A meta-analysis of electronic sensors applying in inventions of young students

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Abstract

International Exhibition for Young Inventors (IEYI) known as an invention exhibition encourages students to compete their creative inventions. In order to win the competition, some technologies have been used to enhance the compatibility to win the prize. Among those technologies, electronic sensors were most often employed in the invention design, thus, how young students applied different electronic sensors in different inventions were subjected to be meta-analyzed in this study. Data were collected from the 2015 IEYI participants' invention portfolios. After primary analysis, three electronic professors engaged in tri-angulation consistent analysis to achieve the inter-rate reliability. The results of the present study show that different types of electronic sensors were applied to various categories of inventions, for instance, light sensor with sound sensors have been used most often in the winners of 2015 IEYI. However, the implication of this study suggested that the appropriateness of applying electronic sensors was the key to win the invention competition of IEYI.

Keywords
Project design; progressive problem solving; science learning; project-based learning; innovation

Biography

Jon-Chao Hong established the Digital Game-Based Learning Laboratory (GBL) in National Taiwan Normal University. Based on the foundation of game-based learning, GBL has created 9 internet games and 15 educational Apps, with the hope that through these games, students can enhance their motivation to learn. In terms of science and technology application in education, the World Bond Robot Contest (formally called GreenMech Contest) has been held since 2007; PowerTech Science & Technology Contest for Youth has been held since 1999; and International Exhibition for Young Inventors (national contest) has been held since 2004. Through these contests, students' science inquiry abilities have been stimulated and they have had opportunities to create, to invent and to observe and learn from others. The contests also train the students' divergent thinking and creative thinking. In relation to academic research, I have published numerous articles about digital game-based learning and creative thinking. Specifically, in the past 3 years, the applicant has published about 30 articles in Social Science Citation Index Journals.