# WORKING MEMORY AND SIMULTANEOUS INTERPRETING

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**Abstract:** This paper presents a theoretical overview of the concept of working memory capacity and its practical role in interpreting. Two selected types of studies indicate the empirical approaches to researching the effect of working memory and training. Finally, suggestions are made for further future research to examine the other functions of working memory in interpreting.

**Kew words:** simultaneous interpreting, working memory, training, expertise.

## Introduction

Simultaneous interpreting is considered to be complex cognitive task in which interpreters interpret the message while still listening to the incoming information. This process requires attention, good memory skills and proficient level of both source language and target language. The most noticeable characteristics of simultaneous interpreting is that interpreters must do simultaneously what ordinary bilingual people do serially. So, to keep the incoming information in memory while reformulating the input, one need a so-called working memory in order to anticipate the process of interpreting.

For the first time the concept of working memory was suggested by Baddeley and Hitch (1974). Working memory plays an important role in daily life to conduct potential actions such as bearing in mind a number of phone or someone's birthday date to register. According to Conway (2010) working memory is thought to be one of the fundamental cognitive abilities which allows individual store and process information for short time of period. Also, it is considered to be a key cognitive element in simultaneous interpreting (Darò, 1989; Bajo, Padilla and Padilla, 2000).

*Working memory*

Working memory is explained by combination of storage and processing information (Atkinson and Shiffrin, 1971; Baddeley and Hitch, 1974). There is relation to other higher cognitive processes, mental abilities and everyday activities based on the empirical researches on this subject.

Features of working memory remind RAM (Rapid Access Memory) that is found in computers. Like a RAM, working memory is reset and proceed for the following task after the former assignment is finished.

Since working memory has become main topic in cognitive sphere, many empirical works have been conducted and models of working memory were proposed.

*Gerver's model*

In 1976 Gerver proposed cognitive model of working memory. It suggested sequence of temporal storage systems that is needed in different stages of interpreting. According to this concept, there are two key components to the simultaneous interpretation process: permanent structural elements made up of various memory systems and control processes that are carried out in line with an interpreter's preferences. The relevant components are given more attention thanks to these control processes. (Figure1) The investigation that led to the development of Gerver's model involved a number of tests involving qualified interpreters.

To maintain a steady stream of input and output, the model incorporates temporary storages, commonly referred to as buffer storages, for various phases of text processing. The interpreter needs to use these buffer storages to handle activities in the previous segment, hence they are essential for storing data. Short-term operational memory is used to access the pertinent data kept in the buffer zone as needed.
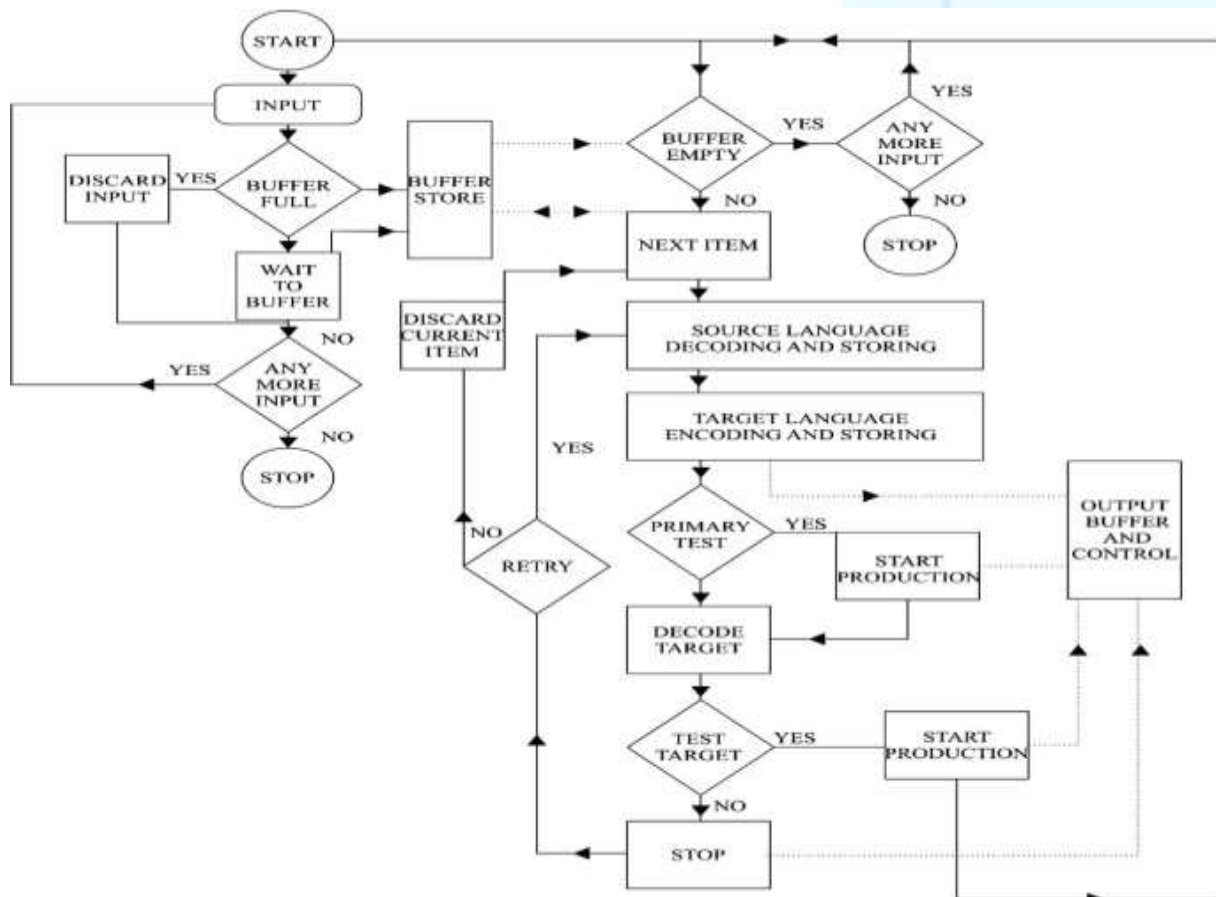


**Figure 1. Gerver's cognitive model**

According to Gerver's approach, many stages of text processing take place in various short-term stores in conjunction with long-term memory. The source language is delivered to the buffer storage, where it is processed according to the interpreter's preferences and the buffer zone's current state. The processed text then goes through

decoding and encoding phases, where phonetic representation within the source language's components is examined and translated into the target language with the use of information from long-term memory that has been accessed by the short-term "working memory."

*Gile's Effort Model*

In an effort to help to deal with the challenges which interpreters face in the process of interpreting, Gile proposed his effort model.

According to this theory, the interpreter makes an effort at each stage and needs to be mentally capable of digesting information in order to carry out their tasks. The main takeaway from this is that the interpreter needs to learn how to balance these stages in order to fully maximize its capacity. According to this approach, the efforts required for simultaneous interpretation can be divided into three groups. These involve activities including producing, remembering, and performing listening and analysis tasks. As soon as the interpreter hears the source language, comprehension-oriented listening operations begin, and by recognizing the incoming sounds, the meaning of phrases and sentences is determined.

This model assumes that there is a certain amount of mental energy available for processing, and that the interpreter will seek to distribute this finite amount of mental energy equally among each of these efforts to achieve balanced processing. The "tightrope hypothesis," which refers to the fact that interpreters work close to processing capacity saturation, makes them open to even slight variations in the available processing capacity for each interpreting component, is a term Gile uses to describe the results of simultaneity in these initiatives.

**Empirical studies on Working Memory**

Presentación Padilla and colleagues conducted the first study we'll be concentrating on (Padilla, Bajo, Caas, and Padilla, 1995). The authors based their research on works of contemporary literature that stressed the importance of good functioning and short-term memory in interpreters (Dar, 1989; Seleskovitch, 1968/1978). Their justification was that having a strong memory is a requirement for learning simultaneous interpreting skills and that interpreting training further enhances memory.

These hypotheses gave rise to the specific predictions that a comparison of three groups (interpreters, interpreting students, and bilinguals without interpreting experience or training) would show that interpreters have the greatest memory capacity and students have a larger capacity than non-interpreters. The traditional digit span test was employed by Padilla et al. to verify these hypotheses. Participants in this exam are shown a series of digits.

A research by Chincotta and Underwood (1998), who concentrated on one particular feature of working memory: articulatory interference, provides an example of another strategy. Numerous empirical research have demonstrated that the ability to

recall information is impacted when it cannot be practiced. . It has also been demonstrated that concurrent articulation can successfully stop such rehearsal.

Since simultaneous interpretation frequently involves concurrent articulation, the problem of interference is particularly intriguing in our field. The most widely held belief is that seasoned interpreters will be less impacted by contemporaneous articulation than novice interpreters and non-interpreters.

In an experimental investigation, Chincotta and Underwood invited subjects to complete the digit span test under two different experimental circumstances. In one, participants were required to repeat aloud an irrelevant word throughout the digit span test, interfering with the memory trace for digits. In the other, participants were asked to do so.

**Implacations for Future**

In terms of working memory research, these two types of studies are quite typical. These methods differ from one another, yet they also have some things in common.

The premise that interpreters have a greater working memory capacity than non-interpreters is the foundation of the majority of empirical studies, which are conducted to test this notion. The third category is the least common; interpretation tests are infrequently used in empirical investigations of working memory. Instead, it is thought that the ability to interpret results in long-lasting changes to cognitive processes, and that these changes will be noticeable when comparing interpreters to non-interpreters using working memory tests that are more commonly used.

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