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# USING COLLEGE READING ASSIGNMENTS TO IMPROVE READING/THINKING SKILLS

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In recent years institutions of higher education have found the reading ability of many freshman students to be inadequate for college studies. Whether these students are traditional or nontraditional, once they are accepted, colleges have a responsibility to provide these students with some type of remedial or developmental instruction. (Ahrendt, 1975; Moore, 1976).

Many colleges have recognized this responsibility and have established programs specifically for the needs of their students (Power, 1976). Eighty percent of the respondents to Huslin's 1975 survey investigating college and university developmental reading programs indicated that their colleges offered some type of developmental reading program.

The work of Artley (1951) and McKinron (1976) also demonstrates the need for development and continued refinement of critical reading and thinking skills at the college level. The survey showed that both teachers and students felt that benefit would be derived from instruction in critical reading (Follman, 1970). The work of Shtrogen (1976) also supports the need for development of critical reading skills at the college level.

## Purpose of the study

The purpose of this study was to determine whether instruction in certain critical reading skills would improve the overall reading ability of college freshmen. The skills of recognizing assumptions, reasoning deductively, interpreting, drawing inferences, and evaluating arguments were the critical reading skills chosen for inclusion in this study. Besides the primary purpose cited, the procedures used in this study provided opportunities to investigate related questions. Therefore, the data were also analyzed to discover:

1. The effect of training in certain critical reading skills and certain notetaking techniques upon social science grades.
2. The effect of training in certain critical reading skills and in certain notetaking techniques upon growth in critical thinking abilities.

## Study materials and design

The study consisted of three experimental groups and one control group. Group I was given study guides which required that students take notes on their social science readings. These guides were developed using the outlining techniques recommended in Seven Reading

Strategies and the PQRSST study method and summarizing techniques suggested by Stator (1977).

Outlining, study methods such as PQRSST, and summarizing have been recognized as high level study or integrative reading skills. They require attention, concentration, skillful reading and putting one's organizational skills into practice. These techniques have been found to improve comprehension skills at various levels. Dechant and Thomas and Robinson (1974) believe that outlining is an aide to retention of details and specifics, and suggests that it improves literal comprehension. Burmeister (174) contends that outlining and summarizing are tools which improve the student's translational skills. Further, Burmeister states that when the main idea is not explicitly stated and the student is asked through an outline or summary to determine the main idea, higher level reading and thinking skills are involved. Under these circumstances, Burmeister feels that the student is doing interpretive reading and is functioning at a higher cognitive level.

Central to the study guides for Groups II and III were questions based on Sanders' (1966) taxonomy of educational objectives. Stauffer (1969), Durrell and Chambers (1958), and Robinson (1961) stress the use of questioning in the development of critical readers. According to Sanders, teachers can lead students to all types of skills in thinking through careful use of questions, problems, and projects. The kinds of questions asked and kinds of activities engaged in determine what thought processes are used (Burmeister, 1974).

Study guides for Group II consisted of a series of questions on each social science reading. These questions required answers usually no more than a few sentences or a paragraph in length. The questions in these study guides were designed to evoke a literal understanding and response to the materials read. Shepherd (1973), Stauffer (1959), and Wolf et al (1968) feel that critical reading is dependent upon solid literal and interpretive comprehension of the materials which have been read. These questions, then, were at the memory, translation, and interpretive levels of Sanders' (1966) taxonomy and were modeled closely to Sanders' questions.

The purpose of Group III's study guides was to improve the critical reading ability of the students through questions based on their social science readings. These study guides began with an explanation of the critical reading ability to be emphasized in that guide, and a brief summary of the reading assignment. The purpose of this summary was to act as an advance organizer. The summary also acted as an anchoring focus for material and helped relate it to existing cognitive structures. Ausubel (1969) recommends using advance organizers for improving learning, retention, and reading. Indeed, his research found that advance organizers aided college students in their studies. This summary was followed by two sets of questions. The first set consisted of literal level questions modeled after the first three levels of Sanders' taxonomy. The purpose of these questions was to ensure a firm grasp of the specifics and details of the reading assignment. The second set of questions were designed to lead students to read the assignment critically. Again, these questions followed Sanders, but were at the upper level of his hierarchy. Since the kinds of questions asked determined what thought processes are used (Burmeister, 1974; Sanders

1966), these questions were meant to take the student from literal to the analytical and evaluative levels of comprehension.

Group IV, the control group, received no special treatment. They were simply asked to complete all reading assignments as were all the other students.

The study was conducted over one semester at Boston University's College of Basic Studies, which offers a two-year postsecondary educational program designed specifically to serve low-achieving students with marginal pre-entrance credentials (Fogg and Smith, 1976)

After agreeing to participate in the study, the students signed a consent form and were randomly assigned to one of the four groups. Pretesting, using the Stanford Diagnostic Reading Test (SDRT), Blue Level, and the Watson-Glaser Critical Thinking Appraisal (WGCTA), was done during the first week of the study. Study guides were placed in the students' mail a week before the reading assignments were due. The completed guides were due just before the lecture on the reading assignment. Checked guides were returned to the students the day after they were collected. If a student neglected to turn in a guide, turned in an incomplete guide, or a guide which was done incorrectly, an appointment was requested by the researcher. Thus, problems were discussed and resolved. At no time was an answer key or a correct outline made available to the students.

An optional workshop was held for Group I students in which they became familiar with three different types of notetaking techniques (outlining, PQRS<sup>T</sup>, and summarizing). The students were then given a handout which showed how to apply each of the techniques to a specific social science reading. The handout was discussed and the three notetaking techniques were reviewed.

Posttesting used alternate forms of SDRT and the WGCTA, and was conducted during the last week of this thirteen-week study. At this time the students were asked to complete an informal survey in order to determine the students' personal opinion of the effectiveness of the study.

#### Data analysis

Data were analyzed using analysis of covariance. The differences in pretest and posttest on the DRT (literal and inferential subtests and total score) and the WGCTA (inference, recognition of assumption, deduction, interpretation and evaluation subtests and total score) were compared to determine if there were any significant differences between the experimental and control groups. This analysis of covariance was followed by the Scheffé post-hoc multiple comparison to determine precisely which group(s) made significant gains. The .05 and .01 levels of significance were used for the testing of all research questions.

#### Results of the study

The study found that the treatment given Group I (notetaking), Group II (literal comprehension), and Group III (critical reading) all helped to improve the social science grades of freshmen at Boston University's College of Basic Studies significantly when compared to Group IV (control) which received no treatment. An analysis of

the data revealed the differences in social science grades between the experimental groups and the control group to be significant at the .05 level, but the treatment groups were not significantly different from each other. Therefore, all three treatments were equally effective in improving social science grades.

When the data were analyzed using analysis of covariance to determine if the treatment and control groups showed any growth in reading ability (literal, inferential, and overall) as measured by the SDRT, it was found that the overall and inferential reading scores improved significantly among the four groups at the .01 level. Literal comprehension scores improved significantly at the .05 level. The Scheffé post-hoc multiple comparison was used to determine which of the four groups improved more than the others. This analysis revealed that there were no significant differences among the four groups at the literal level. However, on the inferential subtest of the SDRT, Groups I (notetaking), II (literal comprehension), and III (critical reading) improved significantly greater at the .05 level than Group IV (control). On the total score of the SDRT, Group II did significantly better at the .05 level than Group IV.

To determine the effect of instruction in notetaking techniques, literal comprehension, and critical reading skills on the critical thinking skills of the college freshmen as measured by the total test score and the subtest scores of the WGCTA, an analysis of covariance was used on the pretest and posttest scores among the four groups involved in this study. The results of this analysis revealed that there were significant gains among the groups at the .01 level for the total critical thinking score, ability to infer and ability to evaluate arguments. Further, significant gains among the groups at the .05 level were found in the students' ability to reason deductively. However, no significant gains were seen in the students' ability to make assumptions or interpretations. The Scheffé post-hoc multiple comparison was used to determine specifically between which groups a significant difference existed. The results of this analysis revealed that there were significant gains among the groups at the .01 level for the total critical thinking score, ability to infer and ability to evaluate arguments. Further, significant gains among the groups at the .05 level were found in the students' ability to reason deductively. However, no significant gains were seen in the students' ability to make assumptions or interpretations. The Scheffé post-hoc multiple comparison was used to determine specifically between which groups a significant difference existed. The results of this analysis revealed that Groups II (literal comprehension) and III (critical reading) did significantly better at the .05 level on the evaluation of arguments subtest of the WGCTA than Group IV (control). On the overall critical thinking score, Group I (notetaking) did better than Group III (critical reading), and Groups II and III did significantly better at the .05 level than Group IV (control).

An informal survey of the participants' reactions to the study and materials in it found the participants to be positive about all aspect of the study. The majority felt that the study improved their social science grades and helped in their adjustment to the demands of college work. However, these students did not see the

relation between the study guides and attempts to improve their critical reading and thinking skills. The guides received high rating for organization and relevancy to class lectures and reading assignments.

#### Implications of the study

The following implications were drawn from the results of the study:

1. At the postsecondary level, academic progress in the content area, particularly in social science, can be enhanced through instruction in notetaking and outlining techniques, literal comprehension skills and critical reading skills.

2. It is doubtful that growth in inferential reading ability at the college level can be left to incidental learning alone. In this study the analysis of data revealed that growth in inferential reading ability occurred when college students were given instruction in notetaking and outlining skills, literal comprehension skills, and critical reading skills. Those students who received no instruction made no gains in inferential reading ability. Therefore, if teachers expect growth in this area, they should teach to improve the specific skill.

3. It is also doubtful that growth in overall reading ability at the college level can be left to incidental learning. In this study, analysis of the data revealed that growth in overall reading ability was enhanced by instruction in critical reading skills.

4. Growth in critical thinking skills generally, and in the ability to evaluate arguments particularly, is improved through instruction in literal comprehension skills and critical reading skills. When students at the college level are not given instruction intended to improve their critical thinking skills, then improvement is not seen. With treatment geared to promote growth, students do improve their critical thinking skills.

5. The informal survey conducted in this study implies that college students themselves realize the benefits of additional instruction in the areas of reading and thinking skills.

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