. (2011) on "Increasing Higher Level Language Skills to Improve Reading Comprehension, they affirmed that inferencing, comprehension monitoring, and text structure knowledge are critical to good reading comprehension and its development. They assert that these higher level skills play an important role in a reader's (or listener's) construction of a representation of a text's meaning that is both accurate and coherent. They have shown how each of these skills can be assessed and supported in beginning readers, poor readers, and even prereaders by presenting information in visual (i.e., pictorial) or auditory (i.e., listening) formats, ensuring that the task is suitable for the developmental level of the child and that the material to be comprehended involves interesting topics.

In the study of Agyei, W. K. (2012) who investigated the effects of Jigsaw and Fishbowl Instructional Strategies on pupils' performance in Reading Comprehension in inclusive schools in Winneba, Ghana, it revealed that pupils exposed to Jigsaw and Fishbowl strategies recorded a significant difference in their performance as compared to Traditional Approach (Conventional Method) which did not record any difference in their performance.

Vacca and Vacca (1993) believe that when students learn how to use and construct graphic representations, they are in control of a study strategy that allow them to identify what parts of a text are important, how ideas and concepts are encountered, and where they can find specific information to support more important ideas.

Along with the scenario presented, this study embarked on the use of various types of graphic materials as a test of comprehension for the Bachelor of Science in Applied Statistics students. Their performance will be evaluated based on their ability to comprehend what they read by giving correct responses to questions asked.

FRAMEWORK

This study stems from the different ideas in the development of efficient reading theories and the interactive models of the reading process. It is believed that comprehension must be given equal importance with the rules of grammar. The reading test on various graphic materials and short texts is taken from various local and national reading materials.

Reading Comprehension

Reading comprehension is essentially the capacity to understand what has been read and the knack to interpret text meaningfully. According to Rumelhart (1977), reading comprehension combines prior knowledge or schema building and current reading in order to predict what may happen next in the text or to figure out what a word means by its use in the text. He emphasized that schemata are the fundamental elements upon which all information processing depends.

Goodman (1988) states that reading is a selective process. He asserts that it involves partial use of available minimal language cues selected from perceptual input on the basis of the reader's expectation. As this partial information is processed, tentative decisions are made to be confirmed, rejected or refined. Thus, he claims that reading is a psycholinguistic guessing game and that efficient reading does not result from precise perception and identification of all elements but from the skill in selecting the most productive sign necessary to produce which are right the first time.

Graphic Materials

Graphic materials embrace chiefly images or visual representations of subjects, objects or concepts as distinguished from texts. These include illustrations, artistic works, drawings, designs, photographs, paintings, sketches, or other media. Illustrated materials are often created to make a subject or concept easier to understand, or to provide an artistic rendering of an object or idea.

Authentic Materials

Authentic materials are real texts or materials which are not designed for classroom use or language teaching purposes (Jordan, 1997). Richard (2001) pointed out five main advantages of using authentic materials: a) positive effect on learner motivation; b) provide authentic cultural information; c) provide exposure to real language; d) relate more closely to learners ' needs; and e) support a more creative approach to teaching.

Hutchinson and Waters identified four elements for materials design which aim to provide a coherent framework for the integration of the various aspects of learning while at the same time allowing enough room for creativity and variety: Input, Content, Language and Task.

Input (Nunan, 1988) referred to input as the data that form the point of departure for the task. The input provides a number of things: stimulus material for activities; new language items; correct models of language used; a topic for communication; opportunities for learners to use their information processing skills; and opportunities for learners to use their existing knowledge both of the language and the subject matter.

Input comes from varied sources: newspaper extracts, weather forecast, menu, diary, recipe, horoscope, street maps, seminar programs, letters, drawings, memo, notes, pictures/ photographs, obituary, travel regulations, wedding invitation, family tree, personal data sheet, invoices, etc.

Content focus. This relates to the use of language, not as an end in itself but as a means of conveying information and feelings about something. Non-linguistic content should be exploited to generate meaningful communication in the classroom.

Language Focus. The aim of language teachers is to enable learners to use language; however, it may not be a good idea to engage students/learners activities or communicative tasks if they do not have enough of the necessary language knowledge. If materials should be good, they should involve both opportunities for analysis and synthesis. By this means, learners have the chance to take the language to pieces, study how it works and practice putting it back together again.

Task, according to Nunan (1989), is a piece of classroom work which involves learners in comprehending, manipulating, producing, or interacting in the target language while attention is primarily focused on meaning rather than form. Since the ultimate purpose of language learning is language use, materials should be designed to lead towards a communicative task in which learners use the content and language knowledge they have built up through the unit.

Hypotheses of the Study

The data gathered in this study was tested by the following hypotheses:

1. There is a significant difference in the scores of the BSAS students in the comprehension of graphic materials.
2. There is a significant difference in the comprehension of the BSAS students along the selected variables such as gender and year level.

OBJECTIVES OF THE STUDY

This study aimed to determine the reading performance of the students taking up Bachelor of Science in Applied Statistics (BSAS), College of Arts and Sciences, Benguet State University through the various types of graphic materials and short texts.

Specifically, this research sought to:

1. Determine the performance of the BSAS students in the comprehension of graphic materials; and,
2. Determine the respondents' comprehension of graphic materials and short texts along a) gender, and b) year level.

METHODOLOGY

Research Design

The study used a survey questionnaire to determine the profile of the respondents. A 50-item test consisting of 10 items each for the tables, graphs and charts, instructions/manuals, diagrams, pictorial illustrations, maps; and notices/common signs was administered to the students to determine their comprehension level.

Locale and Time of the Study

This study was conducted in 2010 to Bachelor of Science in Applied Statistics students at the College of Arts and Sciences, Benguet State University, La Trinidad, Benguet, Philippines.

BS Applied statistics students were chosen as respondents because they basically deal with graphic materials. They are exposed to reading and interpreting tables, graphs, charts, instructions, diagrams and others.

Data Collection instruments

Survey questionnaire was used as a tool in collecting the needed data with regard to the students' gender and year level.

A three-point scale was used to describe the level of comprehension of students along the various graphic information:

Highly competent (HC) – 8 -10 points
Competent (C) – 5-7 points
Not Yet Competent (NC) – 0-4 points

The reading test on various graphic materials was culled out from different local and national reading materials like newspapers, magazines and brochures. It was evaluated and critiqued by the English teachers at the Department of Humanities, College of Arts and Sciences before it was administered to the first to fourth year BSAS students.

Multiple choice type of test was used in which every correct answer was given a score of 1.

Statistical Analysis

Data gathered from the respondents were summarized and cross-tabulated. Summary statistics like frequency counts, percentage, and weighted mean were computed from test results. To determine if there were differences in the comprehension level of students along graphic materials and short texts, t-test for two groups and F-test for three or more groups were used. Level of significance was 0.05.

The level of reading performance was based on the mean scores of the students in each category.

RESULTS AND DISCUSSION

Table 1 presents the interpretation of the performance of the BSAS students in their comprehension of graphic materials.

The table shows that the BSAS students are highly competent in comprehension of instructions/manuals with a mean score of 8.08 followed by notices/common signs with a mean score of 6.92; maps, diagrams, pictorials and illustrations, 6.75; graphs

and charts, 6.40; and tables, 6.00.

Table 1. Interpretation of the performance of BSAS students in the comprehension of graphic materials

Graphic Materials	Xw	Interpretation
A. Tables	6.00	Competent
B. Graphs and Charts	6.40	Competent
C. Instructions/Manuals	8.08	Highly Competent
D. Maps, Diagrams, Pictorials and Illustrations	6.75	Competent
E. Notices/Commons Signs	6.92	Competent
Overall	6.83	Competent
$X^2c = 69.021$	prob. = 0.000	s - significant

The hypothesis that there is a significant difference in the scores of the students in the comprehension of graphic materials is accepted.

The results of this study show that BSAS students comprehended easily in instructions/manuals while comprehension of tables is found to be the most difficult for them.

Instructions/manuals were the easiest to comprehend by the respondents because it involves the recognition of explicitly stated facts and details and does not extend beyond the literal surface value of words. The students recognized facts and details which are directly stated in the material read that appeared on the printed page.

On the other hand, this study shows that BSAS students found tables the most difficult to comprehend because they need to extract, analyze, synthesize, and interpret the data.

Another reason is associated to the issue of prediction in reading. This indicates schema building which is related to one's ability to interpret text meaningfully. Schemata are the fundamental elements upon which all information processing depends and Rumelhart (1977) calls them the building blocks of cognition.

Brown and Yule (1983) also pointed out that background knowledge can guide and influence the comprehension process. He added that comprehension outcome is based on the previous knowledge of similar texts. That is, if the reader regularly reads a newspaper and is aware of all the events and issues either locally, nationally or internationally, then comprehension would be easier.

Smith (1982) showed in his model that there is a reciprocal relationship between what he sees (visual information) and the reader's knowledge of the world (non-visual information). He emphasized that if one cannot construct this relationship, visual information cannot be processed. Smith suggested that an approach to teaching reading should give priority to meaning identification and should draw upon children's natural and constructive patterns of learning.

It is interesting to note that graph comprehension involves reading and making sense of graphs seen in real life situations. This implies that graph sense develops gradually as one creates graphs and uses already designed graphs in a variety of problem solving contexts. Henry (1984) also explained that pictures, illustrations, drawings, and other graphics encourage students to view reading as an interactive process that takes place between the reader and the text.

Performance of Students according to gender

The performance of students according to gender reveals that male respondents had higher mean scores of 6.91 in the comprehension of maps, diagrams, pictorials and illustrations; 6.43 in the comprehension of graphs and charts; and 6.13 in the comprehension of tables than the female respondents with mean scores of 6.65, 6.35 and 5.88, respectively.

Female respondents, however, showed a higher mean score of 8.23 in the comprehension of instructions/manuals and 7.07 in the comprehension of notices/ common signs than the male respondents with mean scores of 7.61 and 6.39.

Table 2. Performance of students according to gender

Graphic Materials and Short Texts	Male		Female			
	Xw	DE	Xw	DE	tc	Prob.
A. Tables	6.13	C	5.88	C	0.613	0.542
B. Graphs and Charts	6.43	C	6.35	C	0.172	0.865
C. Instructions/Manuals	7.61	C	8.23	HC	1.495	0.144
D. Maps, Diagrams, Pictorials and Illustrations	6.91	C	6.65	C	0.686	0.496
E. Notices/Commons Signs	9.93	C	7.07	C	0.490	0.627
Overall	6.70	C	6.84	C	0.490	0.627

*ns-not significant

Statistically, the study shows no significant difference in the performance of BSAS students in their comprehension of the graphic materials on the basis of gender. Hence, the hypothesis that there is a significant difference in the performance of BSAS students on the basis of gender is rejected.

Dr. Yousif A. N. Al-Shumaimeri (2005) in his study on Gender Differences in Reading Comprehension Performance in Relation to Content Familiarity of Gender-Neutral Texts found out that content familiarity and gender seem to have significantly affected FL readers' comprehension performance on gender-neutral texts. The male students performed better than their female counterparts in their comprehension of both familiar and unfamiliar gender-neutral texts.

Performance of Students according to Year Level

Table 3 presents the performance of the BSAS students according to year level. The table shows that the third year students had the highest performance in the comprehension of tables with a mean score of 7.20 followed by the fourth year students with 6.41 mean score. The first year students had a mean score of 5.27 while the second year students obtained the lowest mean score of 5.10.

In the comprehension of graphs and charts, the third year students still recorded the highest mean score of 7.20 followed by the second year students with a mean score of 6.62 while the fourth year students had 6.47 mean score. The first year students had the lowest mean score of 5.32.

Table 3. Performance of students according to year level

Graphic Materials and Short Texts	1st Year	2nd Year	3rd Year	4th Year	Over-all	DE	Fc
A. Tables	5.27b	5.10	7.20	6.41	6.00	C	6.716
B. Graphs and Charts	5.32	6.62	7.20	6.47	6.40	C	4.454
C. Instructions/Manuals	7.45	8.52	7.60	8.76	8.08	HC	3.750
D. Maps, Diagrams, Pictorials and Illustrations	6.41	5.59	7.70	6.94	6.75	C	5.354
E. Notices/Commons Signs	6.05	6.71	7.55	7.35	6.92	C	4.596
Overall	6.1	6.58	7.45	7.186	6.83		6.928

*s-significant

The fourth year students showed a highly competent performance in the comprehension of instructions/manuals with a mean score of 8.76 followed by the

second year students with a mean score of 8.52. The third year students showed 7.60 mean score while the first year students recorded the lowest mean score of 7.45.

In like manner, the third year students had a higher performance in the comprehension of maps, diagrams, pictorials and illustrations with a mean score of 7.70. The fourth year students came second with a mean score of 6.94 followed by the first year students with a mean score of 6.41 while the second year students had the lowest performance with a mean score of 5.59, respectively.

The third year students still demonstrated the highest performance in the comprehension of notices/common signs/short messages or texts with a mean score of 7.55 followed by the fourth year students with a mean score of 7.35. The second year students showed a mean score of 6.71 while the first year students recorded the lowest mean score of 6.05.

Statistically, there is a significant difference in the performance of BSAS students in the comprehension of graphic materials according to year level. The hypothesis that there is a significant difference in the performance of BSAS students on the basis of year level is accepted.

The performance of the students according to year level could also be associated to the issue of prediction in reading. As they grow old and as they go to a higher level of education, their schema or ability to interpret text or graphic materials meaningfully is enhanced.

While this study may aid other teachers in their preparation of their teaching materials, it does not collectively represent the comprehension level of all students. This might only be true to the BSAS students at Benguet State University, La Trinidad, Benguet. Hence, a similar study may also be conducted to other group of students.

CONCLUSIONS

The overall level of performance of students in the five skills/aspects of comprehension was competent and the hypothesis that there is no significant difference in the scores of the students in the comprehension of graphic materials and short messages or texts is rejected. This means that the Bachelor of Science in Applied Statistics students vary in their interpretation and comprehension of graphic materials and short messages or texts.

The male respondents had high performances in the comprehension of maps, diagrams, pictorials and illustrations, graphs/charts and tables while the female respondents registered high performances in the comprehension of instructions/ manuals and notices/common signs/short messages or texts. However, gender does not affect the interpretation and comprehension of the students while respondents

significantly differed in their interpretation and comprehension based on year level.

RECOMMENDATIONS

1) Graphic materials are very effective tool in teaching English. Therefore, language teachers should be encouraged to develop the learner's interest using authentic materials from magazines and newspapers that will replicate a real-life situation in developing comprehension skills.
2) Language teachers should also utilize any graphic materials, multiple media, art, multidisciplinary thematic units, and even games such as chess in designing classroom tasks to promote reading comprehension skills.
3) Ease or difficulty in comprehension is positively related not only to linguistic or grammatical competence but also communicative competence. It is recommended that language teachers provide interesting language lessons using newspapers, magazines or any graphic materials as input in developing comprehension skills.
4) The goal of reading instruction should be effective comprehension. Instructional tasks or activities should be concerned with building comprehension strategies especially the use of print media like newspapers and other sources of graphic materials.

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