KEY STUDY EVALUATION — Cherry

The research by Colin Cherry is a very good example of how a psychologist, noticing a real-life situation, is able to devise a hypothesis and carry out research in order to explain a phenomenon, in this case the "cocktail party" effect. Cherry tested his ideas in a laboratory using a shadowing technique and found that participants were really only able to give information about the physical qualities of the non-attended message (whether the message was read by a male or a female, or if a tone was used instead of speech). Cherry's research could be criticised for having moved the real-life phenomenon into an artificial laboratory setting. However, this work opened avenues for other researchers, beginning with Broadbent, to elaborate theories about focused auditory attention.

Cherry: The cocktail party problem

Cherry (1953) found that we use physical differences between the various auditory messages to select the one of interest. These physical differences include differences in the sex of the speaker, in voice intensity, and in the location of the speaker. When Cherry presented two messages in the same voice to both ears at once (thereby removing these physical differences), the participants found it very hard to separate out the two messages purely on the basis of meaning.

Cherry (1953) also carried out studies using a **shadowing task**, in which one auditory message had to be shadowed (repeated back out aloud) while a second auditory message was presented to the other ear. Very little information seemed to be obtained from the second or non-attended message. Listeners rarely noticed even when that message was spoken in a foreign language or in reversed speech. In contrast, physical changes (e.g., the insertion of a pure tone) were usually detected, and listeners noticed the sex of the speaker and the intensity of sound of unattended messages. The suggestion that unattended auditory information receives very little processing is supported by other evidence. For example, there is very little memory for words on the unattended message even when presented 35 times each (Moray, 1959).

Discussion points

1. Are you surprised by any of Cherry's findings?
2. Why do you think that Broadbent found Cherry's findings of great interest?

How do we distinguish and follow one conversation out of many in situations like this?

KEY TERMS

Shadowing task: a task in which there are two auditory messages, one of which has to be repeated back aloud or shadowed.

Dichotic listening task: a task in which pairs of items are presented one to each ear, followed by recall of all items.

Sensory buffer: a mechanism that maintains information for a short period of time before it is processed.

Broadbent (1958) discussed findings from what is known as the **dichotic listening task**. What usually happens is that three digits are presented one after the other to one ear, while at the same time three different digits are presented to the other ear. After the three pairs of digits have been presented, the participants recall them in whatever order they prefer. Recall is typically ear by ear rather than pair by pair. Thus, for example, if 496 were presented to one ear and 852 to the other ear, recall would be 496852 rather than 489562. Note that various kinds of stimuli (e.g., letters, words) can be used with the dichotic listening task.

Broadbent's filter theory

The British psychologist Donald Broadbent (1958) put forward the first detailed theory of attention. His filter theory was based on findings from the shadowing and dichotic listening tasks. The key assumptions in this theory were as follows:

- Two stimuli or messages presented at the same time gain access in parallel (at the same time) to a **sensory buffer**. This holds information for a short period before it is attended to or disappears from the processing system.
- One of the inputs is then allowed through a filter on the basis of its physical characteristics, with the other input only briefly in the buffer for later processing.
- This filter prevents overloading of the limited-capacity mechanism beyond the filter; this mechanism processes the input thoroughly.

This theory handles Cherry's basic findings, with unattended messages being rejected by the filter and thus receiving very little processing. It also accounts for performance on Broadbent's original dichotic listening task, since it is assumed that the filter selects one