Teaching a Child with Autism to Answer Informational Questions Using Precision Teaching

Krista Zambolin
Fabrizio/Moors Consulting
University of British Columbia

Michael A. Fabrizio
Fabrizio/Moors Consulting
University of Washington

Shane Isley
Fabrizio/Moors Consulting
University of North Texas

Answering informational questions-also called "Wh" questions-is acomponent skill of language that is important to holding even a basic conversation; as such, it is a skill clinicians should consider when they intervene with children with disorders that affect language development, such as autism. Answering informational questions helps form the needed foundation for functional verbal communication and allows children to participate more fully in typical social interactions. Failing to learn these skills limits the child's ability to participate in individually chosen activities and poses a barrier to the child controlling or enhancing their environment through language. This chart share illustrates one boy's journey learning this skill.

Connor was nine-years old when he started learning to answer "Wh" questions. He had a diagnosis of autism, but while a relatively highly skilled youngster, he struggled when he tried to engage in conversations. Connor attended a public elementary school where he was fully included in his fourth grade classroom; he also received approximately 20 hours per week of one-on-one behavior analytic intervention in his home. Connor's home intervention consisted largely of Direct Instruction curricula and charts that sought to improve his language as well as charts designed to improve his mathematics and reading comprehension skills. The language programs focused on Connor's social language development.

One area of particular social language difficulty for Connor was answering basic informational questions. When asked a question during a conversation, Connor responded with unrelated statements. When he did attempt to answer a question posed to him, he rarely answered correctly and did not discriminate what information should follow any given type of "Wh" question. For example if someone asked him, "Who gave you that ice cream cone?" he would answer, "It's chocolate."

We designed the piece of instruction shown on these charts to improve Connor's ability to correctly answer "Wh" questions. Connor practiced this skill at home with a therapist (either the first or third author) two to four days each week. During the timings on this skill, Connor's therapist read a statement and then followed that statement with a question for Connor to answer. Which questions the therapists asked depended on which phase of the chart they were working on. For example, during the "Who and Where" phase, an exchange between Connor and his therapist went something like this:

Therapist says: "Dave and Sally went to the park."
Therapist says: "Who went to the park?"
Connor says: "Dave and Sally"
Therapist says: "Where did they go?"
Connor says: "to the park"

Connor's therapists set a daily improvement goal for him each day based on his best previous performance. Connor worked on this particular skill for no more than 10 minutes each day. When he met his daily improvement goal, he earned a self-chosen reward such as jumping on a trampoline, or playing on the computer. During the timings, the therapists asked Connor questions in random order to control for any sequence effects in the instruction and used a very wide range of sentence types to ensure that Connor learned to answer each question appropriately. For example, if Connor only ever answered questions based on sentences that consisted of a simple subject, a verb, and a direct object (John hit the ball), he would likely have great difficult applying that answering ability to more complex sentence structures (Late last Saturday night, John and Margaret hit the ball on their way home from school).

The first phase of question answering for Connor consisted of "where" questions and "who" questions at a timing interval of one minute. While Connor's correct frequency of questions answered accelerated nicely across the first eight days of timed practice during this phase, his corrects flattened out across the last three days of practice. Although he made few errors, his frequency of corrects remained flat at 20 per minute. Because the expected frequency aim for this skill was around 25 correct responses per minute, we changed what we were doing to help him achieve that frequency aim.

The intervention we used to help Connor reach the frequency aim was to emphasize the words "who" or "where" in the questions we asked. This looked something like:

Therapist says: "The boys went to the park on Monday."
Therapist says: "**WHO** went to the park?"
Connor says: "The boys"
Therapist says: "**WHERE** did they go?"
Connor says: "to the park"

Once we added this intervention, Connor reached the aim of 25 correct responses per minute within two days.

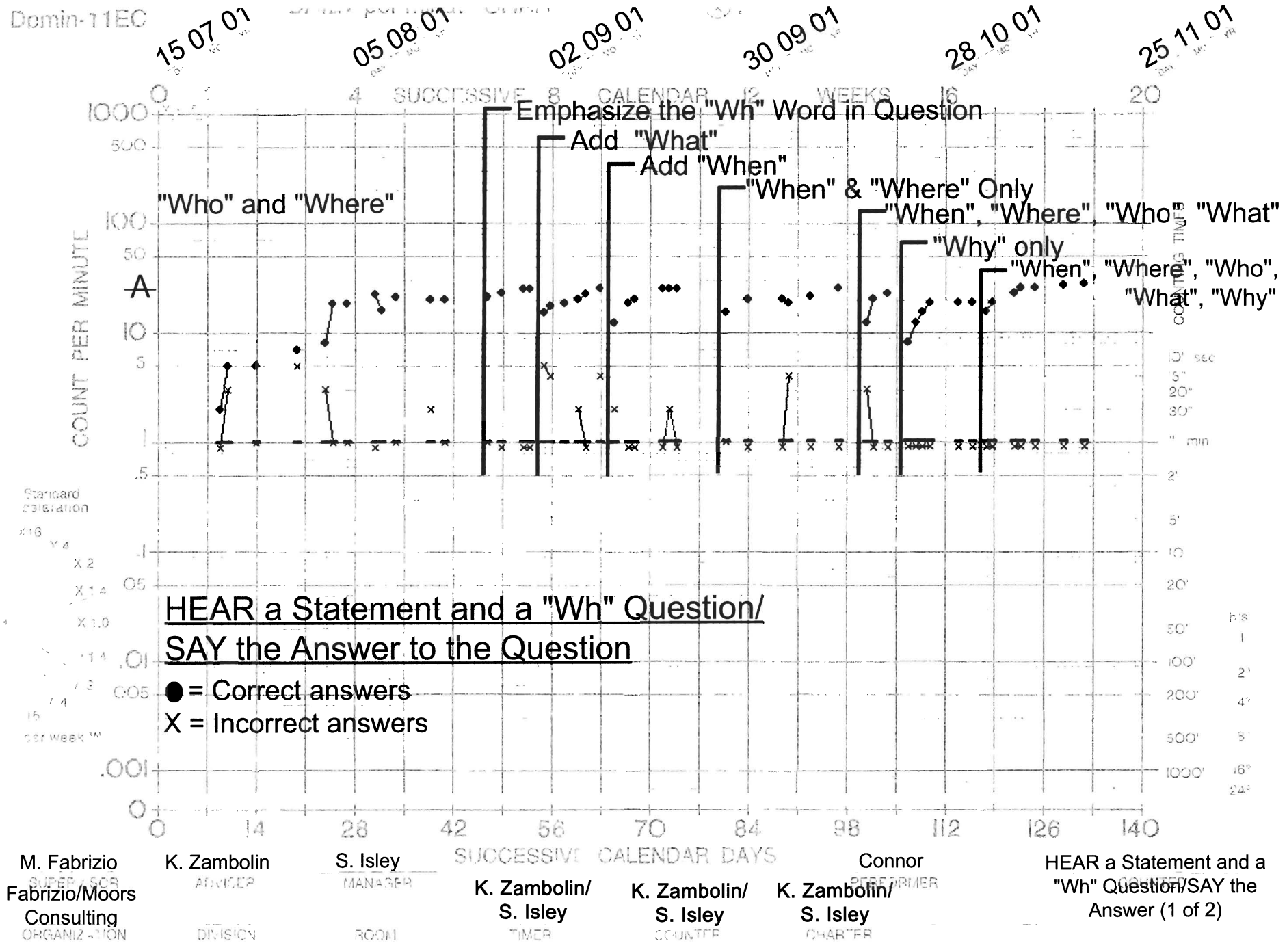
During the next phase on this chart, we added "what" questions. During this phase, Conner answered "who", "where", and "what" questions based on the same statement. After stepping down on the first day of timed practice, Connor reached the aim in six days. We next added "when" questions. He reached the frequency aim of twenty-five correct answers per minute in four days of timed practice in this phase, however, the number of practices he required to reach twenty-five was high each day. Connor needed 6-7 timed practices each day to reach the aim of 25 correct answers. Although his frequency of corrects remained consistent, he was working very hard each day; as a team, we did not want to add an additional question until he was answering the current questions with ease. Connor's therapists noted that he was having difficulty discriminating between "where" questions and "when" questions. When asked a "where" question, he often said the answer to a "when" question and vice versa. As an intervention, Connor was asked only "where" and "when" questions (no "who" questions). After six days of practice, Connor answered 28 "where" and "when" questions correctly per minute with no errors within only three practices. After this, Connor again practiced answering "where" and "when" questions along with "who" and "what" questions. Across three days of timed practice, his performance accelerated nicely to the frequency aim.

We next introduced "why" questions into timed practice. Connor practiced "why" questions alone at first, and then we asked Connor to answer "why" questions with all other questions previously taught. We expected a slightly lower frequency aim when Connor answered only one question per statement so that we could allow time for increased therapist talk in our one-minute timing. When we introduced "where", "when", "what", "who", and "why" cumulatively, his performance reached the frequency aim in six days. We allowed him two more days of practice, and on the eighth day, he achieved 28 questions correct in one minute with zero errors in only one timing.

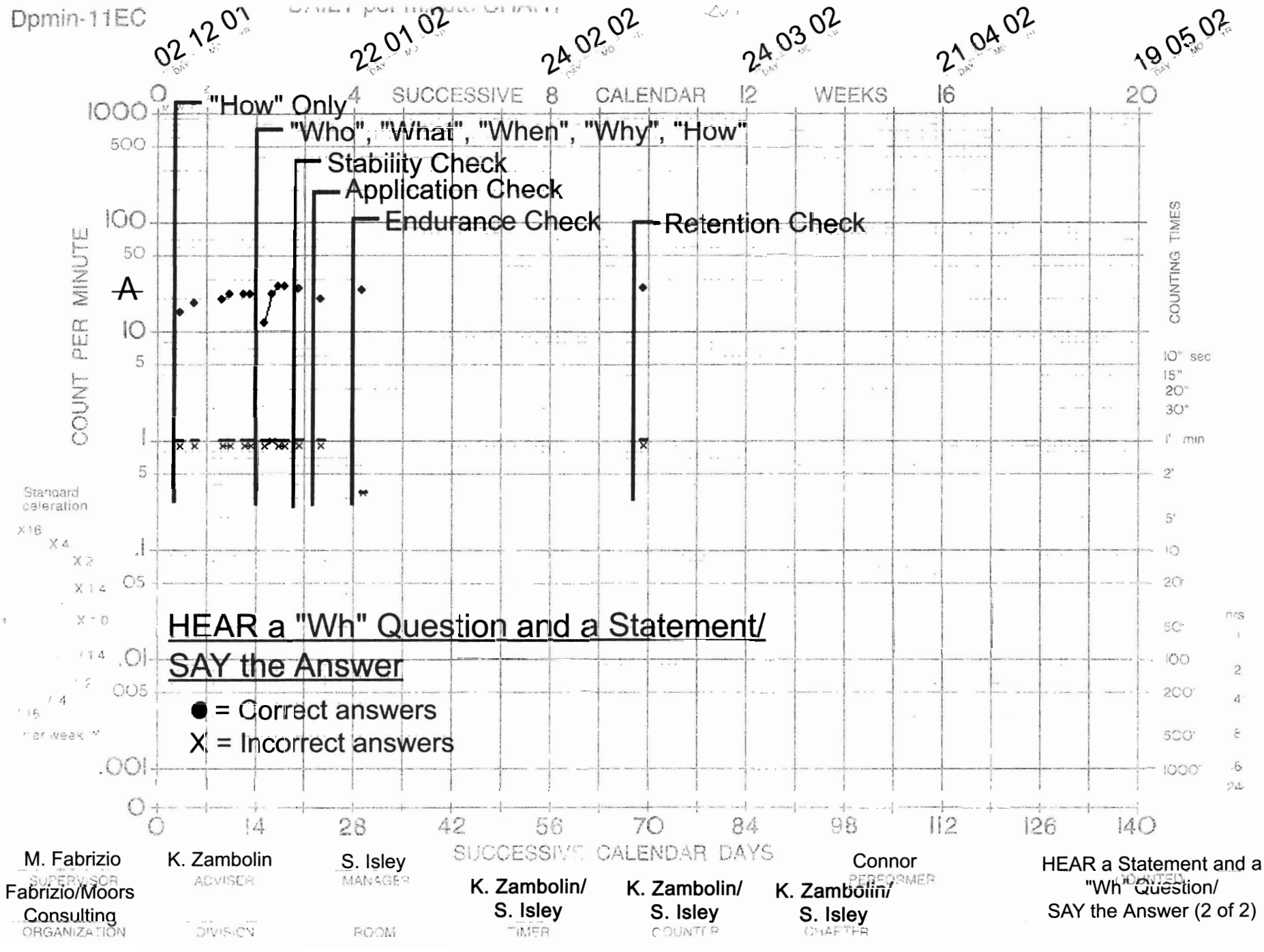
The last question we introduced was "how". Again, Connor progressed nicely in his answering of only "how" questions in four days. When we next arranged for Connor to practice all the "Wh" questions he had learned to date, it took him only three days to get 28 questions correct in one minute with no errors.

Finally, before we finished this chart and stopped working on the skill altogether, we evaluated the fluency of Connor's answering "Wh" questions by empirically testing for fluency's outcomes: retention, endurance, application, and stability. We evaluated the endurance of Connor's performance by increasing the length of his timed practice by a factor of three. Because Connor had previously answered questions in one-minute timings, we tested the skill's endurance by using a three-minute timing (endurance check). To evaluate the stability of his performance, we tested whether Connor could answer questions at the same rate in the face of distraction (stability check). For Connor, anything to do with the television or music served as a major distraction; while he answered his "Wh" questions during his stability check, he also had his favorite move "Pinocchio" playing in the room. The application check tested whether Connor could answer completely novel question (questions he had never heard before). Finally, we evaluated the retention of Connor's skill by stopping all practice on the skill for one month and then timing him again.

Connor passed all fluency outcomes checks in only one timing per check. The endurance, stability and retention check all came in at 25 corrects per minute with no errors. The application check fell a little lower at 20 corrects per minute with zero errors; however, Connor was already readily applying his newly developed question answering ability in conversations with his family and friends. Therefore on February 1st, approximately eight months after it began, this chart was stopped. We happily report that while we write this chart share a full two years after Connor completed the chart, he continues to easily and accurately answer informational questions people ask him both at home and at school.



M. Fabrizio	K. Zambolin	S. Isley	K. Zambolin/ S. Isley	K. Zambolin/ S. Isley	K. Zambolin/ S. Isley	Connor	HEAR a Statement and a "Wh" Question/SAY the Answer (1 of 2)
SUPERVISOR	ADVISOR	MANAGER	TIMER	COUNTER	CHARTER	PERFORMER	
Fabrizio/Moors Consulting							
ORGANIZATION	DIVISION	ROOM					


Dpmin-11EC
02 12 01
22 01 02
24 02 02
24 03 02
21 04 02
19 05 02
SUCCESSIVE CALENDAR WEEKS
"How" Only
"Who", "What", "When", "Why", "How"
Stability Check
Application Check
Endurance Check
Retention Check
COUNT PER MINUTE
COUNTING TIMES
Standard celeration
HEAR a "Wh" Question and a Statement/
SAY the Answer
● = Correct answers
X = Incorrect answers
SUCCESSIVE CALENDAR DAYS
M. Fabrizio
SUPERVISOR
Fabrizio/Moors Consulting
ORGANIZATION
K. Zambolin
ADVISER
DIVISION
S. Isley
MANAGER
ROOM
K. Zambolin/ S. Isley
TIMER
K. Zambolin/ S. Isley
COUNTER
K. Zambolin/ S. Isley
CHAPTER
Connor
PERFORMER
HEAR a Statement and a "Wh" Question/ SAY the Answer (2 of 2)