



The influence of distraction on reading comprehension: a Big Five analysis

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Abstract

This experiment is a partial replication of the Furnham, Gunter, and Peterson (1994) study of personality and television distraction effects on undergraduate reading comprehension performance. We examined the effects of television distraction on the reading comprehension of 178 undergraduates who were either relatively high or low on the five major personality domains: extraversion (E), neuroticism (N), agreeableness (A), conscientiousness (C), and openness to experience (O). Participants completed a personality inventory and two comprehension passages—one in silence and the other while being distracted. The usual extraversion over introversion superiority was found in one condition, while a lack of task difficulty/complexity and the effects of transmarginal inhibition are thought to have complicated other findings pertaining to E. Results were inconclusive with respect to N, C, A and O. These results, which highlight the complex nature of personality, comprehension and distraction, are discussed with reference to other research findings. © 2002 Published by Elsevier Science Ltd.

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To what extent is the reading comprehension of different personality types affected by distraction? This question has received considerable recent research attention by Furnham and his colleagues (e.g. Furnham & Allass, 1999; Furnham & Bradley, 1997; Furnham, Gunter, & Peterson, 1994; Furnham, Trew, & Sneade, 1999). Whereas this literature has focussed on the differences in performance of extraverts (Es) and introverts (Is), this study will assess the impact of distraction on the five major personality domains—extraversion (E), neuroticism (N), conscientiousness (C), agreeableness (A), and openness to experience (O).

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Cognitive task performance is directly affected by levels of cortical arousal (H. Eysenck, 1967; Eysenck & Eysenck, 1985). According to this view, optimum task performance is reached at moderate levels of cortical arousal. Introverts perform less well than do extraverts when distracted because of the introvert's greater cortical arousal and subsequent aversion to over-stimulation (Eysenck, 1967). The only important qualification to this pattern is that, under certain high levels of stimulation, Is are better able to inhibit arousal responses than are Es. This is said to be due to the de-arousal of the central nervous system at high levels of stimulation (transmarginal inhibition; TMI) and the Is lower threshold for this phenomenon (Eysenck & Eysenck, 1985). Therefore, Is should only be more aroused than Es under moderate levels of stimulation (Matthews & Deary, 1998).

Eysenck's (1967) central hypothesis of E superiority under conditions of distraction has received some support over the years. For example, Howarth (1969) reported E superiority in serial learning tasks, while Morgenstern, Hodgson, and Law (1974) also found that Is function less efficiently than do Es in the presence of distraction. More recently, Furnham et al. (1994) claimed evidence for the theory in a study of television distraction, reading comprehension and extraversion. Whilst both Es and Is performed better in the silent condition, Es outperformed Is under conditions of television distraction and also reported lower levels of perceived distraction.

In an experiment that highlighted the importance of distractor complexity, increasingly complex music resulted both in consecutive increases in the performance of Es and decreases in the performance of Is (Furnham & Allass, 1999). Likewise, in a study of 'pop music' and personality by Furnham and Bradley (1997) it was reported that Es outperformed Is under conditions of music distraction for both reading comprehension and memory tasks. On the other hand, the most recently published research by Furnham et al. (1999) found no significant support for Eysenck's (1967) position, although the data pointed in the expected direction. These results, however, may have been at least partly due to the fact that participants in that study were tested in a high school classroom setting and were probably distracted in other ways (e.g. the rooms had views across the school; see Furnham et al., 1999).

As proposed by Furnham et al. (1999), it is possible that other personality domains besides E may also be implicated. It is conceivable, for example, that high scorers on neuroticism (High Ns) will underperform relative to Low Ns when distracted (Eysenck & Eysenck, 1985). High Ns have been described as having higher autonomic arousal, a greater tendency for both worry and anxiety, and as being more easily distracted when conditions are stressful (Eysenck & Eysenck, 1985; Matthews & Deary, 1998). Thus, it follows that if the performance of High Ns were to be hindered by moderately loud, distracting stimuli in timed testing conditions, they might more easily become anxious or stressed, thereby leading to a deterioration in performance.

Besides replicating Furnham et al. (1994), the contribution of this study is the incorporation of additional personality domains (N, A, C, O). Recent work by Barkley (1997) provides some theoretical justification for this study. He proposed a hybrid neuropsychological theory of executive function (covert, self-directed forms of behaviour e.g. verbal working memory) and self-regulation, extending his theory to an understanding of attention-deficit hyperactivity disorder (ADHD). Drawing upon aspects of Gray's (1987, 1994) behavioural inhibition system and concurring with the view that ADHD arises from under-activity in this system (e.g. Quay, 1988, 1997), Barkley specifically focuses on the nature of self-regulation, how the executive functions are involved in it, and demonstrations of their critical dependence on behavioural inhibition.

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