

Teaching Visual Pattern Imitation to a Child with Autism

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Learning to recreate patterns they see is an important skill for children to learn. Well-developed visual patterning skills can be useful in learning to play games such as Connect Four™ and Candyland™, in playing with building toys such as Legos™, completing some in-class assignments such as parts of worksheets, and even learning to cook by following picture cue steps in a recipe. This chart shows the progress one youngster with autism made in learning to reproduce patterns of colors.

When the chart began, Max was 5-years and 1-month old. He had a diagnosis of mild autism, and was slated to begin public school by spending half of each school day integrated into a general education kindergarten classroom and half of each day in a self-contained classroom for primary-aged children with developmental disabilities. Max could speak and would often request things and actions as well as label items in his environment. He spoke in 2-3 word sentences, and had particular difficulty with the syntax of spoken language such as making pronoun and verb tense errors. He could label many colors expressively and receptively, as well as numbers, letters, objects, and people.

Max began timed practice on See/Do Pattern Imitation on August 12, 2002. Initially, he practiced reproducing a pattern consisting of 2 colors. His therapist presented him with a sheet of paper showing colored blocks arranged in pattern sequences. For the first slice, 2 color patterns, each sequence consisted of 2 colors (e.g., red-blue-red-blue, green-green-yellow-yellow). Max's therapist handed him large Lego™ blocks, which he used to reproduce the pattern. Because the first slice listed on the chart required that no distractor blocks be used, Max only had colored Legos™ consisting of the colors presented in the patterns. He had the exact number of Legos™ he needed to complete the patterns. Max used different pattern sheets for each day of practice across all phases of this chart.

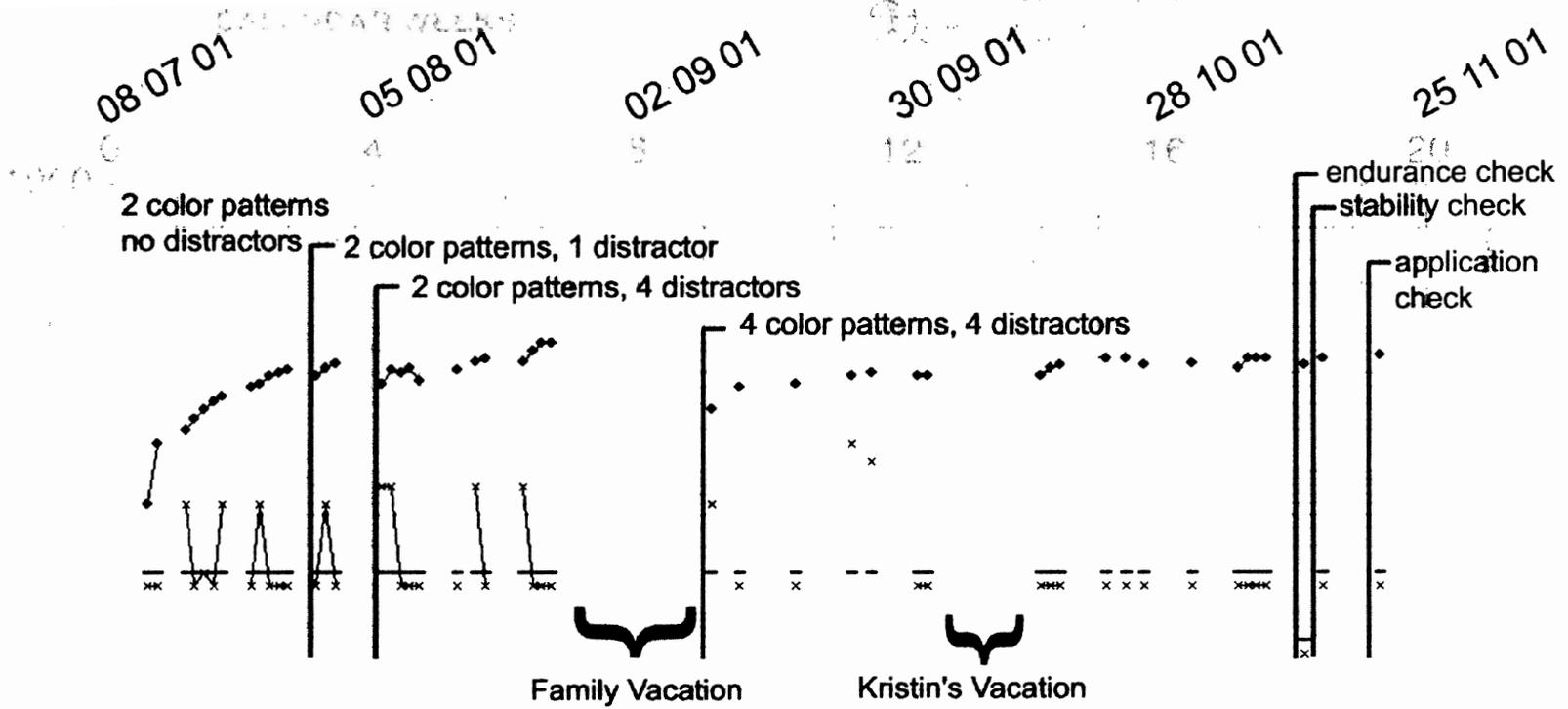
Each day he practiced, Max's therapist set a daily improvement goal that he needed to reach to stop practice for the day and earn a special reward such as playing with a preferred toy with his therapist. Max completed 30-second timings, during which his therapist showed him the sheet of patterns he was to copy and handed him the blocks he needed in order to copy the patterns. As he was completing one pattern, his therapist handed him

the set of blocks he needed for the next pattern on the sheet. The movement cycle counted was each block moved into place within a pattern. If Max saw the pattern red-blue-red-blue, and positioned all the blocks in the correct order, he received credit for four correct movements. If he saw the pattern yellow-yellow-red-red and positioned the blocks so that they were arranged yellow-red-yellow-red, he received credit for 2 correct (the first and the fourth) and 2 incorrect (the second and the third) movements.

During the first slice of the chart (patterns consisting of 2 colors with no distractor blocks), Max practiced between 2 and 5 times per day. His corrects accelerated at X1.7 per week, and errors ranged between 0 on most days and 6 per minute. When his corrects reached 50 per minute, the slice changed to a pattern consisting of 2 colors with Max having all the blocks he needed and one he did not need to complete the pattern (1 distractor). His performance jumped down slightly during the first day of this phase, but accelerated at X1.9 to a high of 60 correct movements per minute with 0 errors on the third day of practice. He required 3-4 practices per day during this phase.

Because his performance did not jump down much when we introduced the 1 distractor block, and he surpassed his previous best performance within 3 days of timed practice, we made the task considerably more difficult by presenting Max with patterns consisting of 2 colors, but giving him 8 blocks to use to replicate the pattern – 4 blocks he needed for the pattern, and 4 blocks he did not need. This was the “2 color pattern, 4 distractors” phase of the chart. His rate of correct movements per minute jumped down to 42 on the first day of timed practice, and accelerated at X1.15 across 12 days of practice in 3 weeks to a new high of 80 movements per minute. When we first changed the phase, his errors jumped up to 8 per minute but then jumped down to 0 per minute for most days of the phase. He completed 2-5 timings per day throughout this phase of the chart.

Max's family took a vacation for two weeks. When they returned, we increased the task difficulty by using patterns consisting of 4 different colors and giving Max all the blocks he needed to replicate the pattern plus an additional 4 blocks he did not need. His frequency of correct performance accelerated from an initial jump down value of 28 per minute to an ending frequency of 60 per minute at a slow acceleration of X 1.05. This slow progress was probably due to inconsistent practicing. Where in previous phases, Max practiced this skill 3-5 times per week, in this phase he practiced an average of twice per week. Throughout the phase, he required 2-5 practices to meet his improvement goals.



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Max

5.1

Autism

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K. Schirmer See/Do Pattern Imitation

Following the patterns with 4 colors and inclusion of 4 distractor blocks, we began checks to evaluate the outcomes associated with fluent performance (retention, endurance, stability, and application). To evaluate Max's performance for endurance, we tripled the length of the original timing interval and presented Max with the same materials he used during the last phase of timed practice. His performance dropped slightly across the course of the 90-second timing, so we went on and performed the next evaluation. After the endurance check, we had Max complete timing for 30-seconds while in the presence of significant distractions. For Max, this involved doing the timing upstairs with his mother, father, sister, and brother walking around the house and the television playing one of his favorite movies. Max's performance passed the stability check, so we proceeded with an application check. For the application check, we presented Max with all new color patterns he had never seen and had him complete a timing. He readily performed the task, matching his performance from the last phase of timed practice. Finally, to assess skill retention, we stopped all timed practice on this skill for 4 weeks. After 4 weeks (the data would not fit on the chart), we presented Max with the materials from the final slice of the timed practice portion of the chart (4 color patterns with 4 distractor blocks), and had him complete a 30-second timing. He matched his previous performance on the first timing, so we stopped the chart and had a little celebration.