This experimental, statistical study investigated the effects that a review of grammar and writing mechanics would have on the overall quality of college students' documents in technical/business communication. In the experimental group of 25 students, the professor assigned several exercises in grammar and mechanics as a review related to composing skills. However, the professor did not assign these exercises to the 25 students in the control group. The researchers hypothesized that the experimental group would show more statistically significant gains and outcomes in overall writing quality than what the control group would demonstrate. The study used "paired T-tests" for statistical analysis of variance on pretest and posttest letters of application for a job, which each of the 50 students had written. The results of the study supported the hypothesis, showing that the students of the experimental group made statistically significant gains and outcomes over the control group in their overall writing quality on the letters of application for a job, although the control group did make statistically significant gains as well. The researchers concluded that the experimental group's review of skills in grammar and writing mechanics gave these students a statistically significant edge over the control group in their gains and outcomes of writing quality on the letters of application for this technical/business communication course. Contains 37 references and 2 tables of data. An appendix offers instructions for scoring Regents' testing program essays. (Author/RS)
The Effects of a Review in Grammar and Mechanics on the Quality of College Students' Technical/Business Writing

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Abstract

This experimental, statistical study investigated the effects that a review of grammar and writing mechanics would have on the overall quality of college students’ documents in technical/business communication. In the experimental group of 25 students, the professor assigned several exercises in grammar and mechanics as a review related to composing skills. However, the professor did not assign these exercises to the 25 students in the control group. The researchers hypothesized that the experimental group would show more statistically significant gains and outcomes in overall writing quality than what the control group would demonstrate. The study used “paired T-tests” for statistical analysis of variance on pretest and posttest letters of application for a job, which each of the 50 students had written. The results of the study supported the hypothesis, showing that the students of the experimental group made statistically significant gains and outcomes over the control group in their overall writing quality on the letters of application for a job, although the control group did make statistically significant gains as well. The researchers concluded that the experimental group’s review of skills in grammar and writing mechanics gave these students a statistically significant edge over the control group in their gains and outcomes of writing quality on the letters of application for this technical/business communication course.
Introduction

Does a review of basic skills in grammar and writing mechanics really affect the quality of college students’ technical/business documents? Students at this advanced level of professional writing may feel that a review of skills in grammar and mechanics is unnecessary, since they have already been drilled frequently on these basics in their freshman composition sequence of courses. Of course, research over the years has examined the question of how effective a review of skills in grammar and mechanics is on college freshmen’s writing quality. However, very few studies have statistically assessed how college students’ technical or business writing has improved from instruction in grammar and mechanics. This experimental, statistical study investigates the extent of grammar and writing mechanics’ effect on the quality of business letters written for a job application. In the experimental group of 25 junior-level college students, the professor assigned several exercises in grammar and writing mechanics as a review during the first week of the course; however, the professor did not assign these exercises to the 25 students in the control group. The researchers hypothesized that the students in the experimental group would show more significant gains and outcomes in overall writing quality than what the control group would demonstrate in these letters.

Review of the Research Literature

Grammar has always been an integral part of composition instruction, even in college, but what about teaching it in advanced, junior-level business writing for the career workplace? Virginia R. Monseasu (2002), editor of the English Journal, writes:
No matter what is said about alternative forms of language study, English teachers are still concerned about the teaching of grammar in their classes. Should we continue to teach the traditional grammar that has had such a strong foothold over the years? Should we teach grammar only as the need arises in student writing? Should we ignore grammar instruction completely, concentrating instead on . . .

writing content? (p. 9)

In a survey of the workplace (Craig, 2001), 98% of the respondents claimed that correct spelling, grammar, and mechanics were important in their writing on the job. Moreover, Perry (1996) presents the results of a national study in which members of the Society for Technical Communication rated 20 selected English-usage principles in grammar as important to professional writing. Another study (Davis & Stohrer, 1989) surveyed Department of Defense middle managers working for the U.S. Air Force; respondents identified grammar, syntax, and mechanics as among some of the most important writing skills, in addition to purpose of the message, audience analysis, and organization of the writing tasks. Also, West (1983) interviewed and surveyed Middle Tennessee Bar Association lawyers and legal secretaries/paralegals, discovering from them that necessary employee communication skills included vocabulary development and proofreading skills as well as grammar, organization of the content, punctuation, sentence structure, and spelling.

Over the last 20 years, research and pedagogy in technical/business communication have strongly suggested the need for skills in grammar and writing mechanics. Waltman and Smeltzer's study (1988) explored the relationship between grammatical proficiency and a number of variables in an introductory business
communication course, suggesting that there is a small but significant correlation between grammatical proficiency and overall performance in the course, and that grammatical competency is a predictor of successful course completion. In an earlier study, Waltman (1983) sought to determine the relationship between grammar competency and success in a business communication course by comparing 236 students’ English competency test scores with grades on a formal written report. The results indicated students’ grades for formal reports and for the course could be raised by improving their grammatical competency; the grammar test in the study proved to be a good predictor of success. Other studies in technical/business writing have investigated such matters as active and passive voice verbs (Riggle, 1998; Rodman, 1994), choice of words and their strict meanings (Nadzieika, 1993), subject-verb or pronoun-antecedent agreement (Allison, 1993), syntactical and rhetorical characteristics (Myers, 1999; Myers, 1996), as well as other grammatical criteria in business letters (Goodin & Swerdlow, 1987). Other sources show the need for skills in grammar and mechanics and how to improve those skills in technical/business writing (Darvin, 2001; Robbins, 2001; Fatt, 2000; Gerson & Gerson, 2000; Carlisle et al., 2000; Tichenor, 1999; Gray, Ingram, Bodson, 1998; Spears, 1998; Burt, 1995; Samson, 1993; Killingsworth & Walter, 1990; Allen & Southard, 1987; Hall, 1986; Vaughn, 1985; Allison, 1983. This related research literature strongly supports this current study on assessing the effects of grammar and mechanics in writing for business and technology.

**Design and Procedures**

This experimental study used statistical analysis to assess the effects of skills in grammar and mechanics on the quality of business writing. The purpose of this study
was to discover any statistically significant differences in gains and outcomes of 50 junior-level college students between their pretest and posttest letters of application for a job: 25 in the experimental group and 25 in the control group.

After both groups had initially written a pretest letter of application before any instruction began, the professor then isolated the teaching treatment to the experimental group by assigning the following exercises to review skills in grammar and writing mechanics: (1) selecting the correct words used in 20 sentences; (2) revising the verbs in 15 sentences from passive voice to active voice; (3) changing fragments into complete sentences; (4) using the correct punctuation to eliminate comma splices and fused/run-on sentences; (5) choosing the correct verbs and pronouns to agree with their respective subjects and antecedents; (6) improving parallel structure in 12 sentences; (7) choosing the correct spelling of words in 20 sentences. The 25 students in this group completed these assignments before the lesson on writing their first graded business document. The 25 students in the control group, however, did not do these same assignments. This class started in on the first lesson of writing a memorandum.

The pretest and posttest letters were the data collected, which revealed the effects of each class's instructional mode on the gains and outcomes in overall writing quality of these 50 students, who wrote business letters as samples before and after instruction (Sanders & Littlefield, 1975), because most theorists believe that a direct sample is the best way to measure writing ability (Dieterich, 1974; Cooper, 1975, 1977). Twenty-five students in the experimental group and 25 students in the control group each wrote a letter of application for a job, the best way each knew how, during the first 75-minute class. This letter served as the pretest in class at the beginning of the course before any
instruction. Then each student in both groups wrote a letter of application for a job as a posttest sample after instruction on this assignment near the end of the course, again using 75 minutes of class time to finish planning, composing, revising, editing and correcting the document. The only difference between the two groups was that the experimental group had also completed several exercises to review skills in grammar, word choice, spelling and writing mechanics before undertaking this posttest task, whereas the control group did not receive this same teaching treatment before writing the posttest letter of job application. In studies researchers show that the pretest/posttest design is one effective way to assess the effects of an educational treatment (Bloom, Hastings, & Madaus, 1971; Campbell & Stanley, 1963; Cronbach, 1963).

In evaluating writing quality, a general-impression holistic rating session using expert readers—generally experienced English teachers trained to agree on certain global characteristics of a piece of writing—can produce acceptable reliability (Diederich, 1974; Cooper, 1975, 1977). For this study two college English faculty members served as raters, although they did not teach both comparison groups under study. However, both faculty raters did have a few years of expertise in teaching and grading such technical documents as business letters of application for a job, in addition to several years of training, experience and reliable agreement on holistic scoring for the Board of Regents’ undergraduate essay exam in the University System of Georgia.

The two faculty raters read and scored a total of 100 randomly sorted letters, without knowing which were the 50 pretests or 50 posttests. The raters scored these letters based on the following scale: (1) Lowest failing score; (2) Minimally passing score; (3) good passing score; (4) highest passing score. The raters followed the same
scale and grading criteria used to score Regents’ Testing Program essays in the Georgia University System. (See the Appendix.) For any business letter on which the raters disagreed by more than one point, a third experienced rater scored the piece in question; then the other raters used the two closest scores.

The study’s researchers then separately totaled the raw scores for each group’s pretest and posttest set of letters to get the mean score for each comparison group. For rate of agreement on the test scores, calculating the “product-moment correlation” determined the reliability between the two raters. For both groups’ pretest scores, the correlation coefficient was .82, indicating sufficient reliability. For both group’s posttest scores, the correlation was .80, implying adequate reliability between the two raters.

In the statistical analysis of these scores, “paired T-tests” determined whether there were significant differences between the pretest and posttest scores on the business letters and differences between the experimental and control groups’ posttest scores. The confidence levels of statistical significance for 95% of the time on the “paired T tests” are based on the following “p” values: (1) * p < .05, significant; (2) ** p < .01 highly significant; (3) *** p < .001, very highly significant. In addition to these “p” values showing the “Significance of T” in the analysis of variance, the statistics also showed “degrees of freedom” (df).

Discussion of the Results

In overall writing quality, each of the 50 students wrote two letters of application for a job, one pretest letter before instruction at the beginning of the course and one posttest letter after instruction on this particular assignment near the end of the course. The two faculty raters scored each letter holistically on a scale of “one” (1—poor/failing).
to “four” (4—superior/passing). This procedure resulted in two scores on each pretest writing sample and two scores on each posttest sample for each student in the study. For statistical analysis (paired T-tests), the raters combined their two pretest scores on each student’s letter, and then they combined their two posttest scores, resulting in the very lowest possible score of “two” for a failing letter and the very highest possible score of “eight” for a superior, passing letter of application for a job.

The 25 students in the experimental group benefited from the assignments reviewing grammar and writing mechanics: choosing accurate technical words for better clarity, choosing correctly spelled words, changing sentences from passive voice to active voice verbs, making sentences complete and parallel in structure, eliminating comma splices and run-on sentences with the correct punctuation, and selecting subject-verb agreement as well as correct pronoun reference. This group started with a mean score of 2.68 on the pretest sample letter but ended with a mean score of 5.88 on the posttest letter of job application, an improved change of 3.2 (See Table 1).

Table 1

<table>
<thead>
<tr>
<th>Method/Group</th>
<th>Pretest</th>
<th>Posttest</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>2.68</td>
<td>5.88</td>
<td>3.20</td>
</tr>
<tr>
<td>Control</td>
<td>2.48</td>
<td>4.60</td>
<td>2.12</td>
</tr>
</tbody>
</table>
The T-test in statistical analysis indicated that the difference between the experimental group’s pretest and posttest scores was very highly significant (T = -16.711; df = 24; p = .00005; *** p < .001) in the main effect for this method of teaching Technical/Business Writing with assignments reviewing relevant skills of grammar and writing mechanics (See Table 2). Statistically, these students made very highly significant gains in their overall writing quality from the pretest letters to posttest letters of job application.

<table>
<thead>
<tr>
<th>Method/Group</th>
<th>df</th>
<th>T</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>24</td>
<td>-16.711 ***</td>
<td>.00005</td>
</tr>
<tr>
<td>Control</td>
<td>24</td>
<td>-6.90 **</td>
<td>.0019</td>
</tr>
<tr>
<td>Both Groups’ Pretests</td>
<td>48</td>
<td>-0.87</td>
<td>.1942</td>
</tr>
<tr>
<td>Both Groups’ Posttests</td>
<td>33</td>
<td>-3.33 **</td>
<td>.001</td>
</tr>
</tbody>
</table>

* p < .05
** p < .01
*** p < .001

The 25 students in the control group did not receive the teaching treatment of reviewing skills in grammar and mechanics relevant to Technical/Business Writing. This group started with a mean score of 2.48 on the pretest but ended the course with a mean
score of 4.6 on the posttest, an improvement of 2.12 (See Table 1). The T-test in statistical analysis still indicated that the difference between these students’ pretest and posttest scores was highly significant ($T = -6.9; \text{df} = 24; p = .0019; ** p < .01$) in the main effect for this method of teaching Technical/Business Writing without any extra assignments in grammar and mechanics (See Table 2). Statistically, the control group also made highly significant gains in overall writing quality from pretest to posttest.

The researchers also ran statistical analysis between the experimental group’s pretests and the control group’s pretests, in addition to analysis between both groups’ posttest scores. First of all, the T-Test indicated that both groups’ pretest scores were not significantly different ($T = -0.87; \text{df} = 48; p = .194; p > .05$), suggesting that both groups’ writing quality was virtually at the same level of competence (See Table 2). However, statistical analysis did indicate that the difference between each group’s posttest scores was highly significant ($T = -3.33; \text{df} = 33; p = .001; ** p < .01$). The experimental group’s mean posttest score was significantly higher than the control group’s mean score on writing letters of application for a job (See Table 2). These results strongly suggested that the students in the experimental group made greater gains in writing and significantly higher outcomes on the posttests than the students made in the control group.

These results further implied that the students in the experimental group made highly significant gains and outcomes in writing letters of application because of the additional lessons and exercises in technical diction, spelling, active voice verbs in sentences, correct punctuation, complete and parallel sentence structure, subject-verb agreement, and pronoun reference. Even though the control group did make statistically significant gains between the pretests and posttests, the results strongly suggested that the
experimental group's additional skills in grammar and writing mechanics clearly gave these students a statistically significant edge in the gains and outcomes of their writing quality over the students in the control group, thus supporting the researchers' original hypothesis at the beginning of the study, as well as supporting the related research on teaching grammar and mechanics in technical/business writing at the college level.

Conclusion

This study suggests numerous variables and features in technical/business writing for further research. More studies on teaching useful skills in grammar and writing mechanics will help college educators to realize how they may benefit their students more to make greater gains and learning outcomes in overall writing quality for their technical/business communication. Perhaps going "back to the basics" in teaching the essential skills in grammar and writing mechanics will produce much more effective college writers to become successful graduates and professionals for their future careers in business and technology.
References


INSTRUCTIONS FOR SCORING REGENTS' TESTING PROGRAM ESSAYS

DESCRIPTION OF ESSAY SCORING PROCEDURE

Raters should read each essay quickly to gain a general impression of its quality in relation to the model essays and assign a rating based on that comparison. This approach, holistic rating, contrasts with the analytic grading commonly used in essay evaluation, but evidence indicates that holistic rating is much faster and produces more uniform results.

The essays are rated on a four-point scale in which "1" is the lowest score and "4" is the highest score. The model essays represent borderline cases; each essay to be rated must, by definition, fall above or below a model.

<table>
<thead>
<tr>
<th>RATINGS</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>MODELS</td>
<td>4/3</td>
<td>3/2</td>
<td>2/1</td>
<td></td>
</tr>
</tbody>
</table>

One model essay represents each dividing line. An essay better than the "2/1" model and worse than the "3/2" model would be rated "2." An essay worse than the "2/1" model becomes "1." An essay better than the "4/3" model becomes "4."

Note carefully that raters should compare the essays they read with the models. They should not rate in terms of their usual grading standards or some abstract standard. They should not associate the ratings with the traditional grades A, B, C, D, F.

The testing subcommittee of the University System Academic Committee on English attempts to choose models by using the following definitions of competency, although it realizes that these definitions are by no means exhaustive.

**4:** The "4" essay has a clear central idea that relates directly to the assigned topic. The essay has a clear organizational plan. The major points are developed logically and are supported with concrete, specific evidence or details that arouse the reader's interest. The essay reveals the writer's ability to select effective, appropriate words and phrases; to write varied, sophisticated sentences; to make careful use of effective transitional devices; and to maintain a consistent, appropriate tone. The essay is essentially free from mechanical errors, it contains no serious grammatical errors, and the ideas are expressed freshly and vividly.

**3:** The "3" essay has a clear central idea that relates directly to the assigned topic. It contains most of the qualities of good writing itemized above. The essay generally differs from a "4" in that it shows definite competence, but lacks distinction. The examples and details are pertinent, but may not be particularly vivid or sharply observed; the word choice is generally accurate, but seldom -- if ever -- really felicitous. The writer adopts an appropriate, consistent tone. The essay may contain a few errors in grammar and mechanics.

**2:** The "2" essay meets only the basic criteria, and those in a minimal way. The essay has a central idea related directly to the assigned topic and presented with sufficient clarity that the reader is aware of the writer's purpose. The organization is clear enough for the reader to perceive the writer's plan. The paragraphs coherently present some evidence or details to substantiate the points. The writer uses ordinary, everyday words accurately and idiomatically and generally avoids both the monotony created by series of choppy, simple sentences and the incoherence caused by long, tangled sentences. Although the essay may contain a few serious grammatical errors and several mechanical errors, they are not of sufficient severity or frequency to obscure the sense of what the writer is saying.

**1:** The "1" essay has any one of the following problems to an extraordinary degree or it has several to a limited degree: it lacks a central idea; it lacks a clear organizational plan; it does not develop its points or develops them in a repetitious, incoherent, or illogical way; it does not relate directly to the assigned topic; it contains several serious grammatical errors; it contains numerous mechanical errors; ordinary, everyday words are used inaccurately and unidiomatically; it contains a limited vocabulary so that the words chosen frequently do not serve the writer's purpose; syntax is frequently rudimentary or tangled; or the essay is so brief that the rater cannot make an accurate judgement of the writer's ability.
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