

the four major content areas of English, mathematics, history and science. He further stated that specific skills, such as critical reading, did not work equally across disciplines.

In the research recorded above the focus was on topics, fields of study, texts; in short on the content areas. Apparently, the efficient reader would need a large bag of skills in order to succeed in the many areas of study leading to a liberal education. We wondered what we would find if we shifted away from the content area, and focused instead on the student of that content.

The researchers decided to test the hypothesis that: 1) science majors read scientific text more effectively than literary material because of specialized skills demanded; 2) art majors likewise show different reading skills, but probably with opposite results in terms of proficiency, (i.e. the difference between their rate and comprehension favors literary material over scientific); 3) art majors, because of suspected aversion to the methodical scientific topics, show a greater difference between their scores on literature and scientific material than do science students; 4) there is a difference between the reading ability of arts and science students when each sex is considered separately. In short, the primary question was whether arts and science students differ in reading skills, not whether the content require different reading skills.

### The Study

The subjects were 77 students enrolled in an Efficient Reading class at a large mid-western university. The breakdown was as follows:

<u>GENDER</u>		<u>MAJOR</u>
21 Females	Arts	Technical Communication, Family Social Science, Sociology, Social Work, History
9 Males	Arts	Pre Law, History, International Relations
30 Males	Science	Computer Science, Bio Science Agriculture
17 Females	Science	Animal Science

Available data included scores on the *Nelson-Denny Reading Test, Forms E and F*.

Twenty-three students were eliminated from the original pool of 100 because of first quarter freshman standing, non-categorizable major field, and/or incomplete data.

The first question was whether or not, considering majors and gender, students differed in terms of their reading skills. For both males and females we compared the sub-scales of the Nelson-Denny test for arts and science students. For the Arts female the average percentiles were Vocabulary 44.04; Comprehension 33.6; Total 39.8 and Rate 16.0. For the Female Science group the corresponding scores were 42.3; 36.8; 41.2; and 19. For the Arts males the average percentile were for Vocabulary 50.6; Comprehension 43.6; Total 47.6 and Rate 5.6. The Science males earned corresponding scores of 34.76; 28.5; 30.2 and 10.7. Each sub-scale was evaluated by ANOVA for main effects of gender and major (arts vs. science). There was only one significant finding, at  $F=6.91$ ,  $P < .05$ . This was due to an interaction effect for the comprehension sub-scale. The mean for arts males (43.66) seems to be enough higher to produce the finding. We are inclined to dismiss the difference as of no importance.

The study itself was a comparison of scores for rate and comprehension obtained from reading two rather different articles included in an Efficient Reading textbook.

The literary selection was a charming short story titled "The Fifty-First Dragon," by Heywood Braun. The story has 3,000 words, and is rated 61 (standard) on the Flesch Reading Ease

## LITERARY VERSUS SCIENTIFIC READING IN COLLEGE—A COMPARATIVE ANALYSIS

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It is a commonly held belief that readers tend to use differing skills when confronted with "quantitative" or science materials that they use for "verbal" or literary articles. The natural inclination or bent of students usually attracts them to college majors which exploit and expand their native abilities. The seemingly unavoidable result of this predilection and training would be a specialized approach to reading matter on the types which may be thought of as scientific, or literary or non-scientific.

As long ago as 1938, Shores concluded that special skills were needed to effectively deal with historical and scientific reading materials. He argued that other areas of study did not need the same skills that science and history (names, dates, facts) seem to require. Twenty years later, Maney (1958) examined the differing skills necessary to successfully function in science material, but did not generalize to other content areas. Kaufman (1975) found that very specific skills seemed to be necessary for accurately processing reading material in

### Scale.

The scientific piece was an insightful and rigorous article by Herbert A. Otto called "New Light on the Human Potential," a 2,885 word discourse on neurological research, creativity and physical potential, which includes such terms as "Paranormal phenomena," "cerebral radio-communication," and "bioelectronics." The Flesch rating is 46, or Difficult.

The subjects read these selections during the first week of class, before any significant instruction had taken place, which is to say that Efficient Reading instruction had no effect on the scores.

The basic data, to test the hypothesis of specific skills for reading, was the size of the difference between reading scores for literature and science articles. We expected science students to demonstrate both higher rate and comprehension scores on the science material, and art students to earn higher scores on the literary material. That was not what we found. For both males and females the data showed that the literary passages were read faster, regardless of the reader's major. Comprehension was tested by a 10 item test following each story. The results were not so consistent. The males read the literary story with a higher comprehension, but females earned a high comprehension on the science articles. In no case, for either sex, for either article, did we find the cross-over mean differences we would have expected if students read the materials appropriate to their majors with greater speed or comprehension.

A third hypothesis had to do with the difference between scores for literary and science reading as a function of major. We expected that there would be a greater difference for art majors that would show up for science majors. Again, we did not find the expected separation. There were no significant differences, by t test, between literature and science Rate or Comprehension for males or females. The data are presented in Table 1.

### Conclusion

Committed students, well into their major, do not seem to use different skills when doing different types of reading in the fields of literature or science.

In this study we found no significant differences between the performance of science and non-science students whether reading in or out of their special field. Nor, if formal training is used as an index (other than "formal" college reading training) does there seem to be need for any highly specialized skills not generalizable from content area to content area. Finally, we did not find important reading differences by sex. In this sample male art students tended to read slightly better. However, the sample was small and may be highly selected and not easily generalizable.

One of the limitations of the study was that the students enrolled in the Efficient Reading Course are, at least, average students. Students of lesser ability, or significantly greater ability may not exhibit the same traits. The limitations imposed by a small *n* will be rectified as time passes and the data pool grows.

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**MEAN-RATE AND COMPREHENSION DIFFERENCES  
BY SEX FOR ARTS AND SCIENCE STUDENTS  
READING LITERATURE AND SCIENCE MATERIALS**

READING MATERIAL	MALE		FEMALE	
	ARTS N=9	SCIENCE N=30	ARTS N=21	SCIENCE N=17
	<b>WORDS PER MINUTE</b>			
LITERATURE	351.0	320.0	343.47	330.29
SCIENCE	338.3	304.8	335.9	328.1
Difference	12.66	15.23	7.52	2.176
	$t=.08$		$t=.126$	
	<b>PERCENT CORRECT</b>			
LITERATURE	71.7	71.6	74.7	83.8
SCIENCE	73.3	72.6	69.0	71.2
Difference	2.2	1.0	5.7	12.38
	$t=.142$		$t=1.52$	