

**A Measuring Tool for Innovative Thinking's Potential  
Among Students of Sciences and IT in Higher Education**

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## **ABSTRACT**

The central aim of this study was to develop a reliable measuring tool for innovative thinking's potential, which we have named as IGI-Ideas Generation Implementation, among engineering students in Israel.

The empirical part of the study examines the relationships among fields of technological innovation, and higher order thinking skills.

In this study Israeli engineering students developed future imageries for innovative technologies in order to measure their ability in innovative thinking. (Kanter et al., 1997; Woodman et al., 1993; White, 1996).

Innovativeness is defined as creativeness which is successfully implemented and which depends on the ability of the workers to think, to learn and to produce. The ability to innovate is made up of the ability to both generate original ideas and the ability to implement these ideas (Janssen, 2001). We assumed that the identification of such abilities at the stage of academic studies will indicate the potential for future innovativeness, based on the assumption that the prediction of future behavior relies on past behavior of a similar nature (Sternberg, 1996).

The research methodology emphasizes multidisciplinary theory building, which is based on a creative mix of arguments derived from literature review. However, tools for measuring the ability of innovative thinking that were found were mainly questionnaires of self reporting by the subjects.

Specifically, these questionnaires did not include a measure of the level of innovative thinking and most of them did not include a measure of the potential to implement the ideas (Krause, 2004; West & Anderson, 1996). Moreover the cognitive dimension that was investigated focused mainly on the Adaptors/Innovators cognitive style (Kirton, 1976).

Numerous models of the innovation process have evolved over time, all aiming at improving our understanding of how to manage innovation. Given the existing literature review we proposed a research framework and a tool which is based on a creative mix of arguments derived from the Architectural Innovation model (Henderson & Clark, 1990) which is intended to measure the degree of innovativeness.