

Repeated Readings and Precision Teaching: Increasing Reading Fluency and Comprehension in Sixth Through Twelfth Grade Boys with Emotional Disabilities

Annie Lou Polk and April D. Miller

Repeated readings were used as a method for increasing the oral reading fluency and comprehension of 5 male students, in grades 6 through 12, with emotional disabilities. Students read a passage repeatedly and were timed twice per day on the passage using 1-minute counting periods. This study also examined the students' comprehension of the story by counting the number of facts or ideas correct/incorrect recalled during a daily 1-minute retelling of the story. Students were moved to new passages when they reached their fluency aim on the previous passage. Student aims ranged from 140 to 200 words read correctly per minute, with 5 or fewer errors. Repeated reading and retelling frequencies were charted daily. Additionally, previously unread passages at the same reading level were assessed across the study for generalization of the fluent reading behaviors. Repeated readings were functionally related to an increase in the number of words read correctly per minute, a decrease in the number of words read incorrectly per minute, and an increase in the number facts retold correctly per minute. The effect of repeated readings on the transfer of reading fluency to new passages was inconclusive.

Reading has long been considered one of the most important skills that a child needs to learn (Dewalt, Rhyne-Winkler, & Rubel, 1993). However, identifying the most effective method for teaching reading instruction continues to generate controversy (Bracey, 1992). The controversy is not a new issue, as noted in the 1887 writings of G. Stanley Hall (cited in Farber, 1985) concerning the teaching of reading:

[There is] growing agreement that there is no one and only orthodox way of teaching and learning this greatest and hardest of all arts, in which ear, mouth, eye, and hand, must in turn train the other to automatic perfection (p. 246).

The research over the one hundred years since Hall's time has not supported one method of teaching reading exclusively over another (Bracey, 1992). It seems a major factor in learning to read was the teacher, her ability to motivate the students, and the degree to which the teacher implemented the curriculum to meet student needs (Dewalt et al., 1993).

If reading instruction is to be effective and responsive, teachers must understand what reading is and what good readers do. Anderson,

Heibert, Scott, and Wilkinson (1984), in *Becoming a Nation of Readers*, defined reading as the process of constructing meaning from written texts (p. 7). The students' knowledge and visual cues from the text work together to produce meaning. The good reader must be familiar with the code (print) in order to attack (read) it, and this attack must be fluent in order for meaning to result. Fluency in reading is assessed by measuring speed and accuracy. Fowler (1993) stated that fluency is critical because if reading rate falls below 200 words per minute, meaning (comprehension) is greatly reduced.

Binder (1992) stated that "fluency (what cognitive psychologists call automaticity) is associated with retention and maintenance of skills and knowledge endurance or resistance to distractions, and application or transfer of training" (p. 40). Most children come to school with some knowledge of the conventions of the reading process, but the transformation to become fast, accurate readers requires a history of engagement with text over time, better known as practice (Reynolds, 1993). Binder (1990) argues that practice leads to fluent performances, and fluent performances result in the subsequent feeling we call confidence.

One technique teachers have used to increase fluent reading performance is repeated practices of the same passage, a technique referred to as repeated readings. Chomsky (1976) and Samuels (1979) found repeated readings to be an effective strategy for improving reading fluency. Even the report *Becoming a Nation of Readers* (Anderson et al., 1984) suggests that:

Repeated reading deserves consideration as an alternative to the conventional practice of having children read aloud new material every day. No one would expect a novice pianist to sight read a new selection every day, but that is exactly what is expected of the beginning reader (p. 54).

Recent studies using repeated readings have shown the repeated readings strategy to be effective with students from different ages and ability levels (Carver & Hoffman, 1981; Dowhower, 1987; Henk, Helfeldt, & Platt, 1986; Herman, 1985; Rashotte & Torgesen, 1985). Researchers at (or former students of) The Ohio State University have focused on measuring the effects of repeated readings using Precision Teaching. Carroll, McCormick, and Cooper (1991) used Precision Teaching to measure student progress and found repeated readings to be an effective instructional method for developing oral reading fluency in intermediate students with severe behavior disabilities and severe reading problems. Brosovich-McGurr (1991) used Precision Teaching and repeated readings to increase fluency and comprehension with secondary students with learning disabilities, while Sweeney (1992) with elementary academically at-risk students. Repeated readings and Precision Teaching were also used to increase oral reading fluency with an adult across 6 passages (Sweeney, Omness, Janusz, & Cooper, 1992). Daly and Guldswog (1992) using repeated readings with Precision Teaching, found general education students read at higher rates, with fewer errors, and reached aims in fewer sessions than students with learning disabilities. This study also found students with learning disabilities had higher accelerations and higher overall performance changes with the repeated reading intervention.

The purpose of this study was to examine the relationship of repeated readings of passages on the fluency and comprehension of students with emotional disabilities. The present study follows the work of these researchers from The Ohio State University (e.g., Brosovich-McGurr, 1991; Carroll et al., 1991; Sweeney et al., 1992) in the area of repeated readings as measured with Precision Teaching. Although this study follows many of the rules for conducting single-subject research, it is important to understand the main purpose of this project was to improve the fluency and comprehension of students through informed data-based decision-making, Precision Teaching.

Method

Participants

Five male students, 11 to 18 years old, from a classroom for students with emotional disabilities (EmD) served as participants for this study. The classroom from which participants were selected contained both self-contained and resource room students with EmD. Selection of students was based on disability (EmD) and need for improvement in reading fluency and comprehension, as reflected by baseline measurements and reading achievement level determined from the *Brigance Diagnostic Inventory of Essential Skills* (Brigance, 1981). Table 1 shows the gender, age, grade placement, socioeconomic status, ethnicity, IQ score, and reading achievement level for each participant.

Setting

This study took place in a rural public school in South Mississippi. The repeated readings were conducted in the students' classroom. The study was conducted at an 8-foot reading table placed on one side of the classroom. The first author, a graduate student in special education, served as the teacher for these students and conducted the study, tutoring and timing for each student.

Table 1

Student Characteristics

Student	Gender	Age	Grade	SES ^a	Ethnicity	IQ ^b	Reading level ^c	
1		M	11	6	L	C	94	3.0
2		M	13	7	L	C	70	1.0
3		M	14	8	M	C	81	7.0
4		M	16	10	L	C	84	3.0
5		M	18	12	L	AA	78	4.0

^a L = low SES, M = middle SES, as determined by free lunch eligibility. ^b IQ as measured by *Wechsler Intelligence Scale for Children-Revised* (Wechsler, 1974). ^c Reading grade level as determined by *Brigance Diagnostic Inventory of Essential Skills*.

Procedures

Reading passages were selected from the *SRA Power Builder Series* (Parker, 1991). The passages were rated for reading level using the Fry Readability Formula (Fry, 1977). To allow enough room for improvement of performance and to add sufficient challenge to the readings, passages were selected at 6 months to 1 year higher than the reading grade level for each student. Baseline reading rates were established by having each student read orally from a previously unseen passage for one minute. After the timing, the student completed reading the passage, then was asked to retell as much of the story as he could in one minute. The baseline phase continued, with the student reading a new passage each day, until a trend was established after 3 to 5 days. Since students with EmD often display inconsistency in performance, large patterns of variability were also considered to be an overall baseline trend. Aims for the students were determined in a conference between the teacher and each student after the baseline phase and ranged from 140 to 200 correct words per minute.

During the readings, the teacher was responsible for timing, scoring, and audio tape recording the students' performances. A digital kitchen timer was used to time the students. This timer had a count-down feature and signaled the beginning and end of the timed period with beeps. This provided accurate timing and allowed for accuracy checks by a second independent observer, via audio tape recordings. During the readings, the teacher marked a copy of the story with student miscues. The markings included coding of all student errors, insertions, substitutions, repetitions, omissions, hesitations, and the beginning and ending of the 1-minute timing. Each word read correctly was counted, as were learning opportunities (i. e., errors). Any deviation from the printed passage was coded and counted as a word read incorrectly. The same system for marking was used by the second observer on clean copies of the stories as accuracy checks once per week throughout the study.

In the intervention phase of the study, the first day of reading on each passage was treated exactly like baseline: the student read a new passage, was timed for 1 minute, completed reading the story, then had 1 minute to retell the facts from the story. The repeated readings phase

actually began on the second day, when the student actually reread the passage for the first time. On this second day of the intervention, the teacher spent between 5 and 10 minutes with the student reviewing and instructing the student on reading errors made on the previous day. In this instructional period, the teacher used teacher-made flash cards with highlighted cues to assist with word pronunciation. The flash card procedure was instituted to ensure the student made corrections to miscues made in reading. After the instruction, the student was given 2 opportunities to orally read, using the 1-minute timing procedure. The student then finished reading the selection and was given 1 minute to retell the facts and ideas from the story. The student repeated the same passage using this procedure, until aim was met. Instruction with flash cards was repeated each day the student remained on that passage. The best 1-minute timing of the two timings, based on the correct rate, was recorded on the Chart for that day.

Generalization probes were taken once per week across the study. These probes were conducted exactly as readings during the baseline, on new passages each week. They were conducted to examine if any improved reading fluency or comprehension was transferred to previously unread passages at equivalent reading levels.

Interviews were used to gather information about the social validity of the intervention. Students and parents were informally asked to discuss the project with the teacher at the completion of the study. Students also had an individual conference with the teacher about the intervention and how they believed it affected their reading ability.

The study lasted for a period of 13 weeks. Baseline data were collected for 1 week, repeated readings intervention lasted 9 weeks, and generalization probes were conducted once per week during the study and for an additional 3 weeks after the study.

Results

Data obtained from each of the 5 students during the baseline and repeated reading conditions are

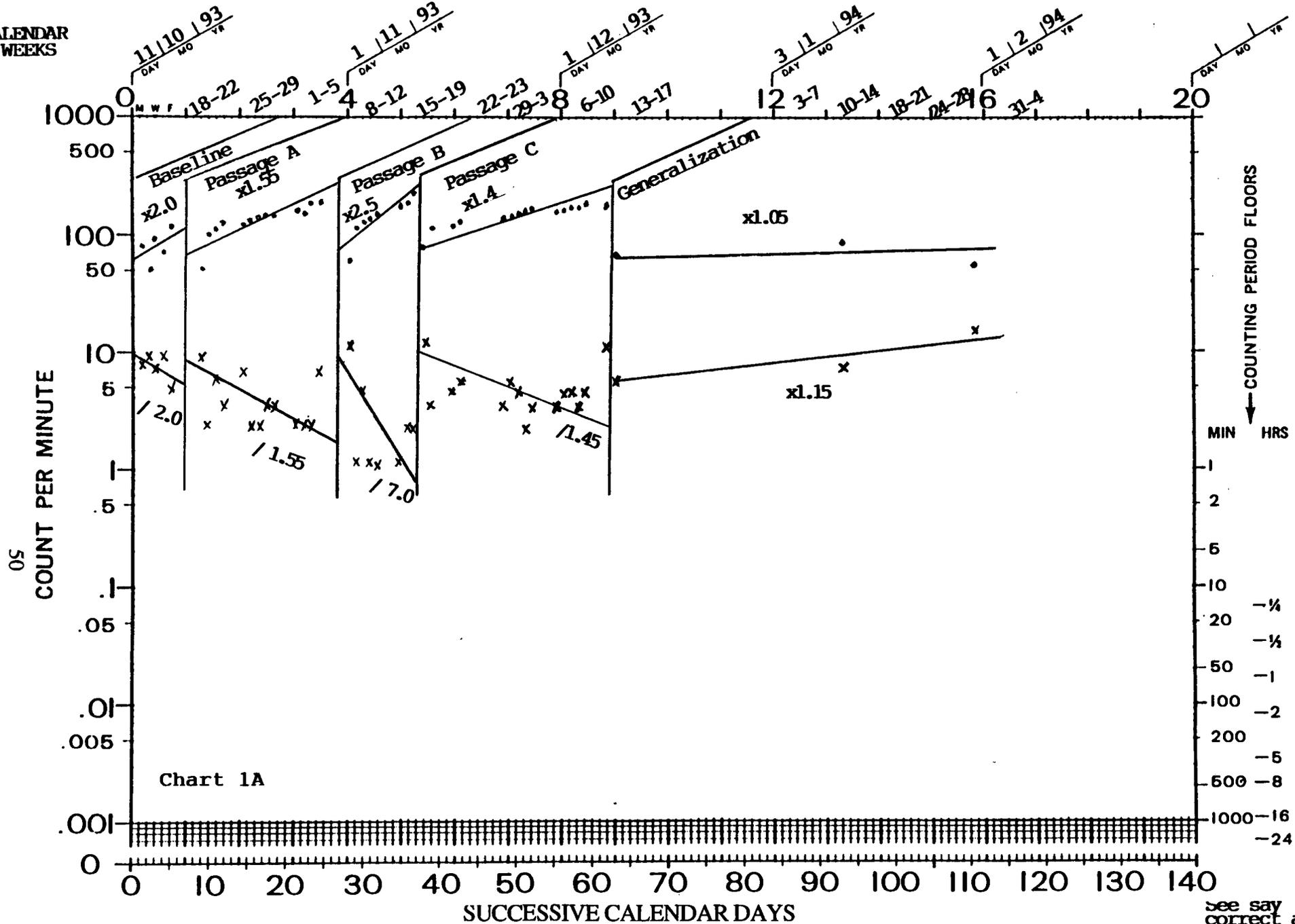
presented in Charts 1A-5C. Each student's data are presented on 3 Charts, labeled A, B, and C. On each figure, the following data are provided: A) the number of words read correctly and incorrectly per minute, B) the number of comprehension facts retold correctly or incorrectly per minute, and C) the number of words read correctly/incorrectly and number of comprehension facts retold correctly/incorrectly per minute on novel passages (generalization).

The number of correct and incorrect words followed similar celeration across the students (see Charts labeled A). During the baseline condition, participants showed wide variability across the reading of new passages. The overall celeration of these baseline passages multiplied for Students 1 and 3, but divided for Students 2, 4, and 5. After the implementation of the instructional practice and repeated readings, all students showed an acceleration in words read correctly and a deceleration in words read incorrectly across each new passage. The students also demonstrated more consistent responding trends during the intervention condition than in baseline.

The number of correct and incorrect facts retold followed trends that were similar across the students (see Charts labeled B). During baseline, all students showed inconsistent trends for retelling of facts from new passages. After implementing the intervention, the students demonstrated a jump up in the number of correct facts retold, accelerating or maintaining trends in the number of facts retold correctly, and consistently low numbers of errors in retelling. Although no student showed a high number of errors during baseline in the retellings, these rates were even lower during the intervention condition.

Generalization probes revealed similar celerations across students in performance on new passages (see Charts labeled C). On new passages, students showed maintaining celerations for the number of words read correctly and incorrectly, and for the number of correct and incorrect facts retold. A notable exception is Student 2, who showed an accelerating data rate related to the number of words read correctly, a slight acceleration in the number of facts retold

CALENDAR WEEKS

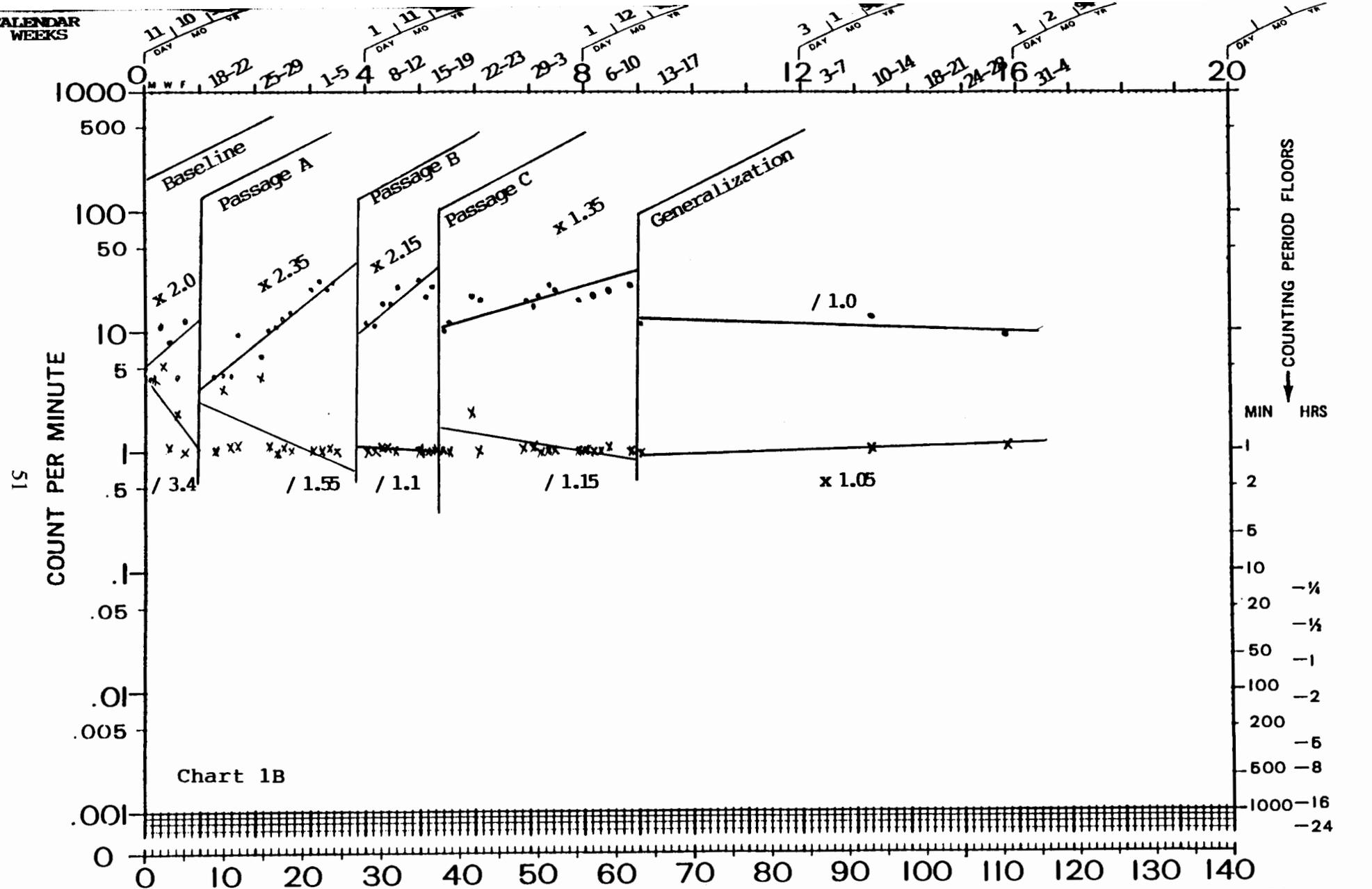


A. Miller A. Miller L. Polk
 SUPERVISOR ADVISER MANAGER

student 1 11 EmD see say correct and
 BEHAVIOR AGE LABEL incorrect
 COUNTED

L. Polk Polk

CALENDAR WEEKS



A. Miller
SUPERVISOR

A. Miller
ADVISER

L. Polk
MANAGER

student 1
BEHAVER

11
AGE

ErD
LABEL

Retell story correct and incorrect
COUNTED

DEPOSITOR

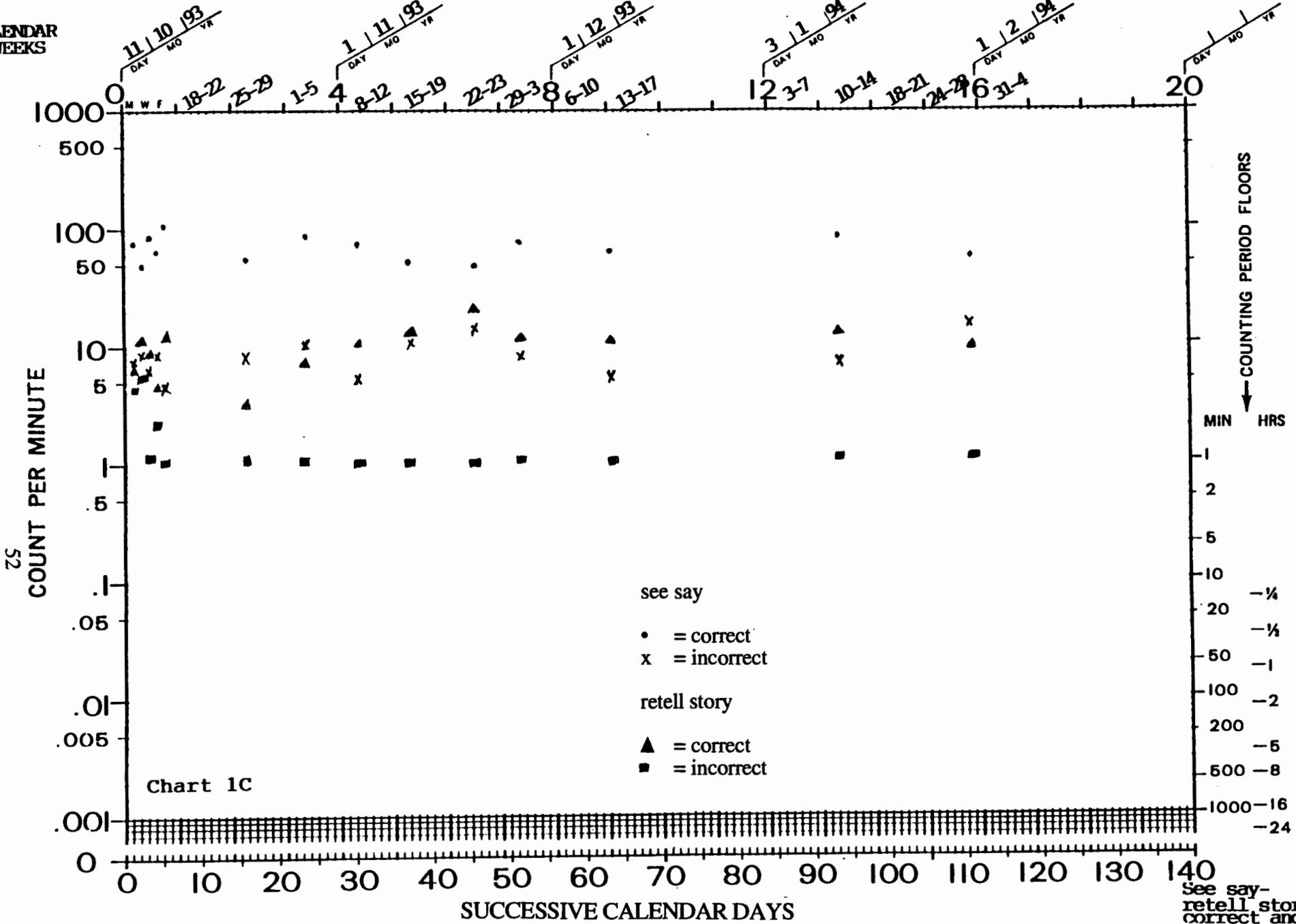
AGENCY

TIMER

L. Polk
COUNTER

Polk
CHARTER

CALENDAR WEEKS

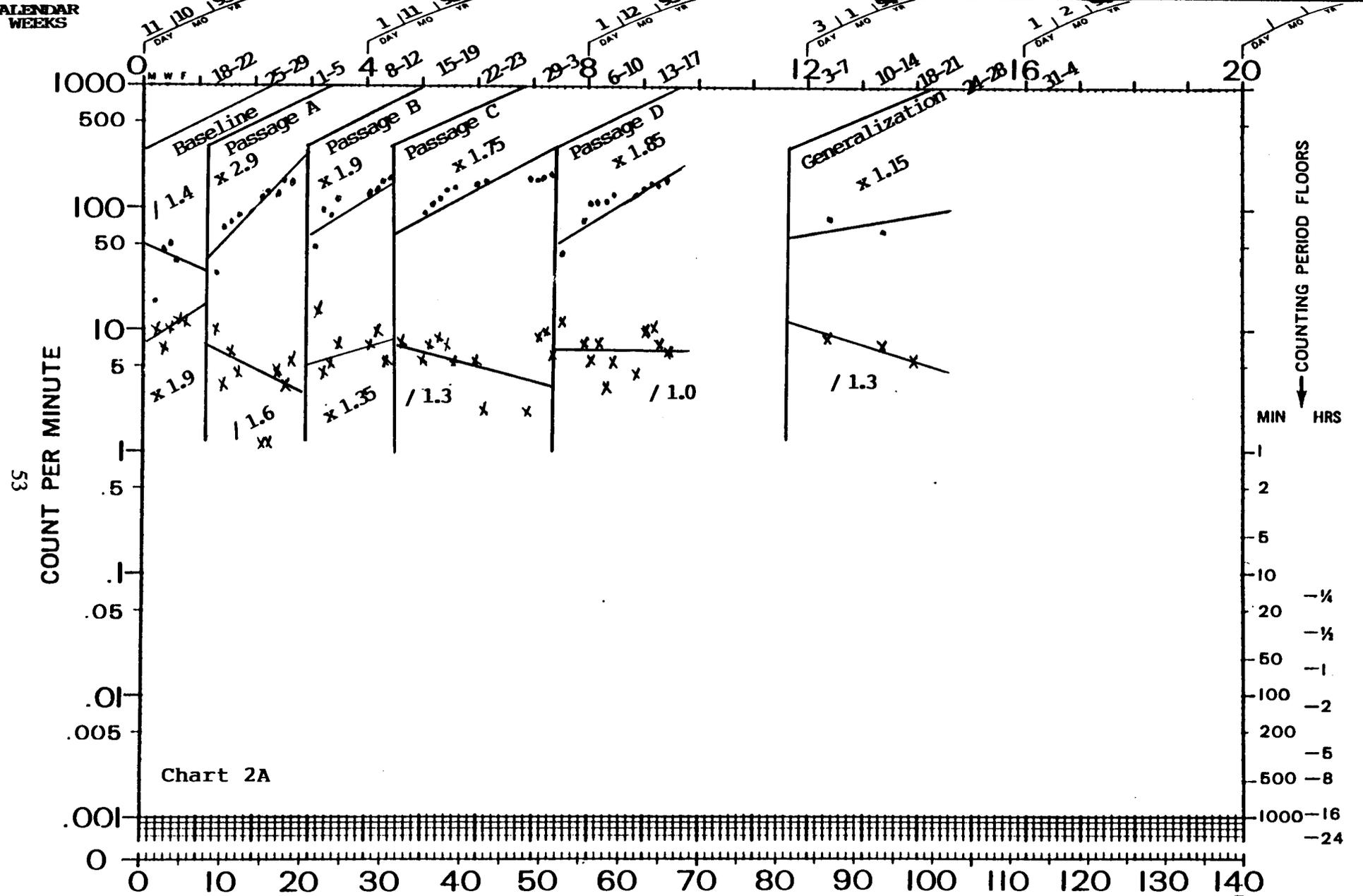


A. Miller A. Miller L. Polk
 SUPERVISOR ADVISER MANAGER

student 1 11 EmD
 BEHAVIOR AGE LABEL

DEPOSITOR AGENCY TIME L. Polk Polk

CALENDAR WEEKS



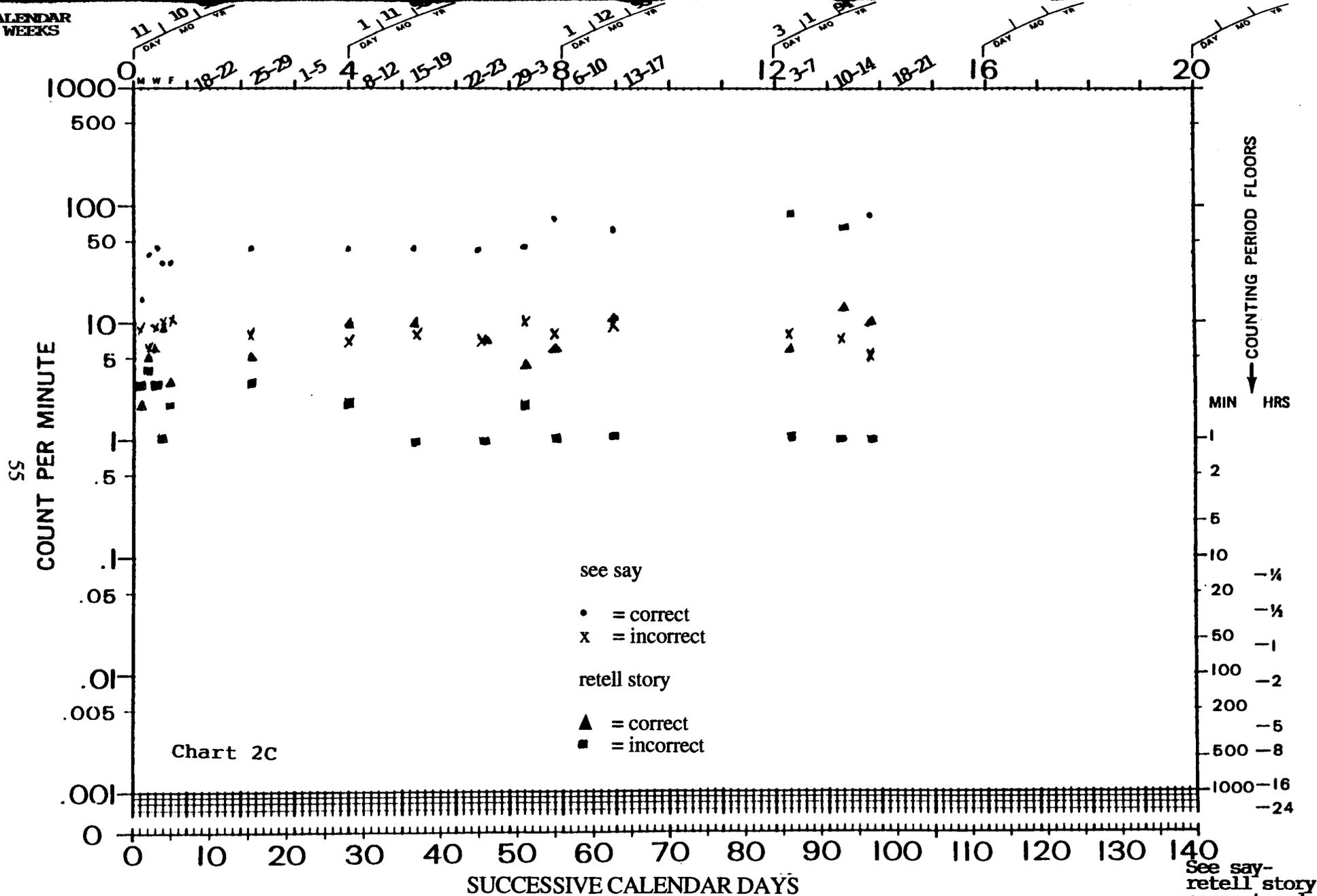
A. Miller A. Miller L. Polk
 SUPERVISOR ADVISER MANAGER

DEPOSITOR AGENCY TIMER COUNTER CHARTER

student 2 13 EmD
 BEHAVIOR AGE LABEL

Polk
 CHARTER

See say correct and incorrect
 COUNTED



A. Miller
SUPERVISOR

A. Miller
ADVISER

L. Polk
MANAGER

L. Polk
DEPOSITOR

AGENCY

TIMER

COUNTER

student 2
BEHAVIOR

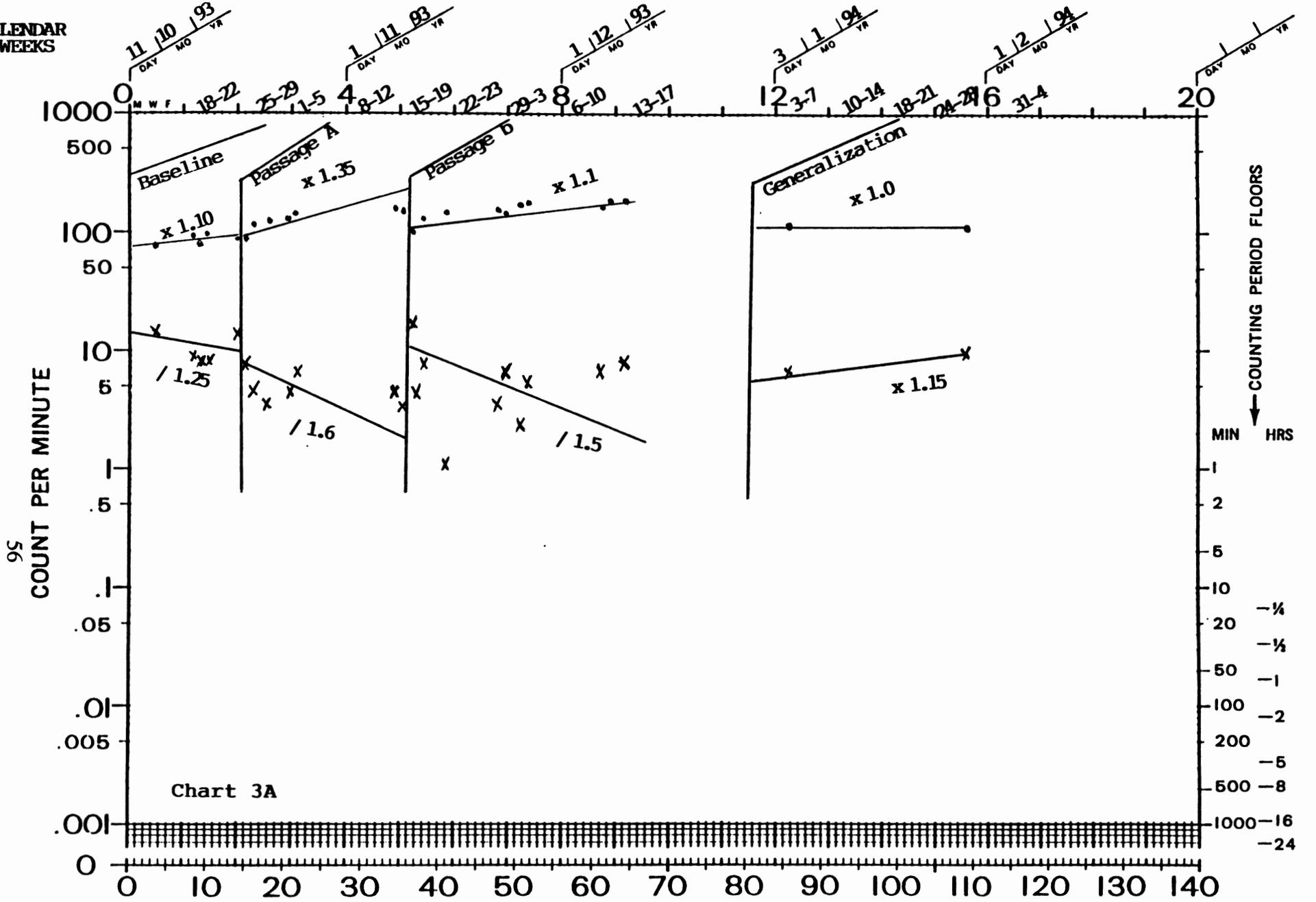
13
AGE

EnD
LABEL

Polk
CHARTER

See say-
retell story
correct and
incorrect
COUNTED

CALENDAR WEEKS



SUCCESSIVE CALENDAR DAYS

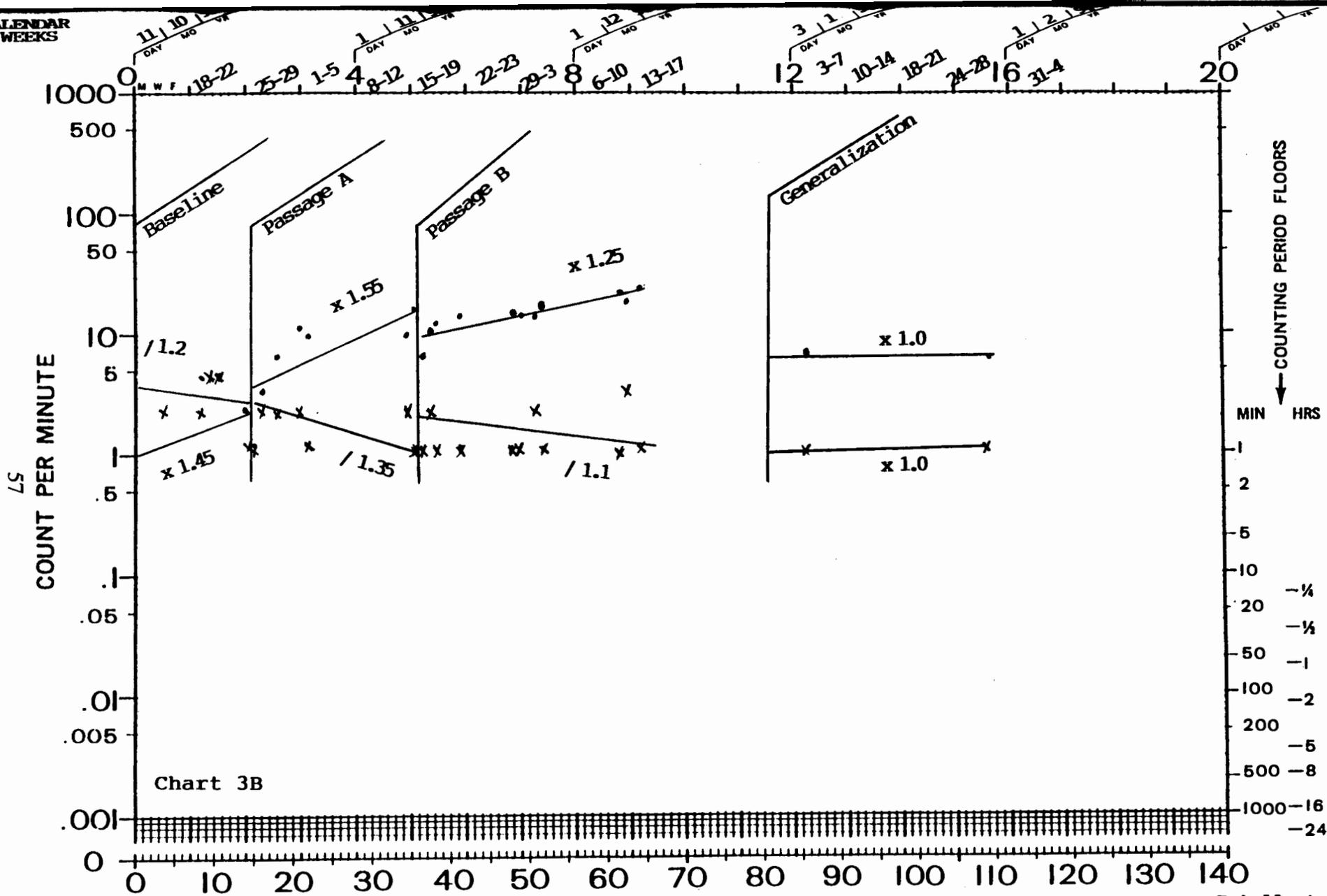
A. Miller A. Miller L. Polk
 SUPERVISOR ADVISER MANAGER

L. Polk
 DEPOSITOR

student 3 14 EnD
 BEHAVIOR AGE LABEL

Polk
 CLASS

See say correct and incorrect
 COUNTED



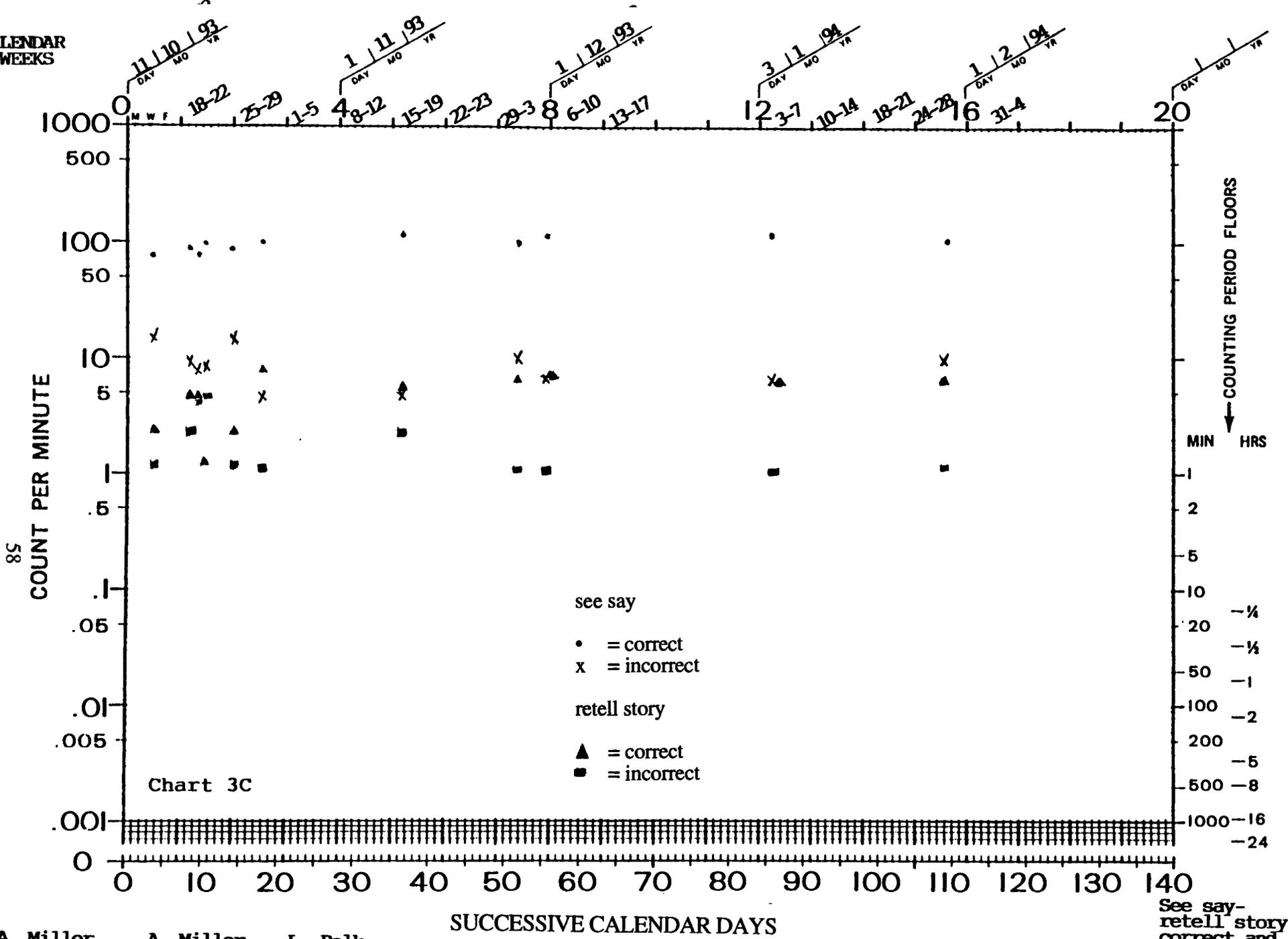
SUCCESSIVE CALENDAR DAYS

<u>A. Miller</u> SUPERVISOR	<u>A. Miller</u> ADVISER	<u>L. Polk</u> MANAGER
<u>L. Polk</u> DEPOSITOR	<u>AGENCY</u>	

TIMER COUNTER

<u>student 3</u> BEHAVER	<u>14</u> AGE	<u>EnD</u> LABEL	<u>Retell story correct and incorrect</u> COUNTED
<u>Polk</u> CHARTER			

CALENDAR WEEKS

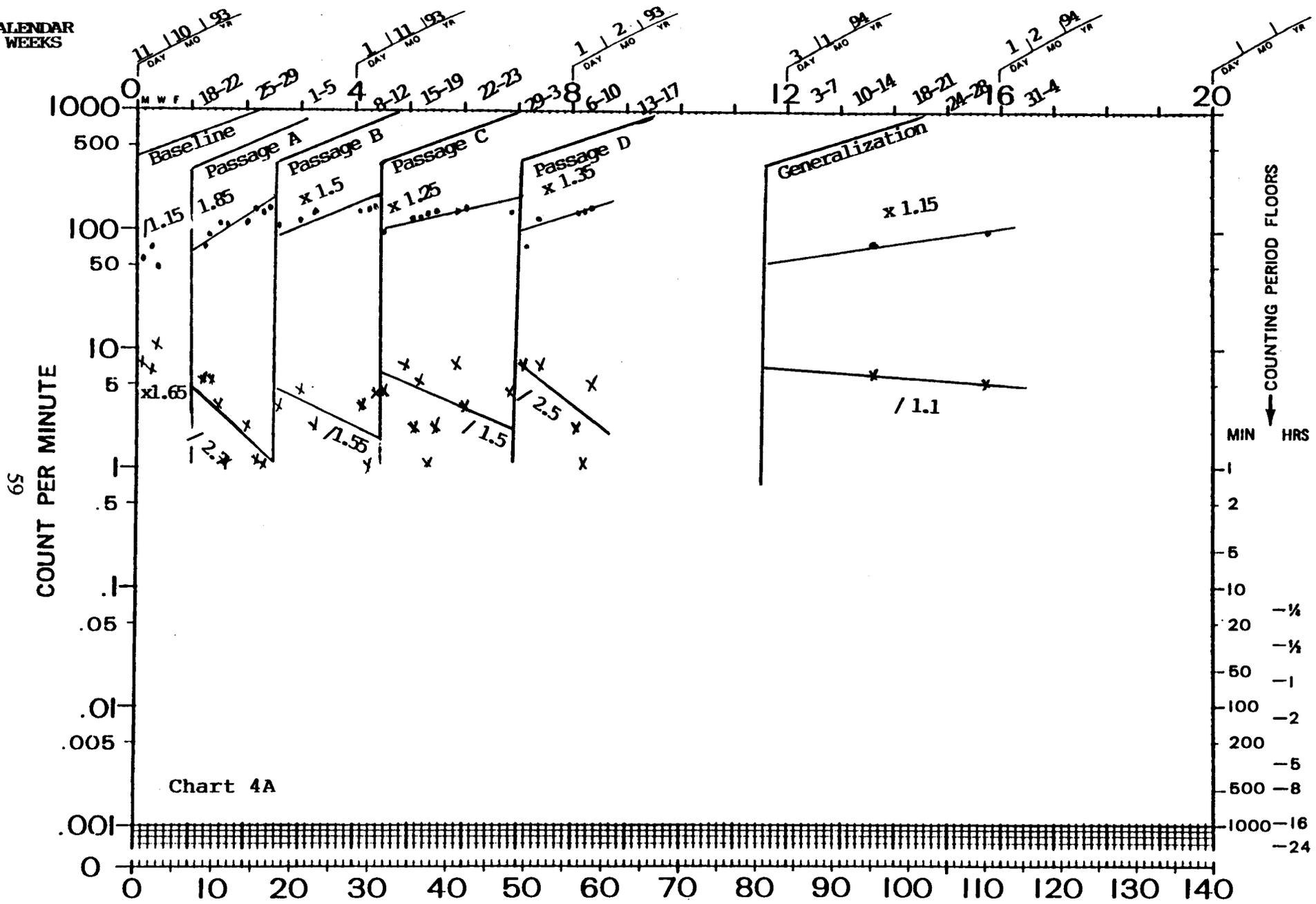


A. Miller SUPERVISOR
 A. Miller ADVISER
 L. Polk MANAGER

student 3 BEHAVIOR
 14 AGE
 EmD LABEL
 See say-retell story correct and incorrect COUNTED

L. Polk Polk

CALENDAR WEEKS



A. Miller A. Miller L. Polk
 SUPERVISOR ADVISER MANAGER

DEPOSITOR AGENCY

SUCCESSIVE CALENDAR DAYS

TIMER

L. Polk
 COUNTER

student 4 16 EmD
 BEHAVIOR AGE LABEL

Polk
 CHARTER

See say
 correct and
 incorrect
 COUNTED

CALENDAR WEEKS

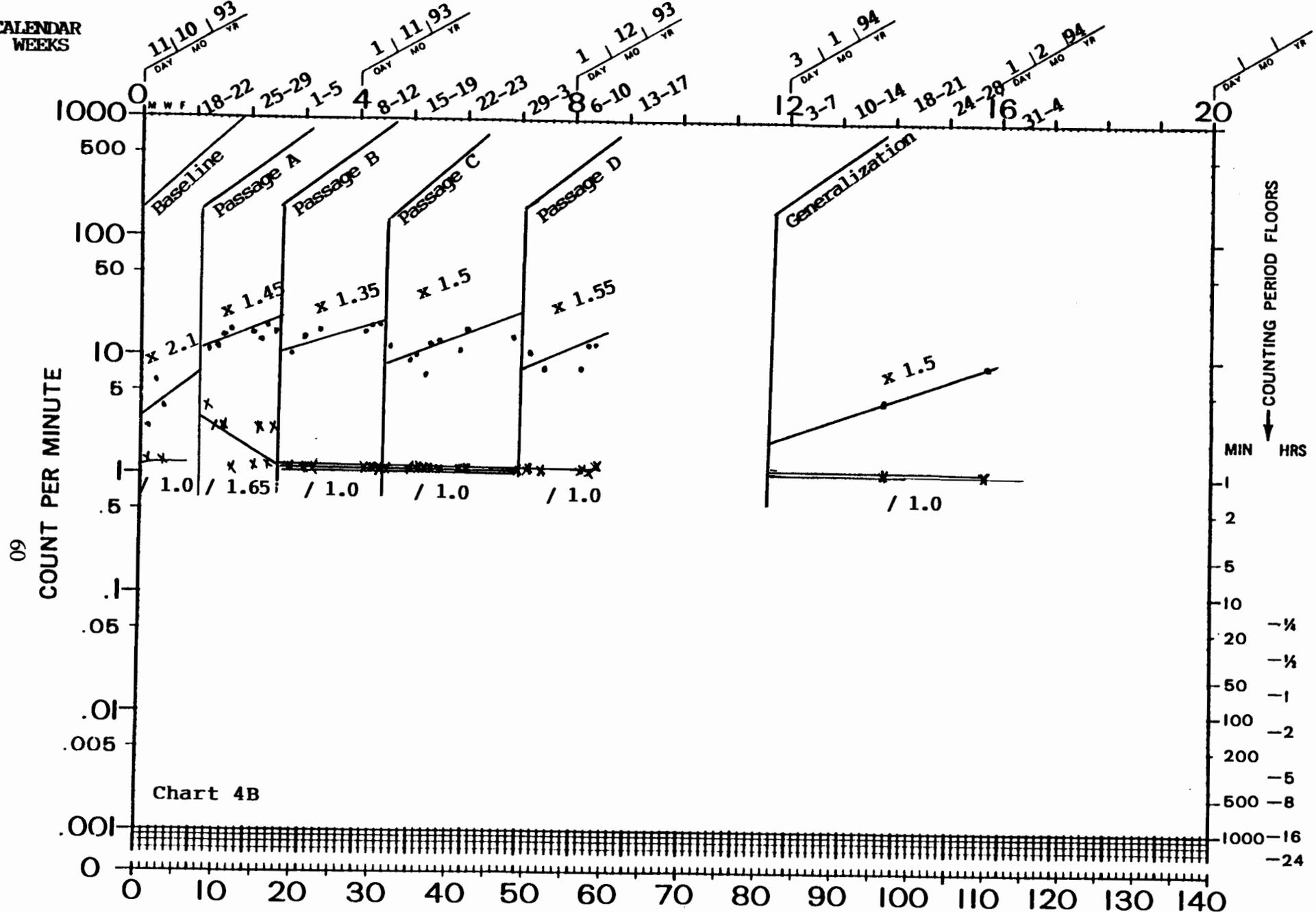


Chart 4B

A. Miller
SUPERVISOR

A. Miller
ADVISER

L. Polk
MANAGER

student 4
BEHAVIOR

16
AGE

EmD
LABEL

Retell story
correct and
incorrect
COUNTED

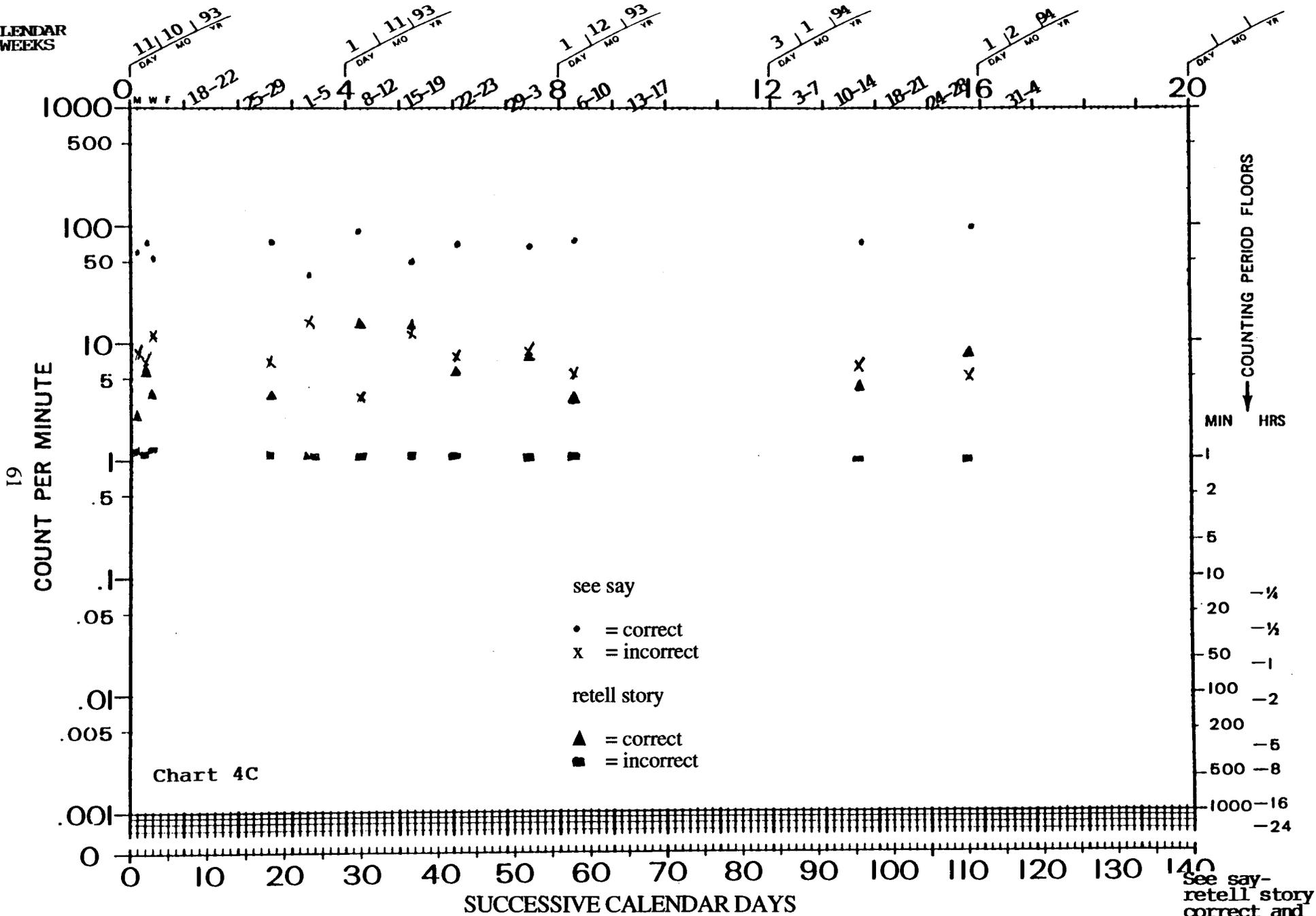
DEPOSITOR

AGENCY

L. Polk
COUNSELOR

Polk
TEACHER

CALENDAR WEEKS



A. Miller A. Miller L. Polk
SUPERVISOR ADVISER MANAGER

student 4 16 EnD
BEHAVER AGE LABEL

DEPOSITOR AGENCY TIMER L. Polk Polk CHARTER
COUNTER

CALENDAR WEEKS

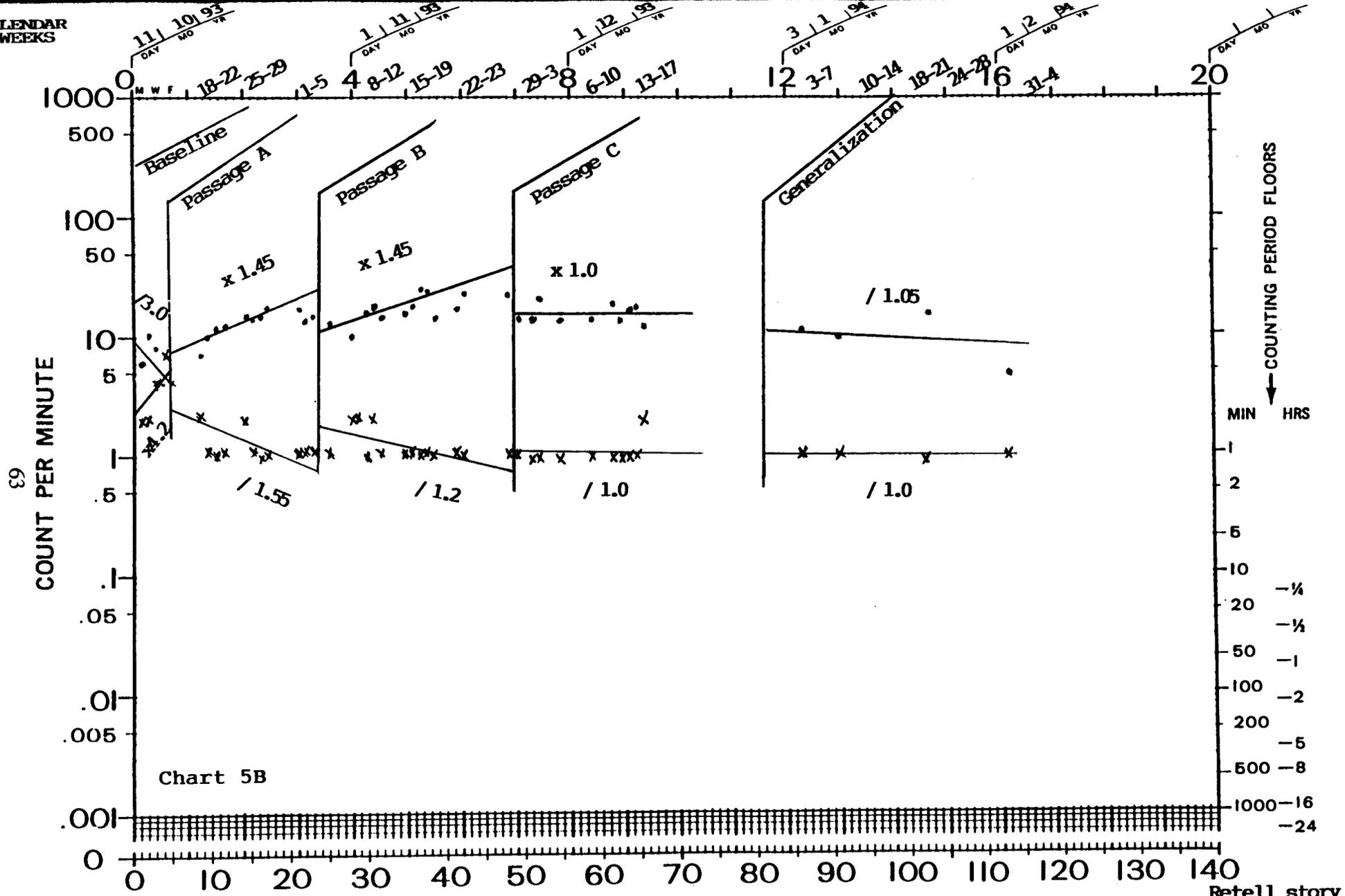


Chart 5B

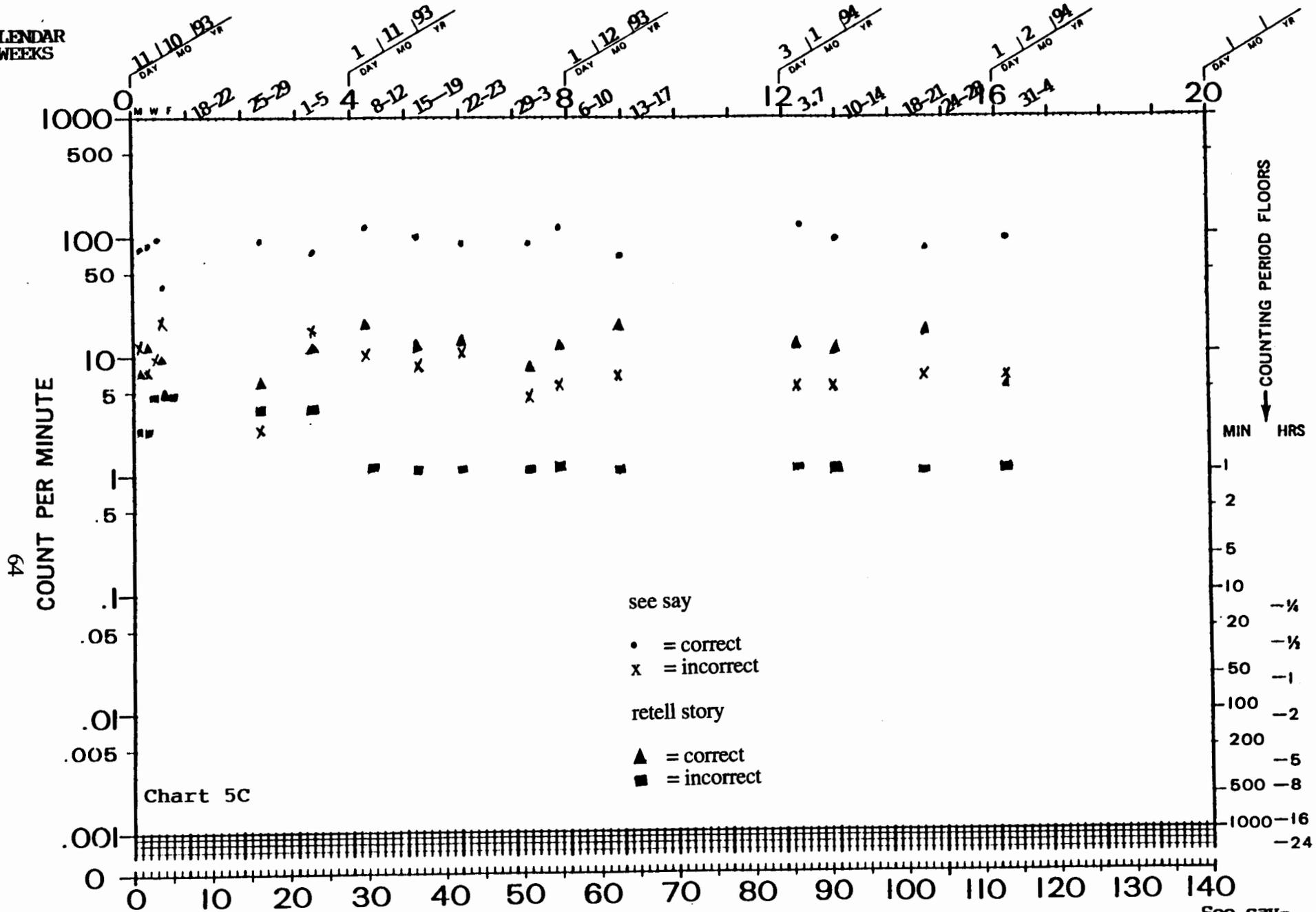
SUCCESSIVE CALENDAR DAYS

<u>A. Miller</u>	<u>A. Miller</u>	<u>L. Polk</u>
SUPERVISOR	ADVISER	MANAGER
<u>DEPOSITOR</u>	<u>AGENCY</u>	<u>TIMER</u>

L. Polk
COUNTER

<u>student 5</u>	<u>18</u>	<u>EmD</u>	<u>Retell story correct and incorrect</u>
BEHAVER	AGE	LABEL	COUNTED
<u>Polk</u>			
<u>CHARTER</u>			

CALENDAR WEEKS



SUCCESSIVE CALENDAR DAYS

A. Miller SUPERVISOR
 A. Miller ADVISER
 L. Polk MANAGER

student 5 BEHAVIOR
 18 AGE
 EmD LABEL
 See say-retell story correct and incorrect COUNTED

correctly, and a deceleration in the number of facts retold incorrectly. Student 5 also showed a decelerating trend in the number of facts retold incorrectly on new passages. These data indicate that fluent reading, generated with repeated readings, did not generalize to new passages, except with Student 2.

Interviews with the students revealed that all students liked the repeated readings and felt their reading improved as a result. Student 1 stated that although he liked the repeated readings and knew he got better at reading, he did not like being interrupted from his folder work (i.e., independent work) to move and read. When asked if they would like to do this kind of reading again, 4 of the 5 students responded positively, with Student 4 responding negatively.

Parents/guardians of Students 1, 2, 3, and 5 were shown the results of the study at an end of the year meeting. Student 4's parents did not attend. All parents in attendance reported improvements in reading at home, students more willing to attend school (Student 3 and 5), and increased confidence in reading (Student 5). The guardian of Student 2 said the difference in her child was overwhelming, because last year she "had to tell him every other word." She stated that the best part of the program was that, "he can tell me what the story was about!" One parent at the meeting, whose child did not participate in the project, requested her child receive reading instruction using this intervention next year, even insisting repeated readings be specified on the IEP.

Discussion

A functional relationship between reading fluency and repeated reading was demonstrated. The number of words read correctly per minute steadily increased during the repeated readings, as the number of errors steadily decreased or maintained at low frequencies across all phases of the study. This compares with the results of other studies on repeated readings and suggests repeated readings are an important instructional method for increasing oral reading fluency (e.g.,

Anderson, 1984; Chomsky, 1978; Carroll et al., 1991).

This study furthers the literature base by demonstrating the effectiveness of repeated readings in affecting these improvements in the performance of students with EmD. Very few regressions (days when the correct rate was lower than the previous day) occurred during the intervention condition. Most of the regressions that did occur, took place after a weekend or when a student was having a particularly "bad day." For students with EmD, variability in performances or "bad days" are characteristic (Paul & Epanchin, 1991), but these were reduced with the use of repeated readings. Students demonstrated consistent performance gains across the intervention condition, even with a holiday break (often a very difficult time period for students with EmD) interrupting the study.

Additionally, a functional relationship between reading comprehension and repeated reading was demonstrated. The number of facts correctly retold per minute increased and/or showed a jump up during the repeated readings, as the number of errors steadily decreased or maintained at low frequencies across all phases of the study. The jump up in the number of correct facts retold was particularly interesting. This jump up represents a large increase over comprehension in baseline or previous passages. On passages where this jump up was demonstrated (see Student 1, passage B and C; Student 2, passage C; and Student 3, passage B), the teacher reported that these students seemed to have "a different level of confidence." Students seemed more confident and comfortable with the task of retelling the story facts, but additionally these jumps seemed to occur with "bottoms up" improvements in the number of words read correctly on initial readings. This compares with the results of other studies on repeated readings, and suggests repeated readings are an important instructional method for increasing reading comprehension (e.g., Brosovich-McGurr, 1991; Dewalt et al., 1993; Fowler, 1993).

Although this study also examined the transfer of fluent reading performance across new passages, the results were inconclusive. Only Student 2

made significant gains in fluency across new passages. This effect may be due to the fact that Student 2 began the study with the lowest reading level, 1.0 grade level. Student 2 also seemed to make the largest gains in reading achievement, although this was not measured summatively at the conclusion of the study.

Suggestions for further research with repeated reading include further study into the generalization of fluency to new passages. The results of this study point to a possibility that generalization effects may most easily be investigated in short-term studies of this type, at low reading levels. Additional information on the maintenance of fluency and comprehension on the passages that were repeatedly read should also be examined.

This study further extends the literature on the use of repeated readings as a method for improving the fluent oral reading performance of students with emotional disabilities. The study demonstrates student improvements in reading comprehension, as measured by retelling facts from the story, after the implementation of repeated readings. The generalization of these gains to new passages requires further study.

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