Can Computer-Based Precision Learning Increase Test Scores?

Claudia E. McDade, John M. Brown, and Robert Vance

Since 1978, the Center for Individualized Instruction at Jacksonville State University has been developing the Computer-Based Precision Learning System.™ As the system has evolved with more sophisticated programming, it has maintained certain key elements. The system allows an instructor to ask students questions in multiple formats (i.e., multiple-choice, true-false, matching, concealed multiple-choice, and short answer), regardless of the discipline. Performance results and feedback can be given immediately after each question or after an entire group of questions. Precise timings of frequencies correct and incorrect are based only for the time the question appears until the answer is inputted.

Other Precision Learning techniques are used within the Center in addition to the Computer-Based Precision Learning System. These include SAFMEDS, timed readings, and Precision practice sheets.

The current study compared the performance on a unit on parts of speech of two sections of a developmental writing course.

Subjects

Two classes of Learning Skills 095: Reinforcing Communication Skills were used in the study. Students were automatically placed in LS095 according to their presenting ACT English Subtest Score or chose to take the course as a refresher. There was no significant difference between the classes' ACT English Subtest scores, or mid-term grades in LS 095. The Precision Taught group contained seven students; the traditionally taught group, eight.

Method

Both classes were given a pretest on parts of speech, instruction on parts of speech, and a posttest two weeks after the pretest. A typical item on the assessment instrument was: *Give the part of speech of the word "den" (as in den of lions).* The Precision Taught group participated in timed drills identifying parts of speech out of reading passages or sentences from the board during class sessions. Additionally, Precision Taught students were required to achieve mastery, defined as 10 correct responses per minute, on the Computer-Based Precision Learning System. The traditionally taught group was given standard lectures on parts of speech with no Socratic questioning, precision probes, and little interaction in class.

Results

The Precision Taught group performed better on the posttest than did the traditionally taught group ($Mean_{PT}$ = 6.43 with s = .53; $Mean_{Trad}$ = 2.25 with s = 1.22). The Mann-Whitney U test (U = 56 with n_1 = 7 and n_2 = 8) was highly significant at the .01 level. Pretest/posttest scores were plotted on Standard Celeration Charts. Every student in the Precision Taught group increased rate of correct responding and decreased rate of incorrect responding. The student with the lowest entering ACT English Subtest Score (i.e., 3) improved 5x. The learning pictures provided by the Standard Charts are more variable for traditionally taught students.

Anecdotal information from the instructor indicated the Precision Taught class was exuberant and anxious to take the posttest, while the traditionally taught class was "bored silly" and often napped in class.

Discussion

Precision Teaching techniques, including Computer-Based Precision Learning, appear to enhance student learning and performance in underprepared student populations. Interest in learning is more vivid; motivation to learn is higher. Most importantly, rates of performance are higher. Traditional approaches often do not maintain interest or motivation in learning and do not result in student success or satisfaction with performance.

The Center for Individualized Instruction will continue to develop Precision Teaching techniques to assist all students in improving their academic performance.

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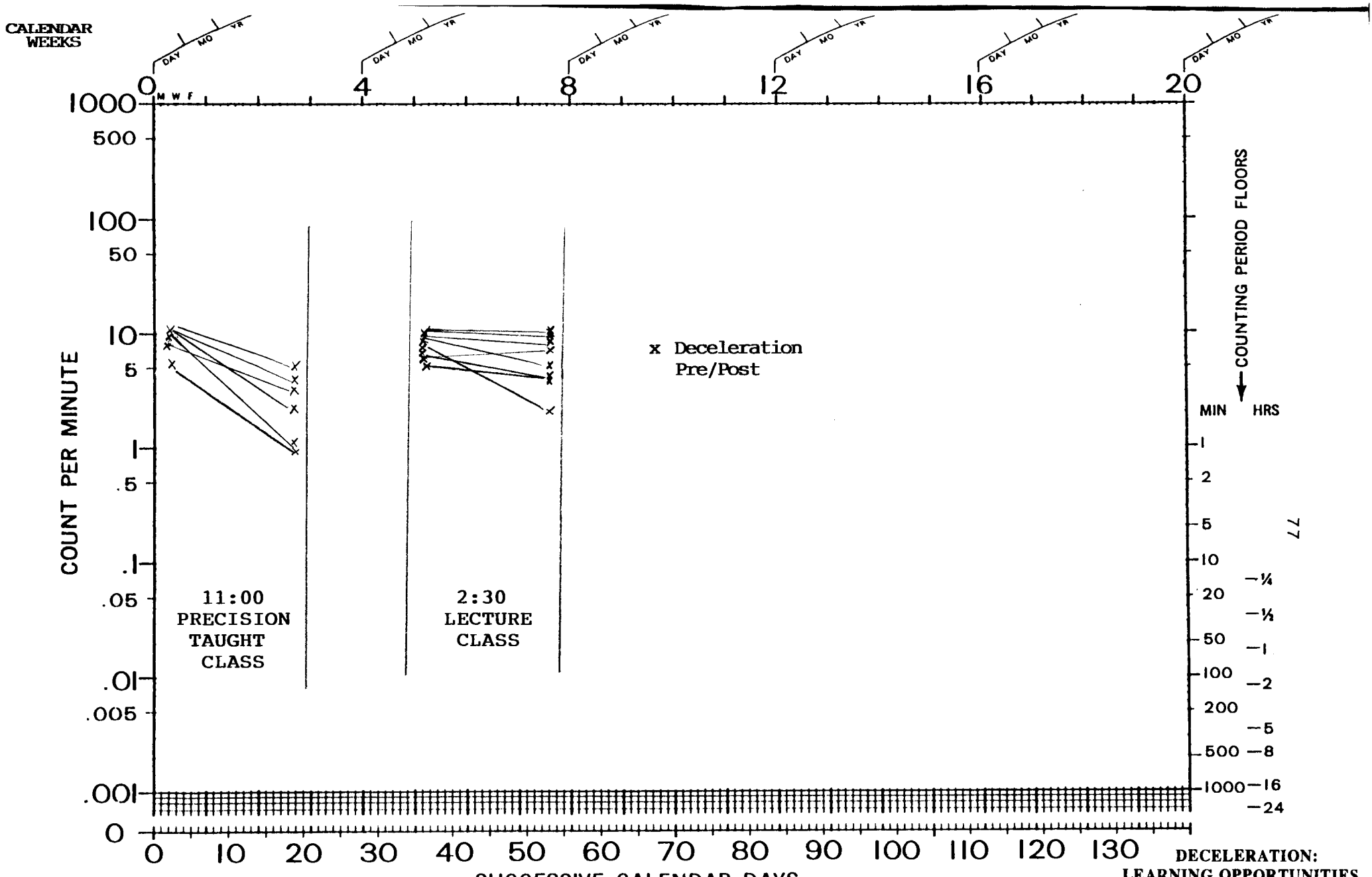
"If Teaching Were Telling, We'd Be So Smart, We Couldn't Stand Each Other"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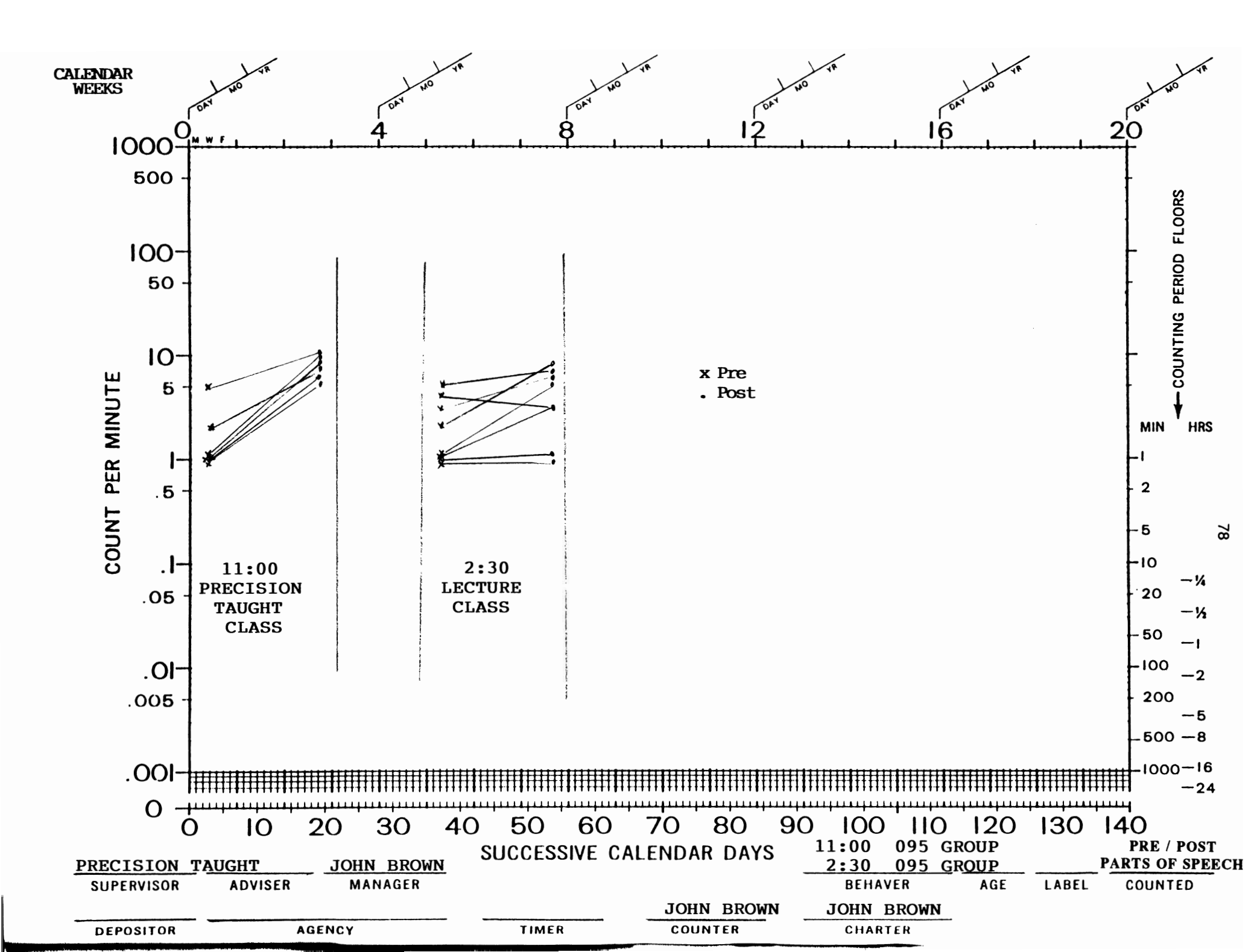
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SUCCESSIVE CALENDAR DAYS
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ADVISER
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JOHN BROWN
CHARTER