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# Curiosity and sensation seeking: a conceptual and empirical examination

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## Abstract

Many attempts have been made to measure curiosity and its components. However, there is no consensus on what curiosity is. Some researchers have also included the concept of sensation seeking in the concept of curiosity. In the present study, four previously constructed curiosity inventories and one sensation seeking scale were translated to Finnish and modified to be convenient for fifth-graders. The main purpose of the study was to clarify the concepts of curiosity and sensation seeking. Using conceptual analysis and the results of previous studies, it was possible to construct eight alternative conceptual models of curiosity. The corresponding statistical models were expected to account for the covariances among 15 subscales measuring curiosity-related exploratory behavior. Confirmatory factor analysis was used to investigate the fit of the alternative models. The four-step logic suggested by Stanley A. Mulaik was used in testing the models. A sample of 529 Finnish fifth-graders from southern Finland was divided according to sex (258 girls and 271 boys). The best-fitting model was a three-factor model with two trait factors and one method factor. The trait factors were termed Curiosity and Sensation Seeking. The findings of the present study appear to support the conclusion that curiosity and what has been called diversive curiosity are completely different traits as well as curiosity and sensation seeking.

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## 1. Introduction

Curiosity has been seen as a very important concept from the point of view of education and psychology (see e.g., Day, 1982; Deci & Ryan, 1985). However, what is meant by curiosity is not a truism. The word *curiosity* is used differently in everyday language, and its scientific use has not been uniform, either (see Byman, 2001). It has been used to refer both to a hypothetical construct and to an observable behavior. To eliminate this terminological ambiguity, Voss and Keller (1983, p. 150) have suggested that the term *exploration* should be used to refer to the observable behavior, while the term *curiosity* should refer to the corresponding psychological construct. Despite varying definitions of curiosity, a common view is that curiosity is on the one hand a trait-like disposition and on the other hand a state of subjective uncertainty.

Curiosity has been seen (e.g., Beswick, 1971; Deci & Ryan, 1985) as a prototypical example of *intrinsic motivation*. Several researchers (e.g., Ainley, 1987; Collins, Litman, & Spielberg, 2004; Kashdan, Rose, & Fincham, 2004; Zuckerman, 1994) have also included the concept of sensation seeking in the concept of curiosity. Specifically, they have argued that sensation seeking comes very close to *diversive curiosity* in the epistemic-diversive curiosity distinction first suggested by Day (1968). According to Day and Berlyne (1971, p. 319), the *diversive curious child* is “one who seeks stimulation, creates excitement, and challenges the world around him. He seems willing to face adversity, take risks, and extend himself into new and daring situations.” Zuckerman (1971) used the term *sensation seeking* to describe a personality trait which shows itself in various forms of sensation seeking. According to Zuckerman (1994, p. 27), “sensation seeking is a trait defined by the *seeking* of varied, novel, complex, and intense sensations and experiences, and the willingness to take physical, social, *legal*, and *financial* risks for the sake of such experience.” In a factor analytical study 72 items related to sensation seeking were sharpened to four factors: Thrill and Adventure Seeking (TAS), Experience Seeking (ES), Disinhibition (Dis), and Boredom Susceptibility (BS) (Zuckerman, 1971).

Both curiosity and sensation seeking have been related to basic dimensions of personality. In Eysenck’s personality taxonomy, sensation seeking has been related to extraversion and psychoticism (Eysenck & Zuckerman, 1978). In Costa and McCrae’s (1992) five-factor model of personality, both curiosity and sensation seeking are important parts of the Openness to Experience factor and are relevant to an understanding of the motivational aspects of this factor. In Zuckerman, Kuhlman, Thornquist, and Kiers’s (1991) alternative five-factor personality model, Impulsive Sensation-Seeking (ImpSS) is one main dimension.

Dozens of instruments have been devised to measure curiosity (see Byman, 2001). This is a confusing situation. It is, for instance, difficult to compare results of studies that have used different curiosity measures. This has led several researchers (e.g., Ainley, 1987; Olson & Camp, 1984; Spielberg & Starr, 1994) to try to clarify the similarities and differences between existing curiosity scales. That is, they have tried to find out whether different measures of curiosity measure different kinds of curiosity. The answer to this question has been clearly no, but otherwise the findings of these studies have not been unanimous. The dimensionality problem is one aspect of the construct validation problem of curiosity. Moreover, if curiosity is a unitary trait, it may be part of single higher-order personality dimension. However, if curiosity is a non-unitary trait, its subtraits can align themselves with different dimensions of

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