The relationship between epistemological beliefs and metacognitive thinking of gifted and non-gifted students


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Abstract: The aim of this study is to investigate the correlation between epistemological beliefs and metacognitive thinking of gifted and non-gifted students. The research sample consists of two groups. The first group represents the gifted students, who were selected from the King Abdullah the Second Schools for Excellence in Irbid, Jordan; the other group represents non-gifted students selected from various ordinary schools in Irbid. The sample size of the first group was 166 students (91 students from level 10 and 75 students from level 11); the control group consisted of 110 students (54 students from level 10 and 56 students from level 11). In order to achieve the aim of this study, the researcher used the Schommer epistemological questionnaires adapted to the Jordanian environment as well as the Kawaldah Metacognitive Questionnaire scale (M.Q.S.) which was developed for the Jordanian environment. The researcher also used correlation coefficient and Z Fisher test. The results of the study show that gifted and non-gifted students’ responses on the epistemological beliefs scores and Metacognitive Questionnaire scale fall within the degree of frequency and there was a significant correlation in the two domains (omniscient authority and palpable serial) in favor of the non-gifted students.

Keywords: epistemological beliefs, Metacognition, gifted and non-gifted.

1. Introduction

Epistemological beliefs comprise one of the main paths for understanding the structure of the process of metacognition, and many studies have been conducted to examine the relationship between epistemological beliefs and metacognitive strategy. These have found that students who differ in metacognitive ability are likely to differ in their epistemological beliefs (Ryan, 1984; Schommer, 1990). Hofer (2004) and Kitchener (1983) indicated that when individuals begin in building epistemological action on a particular topic, they can be inferred to be interested in a range of metacognitive operations. Thus, they tend to become aware of their understanding of new concepts; they question whether they have absorbed what they have read, and begin to organize a response. Therefore, another level of metacognition is achieved.

In the studies of Moos and Finley (2013); Tsai and Chuang (2005); Pieschl, Stahl, and Bromme (2006); and Ozgelen (2012), these relationships could improve educational activities. Other studies also confirmed that improving epistemological beliefs and increasing the level of metacognitive strategy application will contribute significantly to positive learning outcomes and academic achievement (Barnard, Lan, Crooks, & Paton, 2008; Belet & Güven, 2011; Nbilna & Viko, 2010; Topçu & Tüzün, 2009).

Epistemological beliefs are also considered a fundamental and important source of information about metacognition, because metacognition is used to differentiate between good and weak readers, students who are able to learn and those who are not, as well as the gifted and non-gifted. A person’s beliefs about the nature of knowledge will be important in learning, problem-solving, and making conclusions (Schommer, 1994). Furthermore, the studies by Chan (1996); Schommer and Dunnell (1994, 1997); and Schommer and Neber (2002) confirmed that gifted students use metacognitive strategy, have more sophisticated beliefs about the nature of knowledge, and are less likely to believe in simple knowledge, quick learning, and “innate ability”.

Costa (1984) affirmed the need to understand students’ techniques of solving problems, awareness of what is known and what is needed to be known, making a work plan before beginning, observing themselves during the implementation stage, making corrections whenever needed, and evaluating the range of their success upon completion or implementation of work.

As described by Costa, the components on thinking emphasize its necessity for the gifted, which indicates the value of educational enrichment content: to learn about brain function, for example, as well as the relationship between learning and memory, emotions, dreams, imbalances and mental disorders. This continues in relation to reasoning, models of thinking, and personal dimensions, such as brain hemisphericity and specialization. Other