



Colorado Science and Engineering Fair

2024 Individual Project Abstract Form

Please print 2 copies of the completed form. Sign both copies, keep 1 for your notebook and submit 1 copy to your Regional Fair Director with your other paperwork.

Title of Project: Multi-Layer Structural Equation Modeling of Behavioral Traits and Entrepreneurial Interest

Finalist's Name: Alexander Zhang

School and City: Fairview High School, Boulder

Sponsor's Name: Paul Strode

Category: Behavioral & Social Sciences (BEHA)

Division: Senior (9th - 12th grades)

Abstract (250 words or less):

Entrepreneurship is a crucial aspect of modern society. According to the SBA, small businesses constitute over 44% of yearly US economic activity, which makes it important to understand the psychological foundations of entrepreneurship and the reasons behind successful business ownership. Unfortunately, existing research focuses primarily on identifying traits common among already successful entrepreneurs and businesspeople, correlating behavioral characteristics with firm performance. This project worked to study the relationship between the psychological traits of risk-taking propensity, persistence, self-efficacy, and flexibility and entrepreneurial interest in adolescents aged 11-19 to model a dynamic multivariate relationship across groups. A 29-question survey was distributed to a range of nonprofit organizations in different fields ($n = 198$), utilizing abridged versions of well-known psychological tests and individually designed questions to track involvement in entrepreneurship-related fields. After data collection, an initial multi-layer structural equation model was developed, and found that the only significant relationship was between self-efficacy and entrepreneurial interest (coefficient = -0.668 , $p = 0.015$). The model was refined further to improve fit indices and incorporate age as a moderating variable, reducing the magnitude of the negative relationship (coefficient = -0.315 , $p = 0.031$) and finding that the differences between respondent age did not affect the relationship ($p = 0.303$). Self-efficacy and entrepreneurship are positively correlated in adults (Miao et al., 2016), so this research suggests that the relationship is initially negative at a younger age and gradually becomes more positive as people are integrated into the workforce and society, providing insight into potential education reforms in adolescents.

I hereby certify that the above statements are correct and the information provided in the Abstract is the result of one year's research. I also attest that the above properly reflects my own work.

Finalist's Signature:

Date: 02/27/2024

In addition, all students must complete the ISEF Student Checklist (1A), Research Plan, Approval Form (1B), and Checklist for Adult Sponsor (1), and any other ISEF forms required for this type of project. See the International Rules and Guidelines for form requirements. Return COPIES of all of these forms to your Regional Fair Director with you Finalist Verification/Permission Form. A signed copy of this form must be included in your notebook.