***Sperling Partial Report***

# Introduction

# If you were to be exposed for a fraction of a second to a picture of a new streetscape in a new city, how much of that picture would you be able to continue to see before it faded away? How about instead of a picture, you were exposed to a sound recording of the busy street? How much of the audio could you decipher before it faded? The detailed sensory memory for the visual information is called iconic memory, while the detailed auditory information is called echoic memory. A long-standing question in cognitive psychology is how much information is retained in these sensory memories, and for how long. In 1960, Sperling devised an ingenious paradigm to address these questions and showed that sensory memory is fairly detailed, but it fades quickly.

# Description of Activity

During this activity, you will be shown nine letters contained within a 3-by-3 matrix. The letters will appear very quickly so you will have to pay attention and try to take in all nine letters before the matrix disappears. Immediately after the letters disappear, you will hear one of three tones. The highest pitch tone signals that you will have to report the top row of letters. The lowest pitch tone signals that you will have to report the last or lowest row of letters. The middle tone signals that you will have to report the middle row of letters. You will have a chance to hear the tones and distinguish them again during the 10 practice trials, where you will also receive feedback about whether you type in all, some, or none of the letters on the row you were signaled to report.

# Partial vs. Whole Report

# Early in the development of this paradigm, Sperling asked participants to report all the letters in the matrix. Results from this “whole report” method showed that participants could only report a few letters. If Sperling stopped there, the conclusion would be that the capacity of sensory memory is low. However, an alternative explanation is that the process of reporting (i.e., speaking or typing) each letter takes time and during that time the sensory memory is fading quickly. Sperling decided to switch to a “partial report” in which the tone cues where in the matrix to report the letters. Since the tone plays *after* the letters disappear, the participants must rely on their sensory memory of the entire matrix and report the top, middle, or lowest row depending on the tone pitch. The number of letters reported in the partial report must be multiplied by three to arrive at the capacity for sensory memory. So, if 2 letters are remembered out of 3 during a partial report of, for example the middle row, then 2 multiplied by 3 (rows) gives a capacity of 6. That is much higher than the capacity estimates initially arrived at during the whole report procedure.

# Sensory vs. Short-Term Memory

The Sperling partial report is a difficult task. You may be tempted to rely on rehearsal to keep in your mind the letters until you can type them. What makes that strategy difficult? You may be tempted to rely on rehearsal as a strategy for the Sperling partial report. This is difficult because you do not know what row to rehearse until *after* the matrix of letters disappears. This means that you must rely on your sensory memory to “read out” the row corresponding to the tone. This is quite challenging because the sensory memory fades quickly. Sperling manipulated several parameters while devising the partial report. One is the delay between the matrix of letters disappearing and the onset of the tone signaling the row to report. As the delay between letters disappearing and the tone increases, the number of letters reported by participants decreases. This manipulation shows how fast sensory memory fades or decays. Sensory memory is distinguished from short-term memory by its relatively higher capacity, but its shorter duration. Whereas rehearsal is a common strategy for keeping information in short-term memory, sensory memory fades too quickly for rehearsal to be a useful strategy.