The Effects of Computer-Based Instruction on College Students' Comprehension of Classic Research

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THE EFFECTS OF COMPUTER-BASED INSTRUCTION ON COLLEGE STUDENTS’ COMPREHENSION OF CLASSIC RESEARCH

A Thesis
Presented to
The Faculty of the Department of Psychology
The College of William and Mary in Virginia

In Partial Fulfillment
Of the Requirements for the Degree of
Master of Arts

by
Josephine A. Welsh
1990
APPROVAL SHEET

This thesis is submitted in partial fulfillment of
the requirements for the degree of

Master of Arts

Author

Approved, April 1990

Cynthia H. Null, Chairperson

Peter L. Derks

Herbert Friedman
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ACKNOWLEDGEMENTS

The writer gratefully acknowledges Professor Cynthia Null, under whose expertise this research was conducted, for her guidance and friendship. The author also thanks Chris Thomson for serving as a fellow experimenter in the study.
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ABSTRACT

The purpose of this research was to determine the extent to which computer-based instruction can replace conventional teaching in experimental psychology. In the first study, students from an advanced cognition and thinking course participated as subjects in Shallert's (1976) study of the role of context in prose comprehension and Carpenter's & Just's (1975) study of sentence-picture verification latencies. Half of the students completed each experiment using the computer, while the other half were taught traditionally. Overall comprehension of the purpose and design of the experiments was tested immediately following the laboratory session and one month later during the final examination in the course. Results indicated no significant differences between the groups.

Because several of the students appeared to rush through the experiments and pay little attention to the explanations of the two studies during the laboratory sessions, a second study was conducted. Experiment 2 studied the effectiveness of computer-based instruction in experimental laboratory sections that did or did not require a follow-up assignment. The second variable was introduced so that some factor of seriousness or importance of the laboratory exercise could be measured. Other changes from Experiment 1 were the deletion of some ambiguous or extremely difficult test questions and the addition of manipulation checks for seriousness. Students enrolled in experimental psychology participated in Carpenter's & Just's (1975) sentence-picture verification experiment. Results from this study indicated that, regardless of the perceived importance of a laboratory exercise, students who studied classic research in a traditional setting comprehended the purpose and design of the experiment better than those students who worked on computer. In addition, students who were assigned a write-up of the experiment performed better than those students who were given no follow-up assignment.

Findings from the current study suggest that conventional instruction surpasses computer-based instruction in teaching classic research to students of experimental psychology. Another hypothesis concerning some mixture of traditional and computerized instruction remains to be tested. Because computer-based instruction required significantly less time than traditional instruction, the effectiveness of computer-assisted instruction relative to that of conventional teaching should be examined in future research.
THE EFFECTS OF COMPUTER-BASED INSTRUCTION ON

COLLEGE STUDENTS' COMPREHENSION OF CLASSIC RESEARCH
INTRODUCTION

When the computer was introduced to the educational system during the late 1960's, psychologists immediately began evaluating it as a pedagogical tool. Considering the cost of implementing computer systems and training teachers to use the new technology with confidence, educators demanded scientific proof of the effectiveness of computer-assisted instruction (CAI). Reviewers of these evaluation studies concluded that, at least in elementary school programs, computer-based instruction (CBI) could enhance conventional methods of teaching (Kulik, Kulik, & Cohen, 1980).

Some skepticism still exists, however, as to the educational advantage of CBI in colleges and universities. In a 1974 review of studies testing CBI in the college setting, Jamison and colleagues settle on a conservative conclusion that CBI is only about as successful as traditional methods of teaching when used as a replacement. In the same manner, Kulik and associates conclude that the accomplishments of computer-based instruction still must be considered modest (1980).

Comparing traditional teaching of release from proactive inhibition (PI) with a computerized experiment demonstrating the phenomenon, Belmore (1983) found that the experimental and control groups showed approximately equal gains in knowledge. Similarly, Spivey and Jackson-Smith concluded after implementing a computer module called "Shapes", that computerization of traditional laboratory modules is not always for the best (1983). Spivey insists that "no one would argue that all laboratory modules are best done on a computer, but rather, that some certainly are" (p. 186). Clark (1983) recommends that researchers
refrain from future media comparison research. Focusing on radio
(1950), television (1960), and computer (1970) research, he argues that:
all existing surveys of this research indicate that confounding has
contributed to the studies attributing learning benefits to one medium
over another and that the great majority of these comparison studies
clearly indicate no significant differences (p. 450).

A more recent meta-analysis suggests that there are significant
gains in using one medium over another. Kulik & Kulik (1987) conclude
that students generally learn more in class when they receive help from
computers. On the average, they report, examination scores rose from
the 50th to the 61st percentile. In addition, Kulik & Kulik report that
although computer-enriched instruction (CEI) effects were near zero at
the precollege level, CEI produced effects that were moderate in size in
the college setting (Kulik & Kulik, 1987).

These findings, or lack of findings, demonstrate the need for
continuing evaluation of CBI in colleges. Professors must be careful
not to succumb to what Eamon (1986) calls illusions concerning
computers. Educators have come to believe that teachers everywhere are
successfully implementing revolutionary computer programs that
consistently outdo traditional approaches to education (Eamon, 1986).
Such assertions simply have not been supported by psychological
research. The advent of microcomputers has deemed continuing research
compulsory. Hartig (1985) concludes, "...since software is considerably
more expensive than traditional media, teachers should not be satisfied
simply with effectiveness. If it cannot be shown that CAI is a more
effective means of learning, the technology has not been fully tapped,
and money has been wasted" (Hartig, p. 5).

Evaluating any teaching method is difficult because it often is difficult to establish controlled conditions. Clark (1983) notes the importance of separating method from medium when explaining learning variance. All instructions, subject matter, content, and discussion must be identical when testing for differences between CBI and conventional instruction. Only the media being compared can differ.

The proliferation of software available to professors complicates any general study of the benefits of computerization. For example, the usefulness of computer implementation could be contingent upon the instructor's choice of computer-based or computer-enriched teaching. While introductory courses typically introduce the computer for tutorial or demonstration purposes, advanced laboratory courses are offered courseware such as experiment generators, data generators, experiment simulators, and experimental sessions. Each of these types of software could provide different benefits to different college users.

At the core of computer research is the hope of finding an effective tool for teaching. Assessing the effectiveness of computerization is limited by the vast range of definitions of effectiveness. For example, Belmore's (1983) research assessed software in terms of its superiority in helping students gain knowledge in a particular area as well as its capacity to enhance a student's enjoyment and interest in a particular course. Hartig (1985) considered effectiveness in terms of the degree to which a student developed a positive attitude toward computers after using software for coursework. Thus, anyone studying the use of computers in education must define
effectiveness clearly.

Although there are inherent problems in computer research, the fact that colleges and universities are implementing CAI under the assumption that it improves learning is a reason to assess this costly endeavor. Castellan (1986) warns faculty against introducing computers in a piecemeal or haphazard fashion. He explains, "In reading the promotional literature provided by publishers, one has the impression that it is easy to introduce computer-based instructional materials into one's class. Time and again, our experience shows that integration of computers into coursework is strewn with traps and pitfalls for the unwary" (p. 252).

The question of how to get the most out of CAI at the college level still remains largely unanswered in the literature. By considering the aforementioned pitfalls and conducting controlled experiments, researchers will be able to assess more accurately the extent to which a college class or laboratory session can, or should, be computerized. The following experiments were conducted to examine the effects of computer-based instruction in an advanced laboratory setting. It was hypothesized that students who participated in an experimental session using computer software would be free from concerns with equipment and data collection and would comprehend more of the methodology and design of a classic experiment than students who performed the experiment in a traditional classroom setting.
Experiment 1

Method

Subjects

Subjects were 24 college students (7 males, 17 females) enrolled in an advanced laboratory in cognition and thinking. Subjects were assigned randomly to either the experimental condition involving CBI, or the control condition consisting of conventional teaching.

Materials

The software chosen for this study was Keenan’s and Keller’s Computer Lab in Memory and Cognition (1988), published by Conduit. The specific programs used were the experimental session of a modified replication of Schallert’s (1976) work on the role of context in prose comprehension, and the experimental session of Carpenter’s and Just’s (1975) sentence-picture verification. These programs allow students to participate as subjects, view a data summary, and read about the theoretical background of these well-known studies. Keenan’s and Keller’s program meets criteria that Bennet (1985) lists as important when evaluating courseware. Specifically, the Lab in Memory and Cognition runs easily on the school’s computer system, incorporates sound learning principles, and provides the user with technical support. In addition, the software is user-friendly, and it is consistent with curricular goals.

Materials for the Shallert experiment in the control condition consisted of typed stories and questions identical to the items read by students using the computer. Subjects in the conventional condition also were given data sheets to record responses.
The apparatus for the Carpenter & Just experiment in the control condition consisted of a tachistoscope wired to a Hunter Klocktimer and a control box. The control box contained a red and a green button which could be depressed to stop the klocktimer. Stimuli for the sentence-picture verification task were drawn on 4 X 6 index cards with a black felt tip pen.

Procedure

All subjects were told they were about to participate in an experiment which would include short answer questions concerning the material presented. Participants were asked to sign a consent form (see Appendix A), and they were told they could refuse to answer any question and/or discontinue participation at any time. After subjects were assigned randomly to conditions, Instructor 1 took the experimental group to the computer lab, where the program already was loaded onto personal computers. The students in that condition were given a handout explaining how to run the program and print data that is presented at the end of the session. As each subject completed the computer program, Instructor 1 handed the student an assignment to be completed immediately and turned in to the instructor. The assignment included questions concerning the design and methodology of the experiment as well as the theoretical interpretation of results (see Appendix B). As students turned in their responses, Instructor 1 thanked them for participating and informed the students that, at the end of the next semester, results would be posted on the first floor bulletin board of the psychology building.
Students in the control condition remained in their classroom, where Instructor 2 read verbatim instructions included in the Computer Lab in Memory and Cognition. Students then were instructed to conduct two experimental sessions, serving once as the experimenter recording the data and once as the subject answering questions. After each pair of students had completed the experiment, Instructor 2 explained Shallert's (1976) Constructive Processes in Prose as it is explained to subjects reading the computer screen in the experimental condition. Next, Instructor 2 handed out the assignment described in the computer condition and collected the completed work. Instructor 2 informed students that results of the study would be posted on the bulletin board on the first floor of the psychology building at the end of the next semester.

Two weeks later, another experiment was conducted using the same subjects and instructors. The differences in this experiment were that the Carpenter & Just sentence-picture verification task comprised the experimental session. The subjects switched conditions so that each student had an opportunity at some time to work on the computer. Instructor 1 remained in the experimental condition while Instructor 2 stayed in the control group. The procedure for this experiment was identical to that described above.

At the end of the semester, questions concerning the two experiments appeared on the students' final examination. The instructor indicated that answers to these questions would not be considered in determining final grades. As part of a standard course evaluation,
students were asked to provide feedback concerning their participation in the current study.

**Results**

It was hypothesized that the computer group would do better in both the Shallert and the Carpenter & Just experiments. Because the Carpenter & Just experiment involves more data collection and more elaborate equipment that must be mastered, it was expected that differences between the two groups would be greatest for that study. Mean scores for knowledge were not significantly different for the groups (see Table 1). The conventionally taught group scored higher (M = 52.8, 45.8) for both the Shallert and the Carpenter & Just experiments respectively, while the computer group scored 51.9 and 38.6. Neither of these differences were significant; t(19) = .19, p > .05 for Shallert, t(19) = .89, p > .05 for Carpenter & Just. Results from the final examination also indicated no significant differences between the groups. Means for the Shallert experiment were 26.6 (SD = 43.9) for the conventionally taught group and 24.2 (SD = 36.7) for the computer group; t(19) = .89, p > .05. Means for the Carpenter & Just study were 39.3 (SD = 21.4) for the traditional group and 27.2 (SD = 26.1) for the computer group.
Table 1
Percentage of Questions Answered Correctly as a Function of Instructional Method

<table>
<thead>
<tr>
<th>Instruction</th>
<th>Experiment</th>
<th>M</th>
<th>sd</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conventional</td>
<td>Carpenter &amp; Just</td>
<td>45.8</td>
<td>12.0</td>
</tr>
<tr>
<td></td>
<td>Shallert</td>
<td>52.8</td>
<td>11.3</td>
</tr>
<tr>
<td>Computer</td>
<td>Carpenter &amp; Just</td>
<td>38.6</td>
<td>22.7</td>
</tr>
<tr>
<td></td>
<td>Shallert</td>
<td>51.9</td>
<td>10.6</td>
</tr>
</tbody>
</table>
Experiment 2

During experiment 1, Instructor 1 noted that although students were completing the experiments, many students were not taking time to read the computer explanation of the purpose of the experiment and the results. It further was noted that none of the groups performed well on the dependent measure of overall comprehension of the experiment. It appeared that students in both conditions were eager to complete the laboratory assignment and finish early. There was no grade given for these particular laboratory exercises, nor was any outside assignment required. These factors, taken together, led the instructor to question whether or not some factor of seriousness had influenced the results of the two experiments. This variable was tested in experiment 2.

Method

Subjects

Subjects were 75 (17 males, 58 females) students enrolled in experimental psychology. Thirty-eight students were enrolled in a laboratory section in which an APA-style report of the Carpenter & Just study was required. Thirty-seven students were enrolled in a laboratory section in which no assignment was given for this particular exercise.

Apparatus

The Carpenter & Just (1975) experiment was used exactly in the same manner described in experiment 1. The Shallert study was not used because the design did not involve any equipment or apparatus that clearly distinguished the computer group from the conventional. The dependent measure was again the percentage of questions about the experiment answered correctly. Some of the detailed questions
concerning the explanation of Carpenter & Just were eliminated because no one in the first study answered these correctly (see Appendix C).

Procedure

The procedure for experiment 2 was identical to that of experiment 1, except that manipulation checks were added. After answering questions concerning their overall comprehension of the purpose and design of the Carpenter & Just study, students were asked to what extent they took the exercise seriously, to what extent they paid attention to the explanation of the study, and to what extent they felt that their understanding of the laboratory exercise would affect their final grade in the course. When the study was completed, all students who were required to write an APA-style report of the experiment were given a handout explaining the theoretical background of the Carpenter & Just study, and the manual for the computerized experiment was available from the college library.

Results

An ANOVA of subjects' course grades through mid-semester revealed no significant differences. Thus, intact groups did not present a problem in this study. A 2 X 2 (Importance X Instruction) ANOVA revealed significant main effects for both factors (see Table 2). Students in the computer condition performed better, $F(1,71) = 7.2$, $p<.01$ and students who were given an assignment for the lab performed better, $F(1,71) = 4.2$, $p<.05$. 
<table>
<thead>
<tr>
<th>Instruction/Importance</th>
<th>M (% correct)</th>
<th>sd</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conventional/Important</td>
<td>72.2</td>
<td>19.2</td>
<td>18</td>
</tr>
<tr>
<td>Computer/Important</td>
<td>60.3</td>
<td>13.8</td>
<td>20</td>
</tr>
<tr>
<td>Conventional/Less Important</td>
<td>62.9</td>
<td>20.1</td>
<td>18</td>
</tr>
<tr>
<td>Computer/Less Important</td>
<td>52.7</td>
<td>17.7</td>
<td>19</td>
</tr>
</tbody>
</table>

*Method of Instruction \( F(1,71) = 7.2, p(.01 \)

*Perceived Importance \( F(1,71) = 4.2, p(.05 \)

Table 2
Mean Performance as a Function of Method of Instruction and Perceived Importance of Laboratory Experiment
The required APA-style, follow-up assignment worked to create a factor of seriousness or importance. Students who were given a laboratory assignment took the exercise more seriously ($F(1,71) = 7.3$, $p<.001$) and felt that their grades would be affected by their performance $F(1,71) = 26.1$, $p<.001$. In addition, the students in the computer condition paid less attention to the explanation of the purpose of the Carpenter & Just study and the explanation of their findings $F(1,71) = 16.8$, $p<.001$. Means for attention paid by subjects in the classroom were 6.6 (on a nine-point scale) for the group who was given an assignment and 5.6 for the no assignment group. Means for the subjects working on the computer were 5.4 for the group given an assignment and 3.0 for the no assignment group.

Finally, there was a significant difference in the amount of time students spent working on the laboratory experiment. People in the computer condition spent significantly less time on the assignment $F(1,71) = 5.7$, $p<.05$ (see Table 3).
Table 3
Required Time to Complete Task as a Function of Method of Instruction and Perceived Importance of Laboratory Experiment

<table>
<thead>
<tr>
<th>Instruction/Importance</th>
<th>M (in min.)</th>
<th>sd</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conventional/Important</td>
<td>72.2</td>
<td>5.8</td>
<td>18</td>
</tr>
<tr>
<td>Computer/Important</td>
<td>44.0</td>
<td>7.0</td>
<td>20</td>
</tr>
<tr>
<td>Conventional/Less Important</td>
<td>75.7</td>
<td>10.0</td>
<td>18</td>
</tr>
<tr>
<td>Computer/Less Important</td>
<td>48.6</td>
<td>4.7</td>
<td>19</td>
</tr>
</tbody>
</table>

*Method of Instruction \( F(1,71) = 269.3, p(0.001 \)

*Perceived Importance \( F(1,71) = 5.7, p(0.05) \)
Discussion

The purpose of these studies was to determine the ability of computer-based instruction to surpass that of conventional teaching of classic experiments in psychology. Contrary to the hypothesis, students in the conventionally taught group performed better than those using a computer. In addition, students who were required to write an APA-style report of the laboratory experiment exhibited better understanding of the classic research. These findings are specific to the experiment simulator used in the current study. Results from experiment generators or data generators, or results from other software packages could provide more evidence concerning the use of computers in psychology.

In this study, experience with computers was not tested because all students had been taught a statistical package as part of their coursework. Effects of novelty were not considered because research by Kulik, Bangert, & Williams (1983) and Kulik, Kulik, & Cohen (1980) shows that although such effects have confounded findings at the secondary school level, this problem is not evident in studies involving college students.

Two instructors were used in this study so that the two groups of students could work on the laboratory experiment concurrently. According to Kulik & Kulik (1987), it is unclear which type of experiment, one instructor or two, most accurately assesses CBI. Effects of CBI have been shown to be stronger in experiments in which different instructors teach the control and experimental groups. The reason for this finding is not clear (Kulik & Kulik, 1987).
Although the computer group that was assigned an APA-style performed the best, and the conventional group with no assignment did the worst, this interaction was not significant \( F(1,71) = .04, p > .05 \).

The finding that students perform better if they perceive the laboratory exercise as an important part of their course grade is supported by research by Ksobiech (1976). Ksobiech found that students achieved increasing scores when they were told they were expected to enjoy, evaluate, or take a test on the subject of presentation. Students performed best when they perceived that they would be graded on the material presented.

The finding that people using computers took less time to complete the laboratory experiment is consistent with a series of research findings that highlight the ability of computer instruction to use time more efficiently than a human instructor can accomplish. For example, Belmore (1983) found that whereas conventional teaching required one hour, the computerized laboratory took 25 minutes to complete. Results from the current study showed, however, that the group that finished first performed the worst. What has been labelled computer efficiency could be a product of an unattentive student eager to complete the experiment. A learning environment that could reduce time spent in the class without sacrificing quality of instruction is an ideal worth pursuing.

It appears then, that conventional teaching is more effective than computer-managed instruction at the college level. Another way of stating this finding is to say that a human instructor is an essential factor in teaching college students. Because the current study showed
that conventionally taught laboratory research exceeds computer-based instruction, the only question to be answered is whether or not conventionally taught laboratory experiments also surpasses computer-assisted instruction (CAI). CAI could be incorporated into a laboratory classroom by using the computer to present stimuli and record data and concluding the session with a discussion led by a human instructor. Indeed, this is the format suggested by Keenan & Keller (1988) in their software manual. Results from such a study would provide experimental evidence that will enable instructors to make informed decisions concerning the implementation of computer instruction at the college level.
References


Hartig, G. (1985). Students are capable of assessing the effectiveness of computer assisted instruction. Indiana: Indiana University Independent Study Program, School of Continuing Studies.


APPENDIX A

CONSENT FORM

The general nature of this experiment on (November 14, 1989; November 28, 1989; February 26, 1990; February 28, 1990) has been explained to me. I understand that I will be asked to complete a laboratory experiment and answer short questions pertaining to the experiment. I consent that the experimenter may have access to my final grade in this course. I further understand that my responses will be confidential and that my name will not be associated with any results of this study but will be used only as an interexperimental label for my responses. I know that I may refuse to answer any question asked and that I may discontinue participation at any time. Otherwise I will take this task seriously and perform it to the best of my ability. I also understand that any grade, payment, or credit for participation will not be affected by my responses or by my exercising any of my rights. I am aware that I may report dissatisfaction with any aspect of this experiment to the Chair of the psychology department, Herbert Friedman, at 221-3870. My signature below signifies my voluntary participation in this experiment.

________________________________________
SIGNATURE

________________________________________
DATE
APPENDIX B

EXPERIMENT 1

SHALLLERT (1976)

PLEASE COMPLETE THE FOLLOWING SHORT ANSWER QUESTIONS:

The experiment you just completed was conducted originally by ________ in __________________________.

The independent variable(s) in this experiment is (are):

(INCLUDE # OF LEVELS OF EACH INDEPENDENT VARIABLE)

The dependent variable(s) in this experiment is (are):

The design of this experiment is:

a. between groups          c. blocked
b. t - test               d. completely randomized

This experiment was designed to test:

a. the role of bias in recognition
b. the role of titles in semantic memory
  c. the role of context in comprehension

What is (are) the hypothesis (hypotheses) for this experiment?
How well do your data support the researcher's hypotheses?

Name three factors other than the title of the story that could have influenced subjects' interpretations of stories.

From this study, what can be learned about research methodology?
PLEASE COMPLETE THE FOLLOWING SHORT ANSWER QUESTIONS:

In ___________ (year), ______________________________ presented a constituent comparison model to account for the speed with which people respond to sentence picture verifications.

The independent variable(s) in this experiment is (are):
(INCLUDE # OF LEVELS OF EACH INDEPENDENT VARIABLE)

The dependent variable(s) in this experiment is (are):

In what state are pictures always represented?

Verification time is computed as a function of ___________________________
______________________________

According to the constituent comparison model, verification latencies increase in the following order:

a. TA, FA, TN, FN, TD, FD  
   c. TA, FN, FA, TN, FD, TD
b. TA, FA, TN, FN, FD, TD  
   d. TA, FA, FN, TN, FD, TD

Researchers later replicated this experiment, but they obtained different results from those expected. What caused the difference?
What can be learned about research experimentation from the difference in results?

What did the researcher of this experiment conclude about the way we process sentences?
Please check the place where you performed each experiment:

On November 14 I ___ worked on the computer ___ remained in class.
On November 28 I ___ worked on the computer ___ remained in class.

In 1976, Shallert designed an experiment to determine the role of context in comprehension. What were the hypotheses?

How did Shallert test these hypotheses?

What can we conclude about the role of context in comprehension based on the results of this study?

In 1975, Carpenter & Just performed an experiment using 6 variations on, "It is true that the star is above the plus." What was the name of the task used in this experiment?

In the study of cognition and thinking, Carpenter's & Just's experiment provided information about:

a. semantic memory
b. comprehension
c. recognition and recall
The "star above the plus" experiment uses a ___________ design.

a. within - subjects  
b. between - subjects  
c. quasi - experimental  
d. latin - square

Why did Carpenter & Just label their model "the constituent comparison model?"

According to the constituent comparison model, what determines the actual response for each trial?

Carpenter & Just later discovered that, with practice, subjects employ a strategy that cannot be explained by the constituent comparison model. What strategy were subjects using?
APPENDIX C

EXPERIMENT 2

PLEASE COMPLETE THE FOLLOWING SHORT ANSWER QUESTIONS:

In _________________ (year), ______________________________ presented a constituent comparison model to account for the speed with which people respond to sentence picture verifications.

In the study of cognition and thinking, Carpenter’s & Just’s experiment provided information about:

a. semantic memory
b. comprehension
c. recognition and recall

The "star above the plus" experiment uses a __________ design.

a. within - subjects c. quasi - experimental
b. between - subjects d. latin - square

The independent variable(s) in this experiment is (are):

(INCLUDE # OF LEVELS OF EACH INDEPENDENT VARIABLE)

The dependent variable(s) in this experiment is (are):

Why did Carpenter & Just label their model "the constituent comparison model?"
According to the constituent comparison model, verification latencies increase in the following order:

a. TA, FA, TN, FN, TD, FD  
c. TA, FN, FA, TN, FD, TD

b. TA, FA, TN, FN, FD, TD  
d. TA, FA, FN, TN, FD, TD

Carpenter & Just later discovered that, with practice, subjects employ a strategy that cannot be explained by the constituent comparison model. What strategy were subjects using?
PARTICIPANT FEEDBACK

Please indicate the extent to which you took this laboratory exercise seriously.

1 2 3 4 5 6 7 8 9

1 = not at all seriously 9 = extremely seriously

Please indicate the extent to which you paid attention to the explanation of the cognitive processing models used to explain sentence picture verification latencies.

1 2 3 4 5 6 7 8 9

1 = I really wasn’t paying attention to the explanation. 
9 = I paid extremely careful attention to the explanation.

Please indicate how important you feel your understanding of this laboratory exercise is in getting a good grade in this class.

1 2 3 4 5 6 7 8 9

1 = This particular laboratory exercise really doesn’t matter.
9 = It is extremely important that I understand this particular laboratory exercise.
Please comment on any part of this exercise that was difficult or confusing, and/or provide feedback concerning this experiment.

Since other students will be participating in this study, I ask that you not discuss this laboratory exercise with anyone until March 1, 1990. Results of the study will be posted on the bulletin board on the first floor of the psychology building at the end of the current semester.
VITA

Josephine Amy Welsh

The author was born in York, Pennsylvania on June 18, 1966. She earned her A.B. in psychology from Muhlenberg College, Allentown, Pennsylvania in 1988. The author continued her education at The College of William and Mary in Virginia where she received her M.A. in 1990. She will enter the experimental psychology program at Virginia Commonwealth University in the fall of 1990.