Single vs. Multiple Movement Frequencies: How Many Times Should We Measure?

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The purpose of this chart share is to look for more efficient ways of monitoring a learner's progress. I decided to compare progress records based on a single opportunity to complete complicated task with a progress record based on multiple opportunities to complete the same task.

The learner, Sam, was an 8-year-old boy with autism who was fully integrated into a regular 2nd grade classroom. The goal of this intervention was to teach Sam how to put on his coat independently. To begin, a 12-step task analysis was created and the method of most-to-least prompting selected. During the course of the program, a picture script of the task analysis and peer modeling methods were also used. Instruction took place during naturally occurring school opportunities to put on his coat (e.g., preparing to go outside for recess, preparing to go home for the day). Sam's parents also worked with him at home using the same task analysis.

Three methods of monitoring the learner's progress (Figure 1) were implemented throughout the program: (1) Single-movement frequencies involved charting a single opportunity to complete the task each day. Time to completion was recorded and additional prompts were counted as errors. (2) Multiple-movement frequencies were also recorded daily and involved charting total opportunities and the cumulative time to complete putting on his coat across all opportunities. (3) Weekly parent reports were conducted to evaluate the family's satisfaction with their son's skill development.

Single and multiple-movement frequencies showed similar rates of progress and occasioned the same instructional decisions, so it appears that a little effort could have been saved by evaluating his progress only once each day. That may not always be the case, however, so I'd recommend that single and multiple-movement frequencies both be charted when beginning a program. If the two charts show the same learning picture, the multiple-movement chart could be dropped to save time and effort. If the two pictures are different, you might want to keep the multiple-movement chart to get a more complete picture of learning.

In addition, I was pleased to note that the parent's report of his progress at home confirmed that he had learned something useful and was using his new skill in places where it was important. It is my recommendation to gather the same type of feedback whenever possible.

For the Single Movement Frequency :

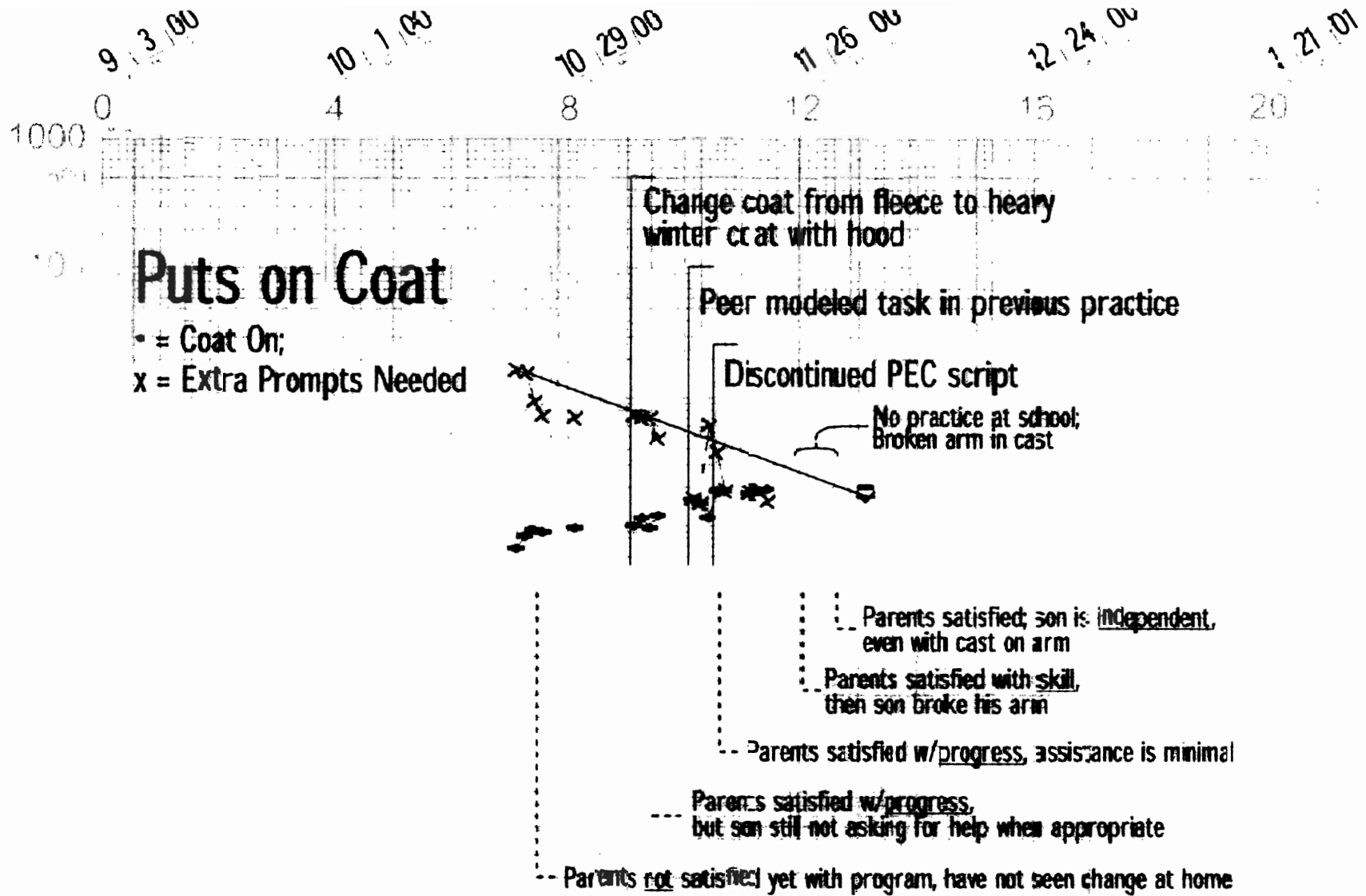$$\text{Correct Frequency} = \frac{1}{\text{Time Required to Complete the Task Once}}$$

$$\text{Error Frequency} = \frac{\text{\# of Extra Prompts}}{\text{Time Required to Complete the Task Once}}$$

For the Multiple Movement Frequency :

$$\text{Correct Frequency} = \frac{3 \text{ (the number of times the task was competed)}}{\text{Cumulative Time Required to Complete All 3 Trials}}$$

$$\text{Error Frequency} = \frac{\text{\# of Extra Prompts}}{\text{Cumulative Time Required to Complete All 3 Trials}}$$

Figure 1: Three methods of monitoring the learner's progress

9 3 00 10 1 00 10 29 00 11 26 00 12 24 00 1 21 01

0   4   8   12   15   20

1000

Puts on Coat

• = Coat On;
x = Extra Prompts Needed

Change coat from fleece to heavy winter coat with hood

Peer modeled task in previous practice

Discontinued PEC script

No practice at school;
Broken arm in cast

Parents satisfied; son is independent,
even with cast on arm

Parents satisfied with skill,
then son broke his arm

Parents satisfied w/progress, assistance is minimal

Parents satisfied w/progress,
but son still not asking for help when appropriate

Parents not satisfied yet with program, have not seen change at home

Owen White   Dana Stevens   S.B.   8 years   Autistic

Name of School   School Staff   School Staff   Dana   Coat-On & Extra Prompts