

Cross-lagged Panel Correlation and Latent Growth Modeling in the Relationship Between Creativity Tendency and Technology Creativity

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ABSTRACT

Purpose: Aspects of educational reform that are emphasized in various advanced countries worldwide differ according to country; however, the development of the science or technology creativity of students is considered a common trend in advanced countries. Although a large amount of relevant research has been conducted on creativity, few studies have focused on the longitudinal development of technology creativity. The importance of exploring the growth trend of technology creativity and the factors affecting elementary school pupils in Taiwan is self-evident. Researching these issues was therefore the purpose of this study. **Methods:** Both cross-lagged panel correlation and latent growth modeling were used in this study to determine the causal mechanism between the creativity tendency and technology creativity of elementary school pupils in Taiwan, as well as the effects of creativity tendency on the development of technology creativity. A questionnaire survey was administered preceding longitudinal research, and data were acquired from 488 G5 pupils in an elementary school. In addition, four times of investigation are preceded in 2 years for this study. **Results/Findings:** The results of the analysis of cross-lagged panel correlation, creativity tendency, and technology creativity indicated a mutually influential relationship, and creativity tendency played the role of a starter. The results of latent growth modeling revealed an initially decreasing, then increasing creativity tendency growth trend for the pupils; this is considered as the effect of the first measured results. Conversely, the growth trend of technology creativity initially increased and subsequently decreased. Thus, creativity tendency revealed a causal relationship with the effects of technology creativity, whereas the initial state of creativity tendency exerted significantly positive effects on the initial state and growth rate of tech-

nology creativity. Furthermore, when creativity tendency exhibited a faster growth rate, the growth rate of technology creativity increased. **Conclusions/Implications:** First, mutual cause and effect mechanisms were observed between creativity tendency and technology creativity. Second, the creativity tendency and technology creativity of the elementary school pupils in Taiwan exhibited distinct latent growth changes. Third, creativity tendency exerted effects on the initial state and growth rate of technology creativity. Based on these results, suggestions aimed at enhancing educational practice and future research are proposed.

Keywords: cross-lagged panel correlation, technology creativity, creativity tendency, latent growth modeling

