

Thinking and Speech.
L. S. Vygotsky 1934

Author's Preface

This book deals with one of the most complex and difficult problems of experimental psychology, the problem of thinking and speech. To our knowledge, there has as yet been no systematic attempt to address this problem experimentally. An extended series of empirical studies is required. These studies must address issues such as the nature of concepts formed in experimental contexts, the nature of written speech, and the relationship of written speech to thinking. These studies are a necessary and important first step in resolving this general problem.

Experimental research, however, must be supplemented with theoretical and critical analysis. First, we must analyse the empirical data which have been accumulated and attempt to assess their more general implications. Through an analysis of available information on phylogenesis and ontogenesis, we must attempt to identify the most useful point of departure for the resolution of the problem; we must attempt to develop a general theory of the genetic roots of thinking and speech. Second, to develop preliminary working hypotheses and contrast our own theoretical perspectives with those of others, we must conduct a critical analysis of the best contemporary theories of thinking and speech. In our view, current theories are in need of serious reassessment and improvement.

Theoretical analysis is necessary in two other contexts. First, the problem of thinking and speech has been addressed by scholars in several closely related fields. We must compare these differing perspectives on various aspects of the problem. In this book, we have compared data on the psychology of speech with related work in linguistics. We have also compared our own data on concept formation with current educational theory on the development of concepts. In general, we found it most useful to address these problems in theoretical terms, without attempting a detailed analysis of empirical data. Thus, in describing our studies on the development of scientific concepts, we have presented a working hypothesis on the relationship of instruction and development. This hypothesis was developed in a separate work and is based on empirical data that we do not review in detail here. We also relied on a theoretical mode of analysis in our attempt to construct a theoretical perspective that would incorporate all our experimental data.

The content and structure of our research have been varied and complex. Nonetheless, each task we have faced in our work has been subordinated to our general goal and connected to the work that preceded and followed it. Though we have broken the problem down into several components, it is our hope that our studies constitute a unified whole. All our work has focused on a single basic problem, on the genetic analysis of the relationship between thought and word.

This single basic task has defined the structure of our general research program and defines that of the present book as well. We begin this book with an attempt to formulate a clear statement of the problem and identify appropriate research methods. This is followed by a critical analysis of the two most

A Russian psychologist spent 10 years proving that the act of talking to yourself out loud is one of the most powerful cognitive tools the human brain has, and almost nobody outside his field has read the work. His name was Lev Vygotsky. He worked in Moscow in the 1920s and died of tuberculosis in 1934 at the age of 37. He had no laboratory, no funding, almost no English readers, and a body of work that the Soviet government suppressed for two decades after he died. He produced the foundational theory of how human cognition actually develops, and the central piece of that theory was a behavior almost every adult is faintly embarrassed about. Vygotsky noticed that young children talk to themselves constantly. They narrate their own actions, they argue with imaginary opponents, they instruct themselves through tasks out loud. The dominant theory at the time, from the Swiss psychologist Jean Piaget, said this was a sign of cognitive immaturity that children would eventually grow out of as they learned to think properly. Vygotsky said the exact opposite. He argued that this self-directed speech was the most important cognitive event in the entire developmental window, because it was the moment a child first started to use language as a tool to control their own mind. The child was not failing to think. The child was learning how to think by externalizing the

process and listening to themselves do it. He predicted that as children matured, this out-loud self-talk would not disappear. It would go underground. It would become silent inner speech, which is the running monologue every adult has inside their own head for the rest of their life. The voice you hear when you read this sentence is the direct descendant of a four-year-old narrating their own block tower. For 50 years almost nobody outside Russia had access to his work, and the few researchers who did pick it up could not get funding to test it. Then in the early 2000s the experiments finally started to pile up, and what they found was that Vygotsky had been right about something even more important than he knew. The first major study came from Gary Lupyan at the University of Wisconsin and Daniel Swingley at the University of Pennsylvania in 2012. They ran a simple visual search experiment. Participants were shown 20 images at once and asked to find a specific object, like a banana or a chair. In one condition they searched silently. In the other condition they were told to say the name of the object out loud to themselves while looking for it. The participants who spoke the target name out loud found the object significantly faster, with higher accuracy, than the participants who searched in silence. The effect was strongest when the spoken word matched a familiar object the brain already had a strong category for. Saying the word out loud literally tuned the visual system to detect that thing better. The researchers called it the label feedback effect, and the implication was that the act of vocalizing a goal physically changes how the brain processes the world while pursuing it. The second major study came out of the University of Michigan and Michigan State in 2017. The lead researchers were Ethan Kross and Jason Moser, and they used both EEG and fMRI to record what happens inside the brain when people talk to themselves while emotionally upset. They asked participants to recall painful autobiographical memories and reflect on them in two different ways. Some used the first person, saying things like "why am I feeling this way." Others used the third person, referring to themselves by their own name, saying things like "why is John feeling this way." The brain scans showed that the simple act of switching from first person to third person, even silently, decreased activity in the medial prefrontal cortex, the region responsible for rumination and self-referential pain. Within a single second of using their own name instead of the word I, participants showed measurably lower emotional reactivity. The shift required no extra cognitive effort. It cost the brain nothing. And it worked. Kross described the mechanism in his interviews. Talking to yourself by name creates a small amount of psychological distance from your own experience. Your brain processes the

situation more like a problem belonging to someone else, which means it can analyze it instead of drowning in it. What Vygotsky had intuited in 1934 turned out to be even more powerful than the developmental theory he built it into. The voice you use to talk to yourself is not background noise. It is one of the most precise cognitive tools the brain has, and you can change how it works just by changing the pronoun you use. People who talk through problems out loud are not anxious or unstable. They are running an externalized version of a process the rest of us are running silently and worse. The kindergartener narrating their block tower, the surgeon muttering through a procedure, the engineer pacing a hallway describing a bug to nobody, the athlete repeating a cue to themselves before a free throw, they are all using the same ancient mechanism that builds and steers human thought. You can run the experiment yourself the next time you are stuck on something hard. Stop trying to solve it silently in your head. Say it out loud. Describe what you are seeing. Walk yourself through the steps as if you were explaining it to a colleague who is not in the room. And when something genuinely upsets you, switch to your own name. Ask why this person is feeling this way, instead of why I am feeling this way. The voice you have been told to keep quiet your entire life is one of the oldest pieces of cognitive technology you own. Most people are still embarrassed to use it.

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