Attentional Blink

In order to determine whether a posttarget processing deficit occurs due to attentional or sensory factors Raymond, Shapiro, and Arnell (1992) conducted an experiment using a multiple task RSVP procedure. Their first experiment was used as their control, and attempted to replicate the methods and results of Weichselgartner and Sperling (1987). The Ss were to identify a white target letter amidst a stream of black letters and to identify the three target letters presented after the target letter. Experiment 2 used a black X as the target in which Raymond et al. (1992) attempted to eliminate memory-encoding difficulties and response demands as a potential explanation. With Experiment 2, researchers compared the results of Ss who were instructed to identify a white letter as a target in a stream of letters that were black and were asked just to identify if an X was subsequently present or not vs. Ss who were instructed to simply identify whether or not an X was present in the letter stream or not. They also found that the position of the probe influenced the pattern of target errors which can be due to the idea that within a window of time, extended processing occurs effecting the processing of new stimuli. They concluded that the posttarget deficit occurs due to attentional factors and that it occurs at a relatively early stage of processing. Experiment 3 used the same RSVP procedure as Experiment 2 and sought to determine if attentional suppression is due to a ballistic mechanism and if it is influenced by time or the event. Experiment 4 was identical to Experiment 3, but inserted blank intervals between + 1 and +2 items rather than between the target and the +1 item. From this they found that posttarget processing deficit can be produced when the intervals lack a visual stimulus.

Raymond et al. mentioned the phenomenon of repetition blindness as a result of the multiple-tasking RSVP procedure. This occurs when Ss are asked to identify an item that is presented twice within a stream of words that form a sentence or that form a word. Kanwisher and Potter (1989, 1990) found that Ss tended to omit the second repetition of the item, however could this be partly due to automaticity? If a Ss can predict the word that is going to be formed during the trial could the Ss omit the repeated letter due to top-down processing? The Ss’ experiences may influence the validity of the study if they are familiar with lexicons and are verbally robust. They may have been able to predict which word was being formed
and stopped paying attention therefore causing the omission of the repeated letter. Like revising your own paper after staring at it for hours and rereading it repetitively can affect the proficiency of catching errors, automaticity may have influenced the attention of the Ss within the study therefore decreasing the internal validity of Kanwisher and Potter (1989, 1990). The decrease of attention could link the studies performed by Raymond et al. (1992) with Kanwisher and Potter (1989, 1990) since Raymond et al. (1992) attributed the effect of the posttarget deficit to attention factors.

Interestingly, masking also plays a role in the posttarget deficit effect. Enns & DiLollo (1997) concluded that attention distribution over multiple targets produced masking. This theory is applicable to the procedure performed by Raymond et al. (1992) in that the Ss’ attention is divided among several letters presented in a stream. Each letter is replaced by a mask, which happens to be a subsequent letter. Experiment 2 of Raymond et al. (1992) simultaneously serves as a masking procedure in a different variation as each letter is masked by a subsequent letter. Masking has a strong effect in the multiple-task RSVP procedure, therefore strengthening the attribution of attention as a cause of the posttarget deficit effect especially when there a specific window of time produces a far more significant masking effect.

Alterations to the procedure relevant to attention could include the incorporation of the cocktail effect. By presenting letters in the stream spelling out the subjects’ name experimenters could measure the effect that recognizing the forming of their own name could have on attention. Experimenters could include a repeated target to observe whether or not the Ss identifies it as a repeat. Auditorily, hearing your name at a party typically captures more attention than surrounding stimuli, but it is possible that seeing your name formed in a letter stream would produce an automaticity effect or a cocktail effect. Researchers could study the effects of this study to further advance knowledge of the role that attention plays in attentional blink.