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RESEARCH TO PRACTICE
Two Approaches to Research in Child Language

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Once upon a time there were two research communities, one called the Hatfields and the other the McCoys. They were as different as night and day. The Hatfields were located in the valley amidst their research subjects, the McCoys in an ivory tower on the hill. They each looked at the world so differently that their offspring were not allowed to intermarry for fear that the worldviews would mingle and be contaminated.

Yet there were many similarities. Both communities depended upon their offspring to carry out research for their continuation. Both initiated their children into the ways of doing research by having a veteran researcher, a grandmother on the father's side, explain the ways of doing research to the initiate. And both devoted their attention to posing and answering questions about children with communication problems.

One day a Hatfield granddaughter approached her grandmother and asked her permission to begin her research career by studying the reason that children with autism ask so many questions. The grandmother's reply was something like this:

"Sit down, my child. It is time that you learn to become a top-notch researcher like your many relatives before you. Your great-grandparents were linguists and anthropologists. Some say we are descended from Darwin—that researcher who developed methods in child study that we use even today. Over the years your ancestors have developed deep insights into how the mind works by analyzing behavior in great detail. Your aunt on your father's side, Lois Bloom, called the analysis *the interpretive approach* because it requires looking at naturally occurring behavior, finding regularities in it, and making interpretations based on what subjects are thinking. That's how your Aunt Lois made that important discovery that the words *mommy sock* had different semantic meanings for the child who said them. She discovered that the words were said in two different contexts, which led her to hypothesize that a particular utterance could have more than one underlying meaning in the mind of the child.

"What you must do now is spend the next few years of your life learning how to become a Hatfield-type researcher. First, you need to study a long time with your different relatives, read what they have written, and pick an area of study for yourself. You say that you have an interest in the frequent question-asking of children who are diagnosed as autistic. Good. Then you must read all there is to know about naturalistic research in child language, about how to collect and analyze samples of naturally occurring behavior, and about autism.

"Second, you need to move in with one of your relatives to help them with their research program. Under that apprenticeship, you will observe children who have autism at length, so you can get a feel for what your subjects are like. You might need to talk with the anthropology branch of our family to learn methods for finding out how the children's questions are regarded by those in their environment and how people respond when the children ask them questions.

"Once you have a good grasp of your subjects and their situation, you can begin collecting data from them by videotaping them as they participate in everyday life events. Be careful not to intrude any more than you have to. The secret of successful research is to observe your subjects in natural contexts, as if you were a fly on the wall.

"You will need to be clever in how you transcribe your data and in how you analyze the information you gather. You must be open to making new discoveries based on what is presented to you in the data. Do not prejudice your observations by creating fixed hypotheses beforehand about what you will find.

"Because you will need to study each of your subjects in great detail, be careful to limit the number of those studied, so that you can consider each subject in depth. It is just as important to realize how your subjects differ from one another as it is to see their similarities.

"So, my dear grandchild, may I wish you the best and caution you to be clever; be open to new ideas along the way; be nonintrusive; study how children's behaviors differ in different contexts; and, whatever you do, stay away from the briar patches of the McCoys, so you won't be contaminated by their simple, reductionistic view of

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the world and enticed by their highly controlled experimental approaches."

Coincidentally, at about this time, a McCoy grandson was asking his grandmother about studying question-asking behavior in children with autism. She, too, helped him to understand how to do research, but in her case it was the McCoy way.

"My child, you are fortunate that you will be learning how to do research using the scientific method. We are real scientists, the real McCoys. Your ancestors were statisticians and psychologists—your great-great-grandfathers, Wundt and Fechner, are said to have started the experimental method. They developed notions of carefully controlled observations and ways of measuring changes in human behavior. They brought science into the laboratory, where it is located to this very day, right here in this ivory tower.

"I am pleased that your topic—the questions asked by children who have autism—is such an interesting one. What you must do is read all the research, including the procedures for carrying out experiments and for performing statistical analysis on your data. You also must read in the area of autism and pay special attention to how researchers have conducted experiments with children diagnosed as autistic. Once you have a grasp of the scientific approaches to your problem, you will need to formulate a hypothesis. Your hypothesis must be testable, so you will need to identify variables that you can manipulate to see how they affect the question-asking behavior of those with autism.

"Pick your subjects carefully, making sure that they come from the same population. The more subjects you have, the more generalizable your results; generalizing your results is the only way you will be able to discover the universals in behavior that you seek. Also, you must be very careful to control for any extraneous variables, such as situational contexts, so that your manipulated variables can have their predicted effect.

"So, off with you! Have a good journey, and remember: be cautious, plan and control for all eventualities beforehand, and stay away from any briar patch that might produce context variables that will contaminate your measures."

The two apprentices went off to explore the world and to find out how to carry out research in the traditions of their ancestors. The first apprentice studied for 3 years, became well acquainted with the Hatfield way of viewing the world, and began her study of question-asking among those with autism. She learned from the literature that frequent question-asking was viewed as a kind of obsession and regarded as a common symptom of autism. Obsessive questioning was seen as inappropriate behavior that should be eliminated.

Aside from reading about autism, she spent considerable time with people who were autistic. She developed a good sense of what these individuals were like and how they fit into their communities. She talked with many people who knew these children, as well as professionals who had worked with them. She selected one subject who was diagnosed as autistic and who asked many questions, and she began videotaping him as he carried out his everyday activities. She collected the tapes each month for a year to determine if the question-asking changed over time. After studying the tapes in detail, she developed a system for analyzing her data. She included in her analysis a detailed depiction of where the child was looking when he asked questions, who he questioned, in what contexts he asked questions, and what the questions were about. She also developed a system for tracking others' responses to the child's questions and the subsequent effect of the responses on the child.

She reported her findings to her appreciative research community. Among her many insights were the following:

1. Her subject's questions were topically related. (Early in the year, he asked people about the stores at which they shopped and the location of the stores; later in the year, he asked if they knew particular people, mostly rock singers.)
2. The questions were addressed mainly to people he didn't know. He rarely asked these questions of his mother.
3. The questions generally were asked in conversational contexts and tended to increase in frequency when the conversational flow was waning.
4. The questions served the following functions for the child:
   - to gather information,
   - to keep the conversation going,
   - to avoid having to do something he didn't like,
   - to raise new topics, and
   - to work through emotionally laden situations.
5. The questions were bothersome to others because the subject did not maintain the topic once they were answered, but instead proceeded to the next question. Many people thought he wasn't listening and called his questions "garbage questions."

The McCoy apprentice also set out to make his fame and fortune as a researcher. He, too, read the literature on question-asking by those with autism and became well acquainted with the experimental approach to studying children with language impairments. Once he felt comfortable with his method and the literature, he developed a hypothesis about why children with autism ask so many questions. He reasoned that children ask questions because they have difficulty maintaining a topic of conversation. The questions, he surmised, function as conversational starters as well as continuers.

He then determined a way to test his hypothesis. If the children truly wanted to carry out conversations, they would do so when given sufficient opportunity. He created an experimental design to test his hypothesis. The independent variable was to follow the children's questions with answers that provided them with no information (condition 1) and answers that provided them with considerable information (condition 2). His dependent variable was to measure the appropriateness of the children's response in the two conditions. His hypothesis would be supported if the children responded significantly less appropriately when given less information

(condition 1) than when given more information (condition 2). He then brought a group of children with autism to his ivory tower and carried out his experiment. Sure enough, the children responded significantly less appropriately under condition 1 when they were provided with less usable information for maintaining the conversation. He reported his results to his research community. They were delighted that he found a simple solution to the perplexing problem of obsessive question-asking of children with autism.

Ending 1:

The two apprentices went on to graduate with their PhDs and became recognized research scholars in their own communities. They often found themselves at the same meetings, even presenting on the same panel. But their relatives need not have worried about whether they socialized outside the formal meeting. They weren't even tempted to do so. The Hatfield felt that the McCoy was so controlling in his research method and so reductionistic in his thinking that it would not be worth her while to develop a relationship with him. Likewise, he found her interesting, but so confusing and fuzzy in her approach to life and so lax in her research methods that he decided to spend time with his like-minded colleagues who were more logical and rigorous in their approach to life. Thus, they lived happily ever after, in the bosom of their home communities, each solving what he or she took to be the same problems, and neither appreciating the other's solutions.

Ending 2:

The two apprentices went on to graduate with their PhDs and became recognized research scholars in their own communities. They often found themselves at the same meetings, even presenting on the same panel. As time went on, they began to understand one another's viewpoint. She realized that what he did was more appealing to reviewers of the scientific journals and that his research studies did not take as long to do. She worked closely with him to carry out her next few studies, and they published several articles together, alternating first authorship, not only for vita purposes, but because they both contributed equally to the research endeavors. Together, they became known as a research team, doing McCoy-type research and creating a highly successful combined career.

Ending 3:

The two apprentices went on to graduate with their PhDs and became recognized research scholars in their own communities. They often found themselves at the same meetings, even presenting on the same panel. As time went on, they began to understand one another's viewpoint. He waited until he got tenure for carrying out his highly successful McCoy program; then he began to use the Hatfield approach because he thought it provided more insight into autistic behavior and the human mind in general. They spent their later years together doing Hatfield-type research, contributing much to the research literature.

Ending 4:

The two apprentices went on to graduate with their PhDs and became recognized research scholars in their own communities. They often found themselves at the same meetings, even presenting on the same panel. As time went on, they began to understand one another's viewpoint. They joined the same cognitive science group at their research institution and learned about the various approaches to the study of the human mind and about how different research paradigms can show different sides to aspects of cognition. They combined features of both research methodologies and published articles together. Both of their home communities at first felt that the traditional paradigm was being watered down or contaminated, but both finally recognized that a research approach combining interpretive and experimental methods could advance their research efforts.

Ending 5:

The two apprentices went on to graduate with their PhDs and became recognized research scholars in their own communities. They each had a child. Not surprisingly, their children developed a deep interest in autism. Their great-grandmothers also gave them advice on how to do research, but, rather than become researchers, the children decided to become speech-language pathologists. Their aim was to help children with autism learn to communicate and, in so doing, to advance the field. As they began their graduate program, a new treatment method in the field of autism, called facilitated communication, became the topic of much debate. Many clinicians reported remarkable success with the program. Others felt that the reported "success" was an illusion and that in reality it was the result of the facilitator's efforts, rather than the child's performance. Their parents warned them to be wary of the approach because the reports of its success were not in keeping with the received wisdom in the field of autism. The two students found that children with autism produced coherent questions when communicating with typing, but not when they conveyed their questions orally. The parents of the students gradually revised their theories, each within their own previous framework. The Hatfield mother compared the details of the interactions of children when they communicated orally and when they communicated with facilitation. The McCoy father collected information to support his hypothesis that oral questions function differently from written questions. The children helped their

parents design new research approaches that were broader in scope and more respectful of the intuitions of those in clinical practice.

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