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OBTAINING A LEARNING PICTURE IN A HALF-HOUR

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You can generate a learning picture in a very short period of time, such as a half-hour. I have done so many times, using myself as subject, recorder, and charter. Instead of conducting one-minute timings daily over a period of several weeks, I have compacted these timings into about one hour of one day.

Part of the reason I came to do timings in this manner, over the course of an hour, can be attributed to the "Tender Loving Care Chart" (Haughton, Maloney & Desjardins, 1980), on which "SUCCESSIVE MINUTES" serves as the horizontal axis of the chart. Yet another reason was a statement made by Lindsley(1981) in which he indicated that you can collect in one hour, one thousand behavioral incidents with the continuous, direct measurement of free operant behavior. Lindsley was talking about the origins of Precision Teaching, but his comment served as a prompt for me to try "Precision Teaching in an hour". A final contributing factor was that I had been doing daily timings for several years with SAFMEDS, using myself as subject, and had become quite sensitive to many variables affecting performance (Eschleman, 1982).

The behavior of interest in all cases thus far has been "see-say with SAFMEDS"--"Say All Fast a Minute Each Day Shuffled" (similar to flashcards). A more appropriate term for the cards in the present case would be SAFMEMS--"Say All Fast a Minute Every other Minute Shuffled." The basic procedure was to do a one-minute timing with the SAFMEMS, going through as many cards as I could. Then, in the next minute, I counted and charted correct and error responses, and shuffled the cards. When this intervening minute timed out, I did another timing, followed again by another minute of counting, charting, and shuffling, and so on. A timing in all cases consisted of: (1) looking at the front of a card, (2) saying some response, (3) checking the answer on the back if necessary, (4) putting the card into a "corrects" or "errors" stack, and (5) doing the same for each succeeding card until the minute timed out. By following this procedure, it is possible to do 15 one-minute timings in a half-hour.

After 15 minutes a recognizable learning picture will begin to develop (see Chart 1). In my case, the pictures have all been "jaws", "crossover jaws", "climb", or "at aim" pictures. Since I plot the data on Daily Standard Celeration Charts with the horizontal axis re-labelled, I calculate celerations in terms of count/min./seven min., a measure analogous to the familiar count/min./wk.

Data

Chart 1 displays a recent series of successive one-minute timings. On March 29, 1984, I did 33 timings in 70 minutes. The SAFMEMS contained information about Apple II Machine Language commands (Inman & Inman, 1981). The function of the command was on the front of the card and the name of the command on the back. For example, "Load Accumulator" and "LDA" would be on the front and back, respectively (the terms I selected actually make up the instruction set

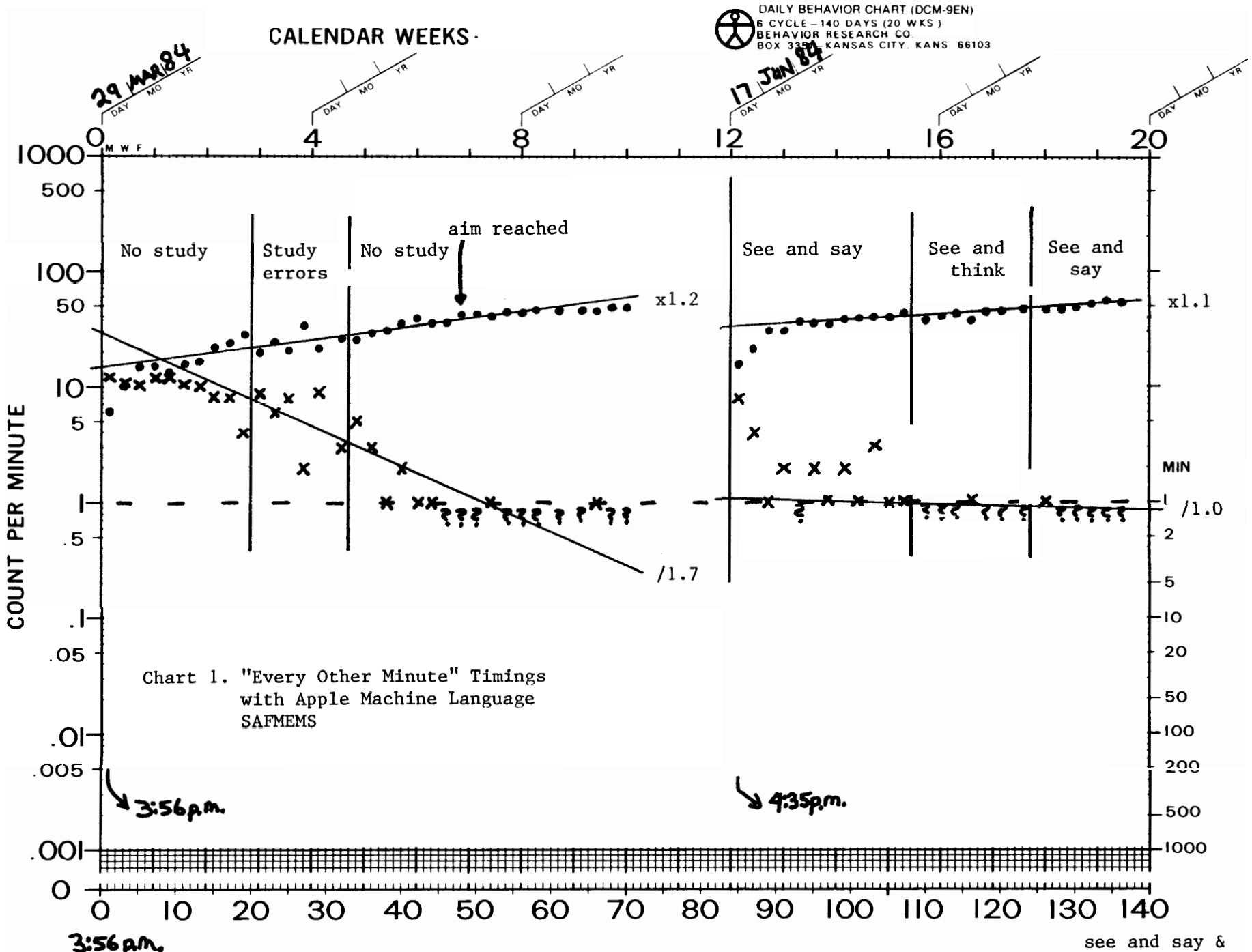

Chart 1. "Every Other Minute" Timings with Apple Machine Language SAFMEMS

see and say & see and think

SUPERVISOR	ADVISER	MANAGER	JOHN ESHLEMAN	28		
			BEHAVER	AGE	LABEL	COUNTED
DEPOSITOR	AGENCY	TIMER	COUNTER	Apple Machine Language SAFMEMS		
				CHARTER		

of the 6502 processor in the Apple II+). I set an aim of 40 correct/min. and achieved a modest "crossover jaws". The celeration for corrects was low, only x1.2. From the 19th to the 30th minute I studied errors during the non-timing minute. This did not bring about any improvement. Indeed, there was a slight frequency jump-down in correct responding. I reached aim at the 48th minute and quit at the 70th from fatigue and a horizontal most-recent celeration.

On June 17, 1984, I replicated the earlier set of timings with the same cards, without having seen the cards during the intervening 2 1/2 months(see Chart 1). With the June 17 timings an initial learning picture, recognizably "jaws", quickly leveled off to more of an "at aim" picture. The overall celerations were nearly flat, being x1.1 and /1.0 for corrects and errors, respectively. There was also no apparent effect on either frequency or celeration of switching to a "see-think" learning channel set for seven timings during the session. Most notable on Chart 1 was a frequency jump-down (/3.2) for correct responding, and a frequency jump-up (around x8) for error responding, from the last of the March 29 timings to the first of those on June 17th.

A couple of notes regarding the machine language SAFMEMS are in order: (1) since I had created the cards over a year prior to the March 29 timings, learning from card creation was not a factor, and (2) I had not done any machine language programming with my Apple up to that point. Hence, I was unfamiliar with the subject matter.

Chart 2 shows more of an endurance test, where the SAFMEMS were based on the Journal of Precision Teaching Standard Glossary and Charting Conventions. After about the 10th minute, the correct celeration was essentially horizontal, though it took about a half-hour for errors to reach the record floor(and this for a subject matter that I already "knew"!). I studied errors from the 28th to the 50th minute in an effort to "squeeze out" a little more improvement in the accuracy ratio. Clearly, there was no noticeable effect from doing so, a result that is consistent with the later effort displayed in Chart 1. The initial part of the picture in Chart 2 is a slight "jaws". The latter half resembles more of an "at aim" learning picture--similar to the June 17 timings shown on Chart 1. On both charts, the bounce is greater for errors than for corrects, which supports Lindley's (1980) statement that correct and error learning are independent of one another.

Discussion

I have drawn several conclusions from doing such "massed practice" timings with myself as the subject. First, it is a quick way to generate valid learning pictures. Second, the same principles apply in the massed practice as in the distributed practice of daily timings. Third, I do not recommend "every other minute" timings as an instructional technique. With regard to this lattermost conclusion, I found that a great deal of stamina was necessary. I had to find a quiet hour with no interruptions--I was behaving consistently non-stop every minute. I found that, after a half-hour, fatigue begins to reach the point where decrements in performance set in. That was usually when I quit. On the positive side, I have found this procedure to be a quick way to learn a set of facts, a convenient way to generate behavioral data quickly, and a good way to maintain chart skills.

A criticism of this "every other minute" procedure has come from Lindsley(1983, personal communication), who describes learning as "a daily thing," where evolutionary processes have selected learning as a day-by-day type of process. This may be true, but if we equate the terms "learning" and "celeration" then quite clearly there is learning going on over the span of minutes. Where Lindsley's comment may be most appropriate is in the relative permanence of learning from doing it daily versus every other minute. As mentioned, in Chart 1 there is an obvious degredation from the March to the June timings. An empirical question arising from this is whether there is as much degredation when the timings are done daily as when they are massed into one hour. For such a comparison, various conditions would

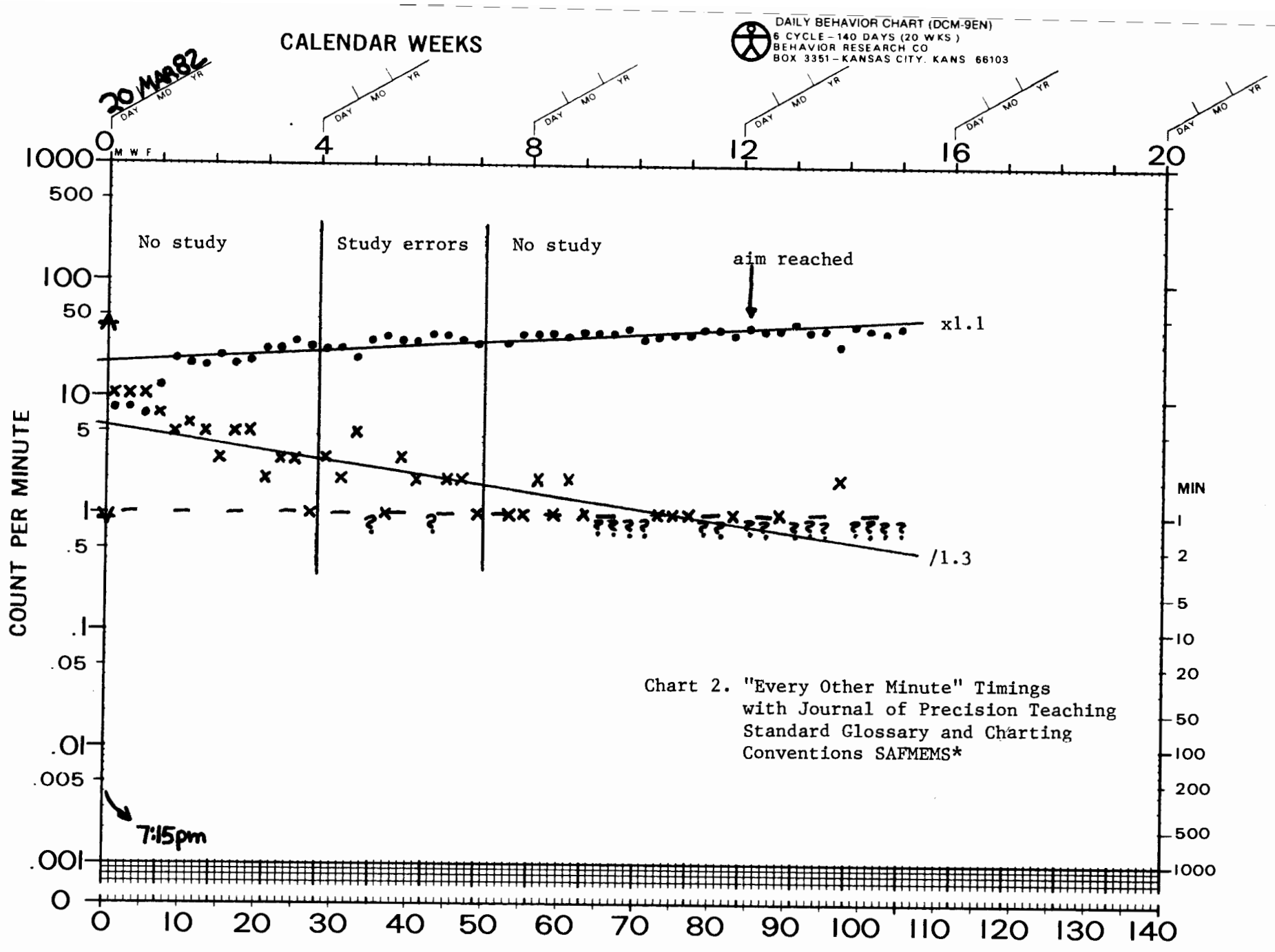

Chart 2. "Every Other Minute" Timings with Journal of Precision Teaching Standard Glossary and Charting Conventions SAFMEMS*

SUPERVISOR	ADVISER	MANAGER			
			JOHN ESHLEMAN	26	see and say SAFMEMS*
			BEHAVER	AGE	LABEL COUNTED
DEPOSITOR	AGENCY	TIMER	COUNTER	CHARTER	

have to be held constant between the daily and the "every other minute" timings. The set of facts would have to be of comparable difficulty, and the number of days between the end of the first set of learning pictures and the beginning of the second set would have to be the same, to mention two.

Finally, to some individuals a study where one uses oneself as the subject seems to be of questionable scientific validity. I hope that the current case here helps to demonstrate the fallacy of such a notion. As Graf(1984, personal communication) has pointed out, the method of using oneself as subject in a behavioral study has a tradition going back to Ebbinghaus, who generated all his data on learning by using himself as the subject.

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TEACHING SIGNING TO CHILDREN WITH SEVERE HANDICAPS

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In teaching severely handicapped children, a great deal of emphasis is placed on developing alternative communication systems. In addition to assisting with communication, these systems help the children exert control over their environment in a socially acceptable manner. This article describes a strategy for teaching signing, an alternative communication system, to severely handicapped children and displays data for one such child.

Donna is a six year old student with a diagnosis of mental retardation. Initial informal observation and assessment yielded no consistent expressive communication skills. Signs were selected as her means of expression due to her intact motor skills. "Food" and "drink" were selected as the first signs for her to learn.

The overall goal for Donna was to independently express herself in appropriate situations. To this end, the following three-part strategy was used: (1) to teach Donna the signs for food and drink in naturally occurring situations, that is, during lunch and snack times; (2) to also teach Donna the signs during daily 15-second timings; and (3) to monitor daily progress during the 15-second timings until proficiency(30 signs per minute) is reached and then to monitor progress during lunch and snack times until proficiency(2 signs every 10 minutes) is maintained for several months. The first part of this strategy is simialr to that suggested by Sailor and Guess(1983). The second part is designed to provide extra practice opportunities that will hopefully lead to proficiency(30 signs per minute). The third part was suggested by our experience with Precision Teaching.

Donna was taught the signs for food during a daily 15-second timing to proficiency using a series of prompts and prompt fading. Chart 1 displays her progress. She was also taught the sign for drink using the same