Using Tool Skill Rates to Predict Composite Skill Frequency Aims

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When teaching children with special needs, clinicians often face having to identify what terminal criterion of performance levels should be attained before declaring a skill completed. Sample frequency aims are not available within the extant literature for the types of language skills young children often require. This chart shows one intervention team’s decisions making process as it relates to teaching a child with autism to label pictures using pronouns.

Joseph was 8 years and 7 months old when this chart began. The skill targeted was See a picture/Say a statement about the picture using a pronoun. To begin, since an empirically derived frequency aim could not be found in the literature, Joseph’s team gathered baseline data regarding his rate of speaking on Free/Say the alphabet. Joseph was quite adept at this skill, and so it seemed a logical choice for assessing how quickly he was able to speak when curricular ceilings were not an issue. Joseph could Free/Say the alphabet at 120 letters per minute. With this new piece of data, his team set the frequency aim on this chart at 120 words per minute, and began working with Joseph on improving his ability to name pictures using pronouns. The dots on the chart are Joseph’s rate of sentences correctly said using a pronoun to describe a picture. The triangles are his rate of words said correctly. Each sentence he said usually comprised four words. The errors (X) on the chart are incorrect pronoun labels (e.g., saying, “He is running” when shown a picture of a girl running).

Joseph started by practicing labeling pictures that would only occasion responses of “she is” or “he is”. He practiced this skill for a total of seven days until he reached the frequency aim of 120 words[1]. Across the next two pronoun additions (“they” and “we”), Joseph only required two days of practice before reaching the frequency aim. His team conducted a mini retention check to evaluate whether Joseph was able to maintain his performance across even a short period of non-practice. They did this because his performance was very stable across days and instructors, and because he maintained his performance even after doubling the timing interval to 1 minute. His team also felt it was important to evaluate the frequency aim of 120 words per minute before they continued to increase the complexity of the instruction. After one week with no practice on the skill, he easily matched his previous performance. With this information, his team moved ahead and began making the skill more complex.

Over the next three weeks, Joseph’s team increased the complexity of the skill considerably, adding in an additional 8 new pronoun labels. In addition, Joseph was now required to use a pronoun and its possessive with each sentence (e.g., saying, “They are riding in their car”). Due to the number of words contained in each pronoun sentence, the number of sentences emitted per minute dropped from 30 to between 22 and 25. However, the rate of words he was producing per-minute stayed steady at 150 per minute. Therefore, Joseph was speaking quickly, and using longer sentences.

After adding the 8 new pronouns, Joseph had now shown he was skilled at using 12 pronouns in all. This seemed like an appropriate place to stop. While his team would typically evaluate skill retention, endurance, stability, and application separately, this was not an option in the case. Joseph was in summer camp at this time, which provided him a great opportunity to use his newly acquired skill to help him make friends and build relationships. Since summer camp was going to be ending soon, his team needed to determine quickly whether he was likely to use the skill if he was not using the skill, they would need to design remedial instruction quite fast so as to capitalize on the social interaction opportunities summer camp provided. To assess his mastery of the skill, Joseph’s team conducted an application check and a combined outcomes check where they evaluated the skill’s retention, endurance, and stability at Summer Camp. The application check involved showing Joseph all new pictures and asking him to label the pictures using a pronoun and its possessive. He readily applied the skill to the new examples, matching his previous performance. To conduct the combined check, his team stopped all practice on the skill for one month (retention). At the end of the month, they presented the materials to Joseph again and asked him to complete a timing for 2 minutes (twice the length of the longest timing interval used to practice the skill – endurance), and did this while Joseph was at a picnic table at summer camp (stability) rather than in a more controlled environment. He passed this combined check with flying colors and, so, the chart was retired. According to Joseph’s mother and instructors, he rarely makes errors involving pronouns since finishing the chart.

[1] Under another system of instruction, Joseph required approximately 2 years to learn to label pictures using “she” and “he”, and was never able to maintain consistently the 80% accuracy criteria set for him.