New England Journal of Entrepreneurship

# Enterprising spirit rejuvenated: entrepreneurship education in shaping company employees' career commitment and turnover intentions

Received 4 February 2024
Revised 8 April 2024
Accepted 2 May 2024

Yu-Yu Chang, Wei-Shiun Chang and Ahmad Fadhil
*National Cheng Kung University, Tainan, Taiwan*

## Abstract

**Purpose** – Entrepreneurship education is widely regarded as a fundamental means of fostering individuals' entrepreneurial intentions. In this paper, we delve into a distinctive empirical context: the integration of entrepreneurship education within Indonesia's nationwide higher education system since 2010. Our goal is to investigate how prior participation in mandatory entrepreneurship training by company employees influences their inclination to leave their current employment and initiate a new business.

**Design/methodology/approach** – We employed structural equation modeling to analyze empirical data (n = 337) collected from full-time Indonesian employees in established companies.

**Findings** – Our findings indicate that previous engagement in entrepreneurship education predicts employees' entrepreneurial intentions, leading to reduced commitment to their current careers and an increased likelihood of having intentions to pursue new ventures. By comparing two groups of participants, our results suggest that government-mandated entrepreneurship education in Indonesia has a more substantial impact on employees' entrepreneurial intentions and turnover intentions.

**Originality/value** – This study, based on a unique sample from Indonesia, explores the entrepreneurial entry of organizational employees and the long-term effects of entrepreneurship education.

**Keywords** Turnover intentions, Entrepreneurial intention, Career commitment, Corporate entrepreneurs, Quality education

**Paper type** Research paper

## 1. Introduction

The influence of entrepreneurial education on individuals' sustained interest in initiating new ventures has been a topic of considerable intrigue within the entrepreneurship research. Despite extensive inquiry, convincing empirical evidence elucidating this relationship remains elusive. Over the past two decades, entrepreneurial education has gained momentum across global universities, aiming to nurture students' entrepreneurial mindset and business acumen (Kuratko and Morris, 2018). Notably, Indonesia has emerged as a prominent example of this trend through its national policy initiative aimed at ingraining an entrepreneurial spirit within the educational framework. This initiative mandates entrepreneurship training for all students. Since the reform's implementation in 2010, the Indonesian government has demonstrated its commitment to fostering entrepreneurship among students by organizing an annual national entrepreneurship contest, providing robust institutional support and



New England Journal of Entrepreneurship
Emerald Publishing Limited
2574-8904
DOI 10.1108/NEJE-02-2024-0009

incorporating graduate entrepreneurship rates as a metric for university performance evaluation. The distinctive context of higher education in Indonesia presents a valuable opportunity to explore the enduring impact of entrepreneurial education on individuals' motivation to initiate new ventures.

From the lens of social cognitive career theory (van Hooft *et al.*, 2021), academia has delineated entrepreneurship and employment as the divergent career pathways for graduates, with individuals gravitating toward the path that aligns with their aspirations and perceived professional efficacy. Thus, entrepreneurial education has become a key influencer of the desire to embark on new ventures (Chang *et al.*, 2021). Notably, initiating a startup often demands considerable social and financial resources, indicating that university graduates might not immediately venture into entrepreneurship upon completing their studies (Chang *et al.*, 2022; Şahin *et al.*, 2019). The impact of entrepreneurial education on career intentions has captured the interest of scholars across various disciplines, including higher education, career development and human resources (van Hooft *et al.*, 2021).

Research indicates that entrepreneurial education not only boosts entrepreneurial ambitions but also equips students with employment-related competencies (Roslan *et al.*, 2022; Ahmetoglu *et al.*, 2021). It expands market understanding and cultivates innovative business concepts (Tomy and Pardede, 2020), while simultaneously preparing students for the workforce by enhancing their problem-solving abilities and initiative. This multifaceted effect of entrepreneurial education on career decisions can either solidify job tenure or inspire the creation of new enterprises. Despite its critical role in shaping career trajectories and professional capabilities, the lasting impact of entrepreneurial education on career preferences and job transitions remains underexplored.

According to social cognitive career theory (Zhu *et al.*, 2021), an employee's commitment to their career significantly influences their intention to exit an organization (Lin, 2020). Employees might consider leaving if they perceive a lack of advancement opportunities within their current role or are poised to actualize their entrepreneurial ambitions (Ye *et al.*, 2021). While considerable research has focused on the nexus between entrepreneurship education, entrepreneurial intent and behavior, less attention has been paid to how such education impacts the career decisions of individuals in established firms. The goal of this study is to shed new lights on the long-term relationship between entrepreneurial education and individuals' entrepreneurial aspirations, commitment to the current careers and their intentions to leave the current jobs to start their own businesses. Essentially, this paper offers a comparative analysis of the career paths of employees who have participated in mandatory entrepreneurship education versus those who have not, shedding light on how such education can fundamentally alter job transition dynamics.

## 2. Theory and hypotheses

### *2.1 Social cognitive career theory*

As a seminal view in mapping an individual's professional development trajectory, the social cognitive career theory (SCCT; Lent *et al.*, 1994) has played a pivotal role in explaining the intention toward entrepreneurship. In the entrepreneurship research, SCCT provides an intentionality-based framework that explains individuals' proclivity for an entrepreneurial career by focusing on their self-efficacy of startup activities (Liñán *et al.*, 2011b), outcome expectations about new venture creation and perceived supportiveness of the institutional environment (Cardon and Kirk, 2015). SCCT posits that educational experiences are pivotal in fostering individuals' professional intent by molding their career-related self-efficacy (Das *et al.*, 2024). Given the phenomenon of high turnover rates for companies worldwide, SCCT has been applied to explore the antecedents of employees' intentions to leave their current jobs. We draw upon the SCCT to investigate the structural relationship between

entrepreneurial education, entrepreneurial intentions and career commitment in influencing their long-term entrepreneurship that triggers their intention to leave the company to start a new venture (Lv *et al.*, 2021).

### *2.2 Entrepreneurship education and entrepreneurial intentions*

The intricate and challenging startup procedures, combined with the inherent risks of establishing new business ventures, make the lack of entrepreneurial experience a major obstacle for individuals aiming to turn their business ideas into functioning businesses (Lamb *et al.*, 2022; Schulze and Dada, 2024). Entrepreneurship education has evolved to be a distinctive pedagogy that focuses on not only the establishment of new companies but also the theory and practice behind the behaviors of stakeholders in the startup ecosystem, such as entrepreneurs, investors, governments and the market. Research suggests that entrepreneurship education is the driver of students' entrepreneurial intention by boosting their positive attitudes toward an entrepreneurial career, adjusting the mindset for coping with the uncertainty of venturing activities and developing the cognitive ability to identify/capitalize on the unmet market demand (Fayolle *et al.*, 2006). In addition, by receiving entrepreneurial education, students will have built up a better understanding of the access to resources that they need to kick off the early stages of startup activities, such as governmental schemes for small businesses and exposure to potential investors, etc. Therefore, entrepreneurship education has been considered a platform where students accumulate their human, social and financial capital as the basis of their subsequent startup initiatives (Şahin *et al.*, 2019). Taken together, through strengthening students' entrepreneurial self-efficacy and ability to capture market opportunities, entrepreneurship education will broaden the vision of business development and cultivate the proactiveness in starting a new business. With the logic mentioned above, we propose the following:

*H1*. Entrepreneurship education is positively associated with entrepreneurial intention.

### *2.3 Entrepreneurship education and career commitment*

Knowledge is a vital cognitive resource that determines an individual's career preference, decision-making and behavior. Career commitment is an employee's dedication to their current job and the professional career they have engaged in (Zhu *et al.*, 2021). Employees' career commitment accrues as they continuously invest their personal resources (e.g. time, knowledge, opportunity and loyalty) in their current role within a professional path (Lin, 2020). A considerable body of evidence indicates that employees' dedication to their careers is an essential factor in the success of any organization, as a highly committed workforce is likely to display greater work motivation, exhibit more organizational citizenship behavior and have less intention to leave (Spurk *et al.*, 2019). When employees are committed to their careers, they are more likely to act for the common good of the organization, leading to better performance and productivity (Zhu *et al.*, 2021). Employees' career commitment helps a company save the various costs resulting from hiring and training as well as staff turnover. Furthermore, when employees stay on the same career trajectory for the long term, it is more likely for them to develop deep skillsets that can help the business stay efficient and well-coordinated in an ever-changing market (Son and Kim, 2021). By maintaining employees' career commitment and the calling their professional occupation, companies can sharpen organizational competitiveness by preserving skilled talent and enriching knowledge capital.

Although entrepreneurship education aims to develop students' enterprising spirit and the ability to start/operate a new business, most participants may not devote themselves to new venture creation but pursue an employment-based career (Neergaard *et al.*, 2021). Nevertheless, entrepreneurship education has been found to benefit the participants'

professionalism in various ways, such as gaining the cognitive skills for problem identification, promoting creative ideation and developing competence in risk evaluation (Villena-Martínez *et al.*, 2024). According to the recent findings of Alsos *et al.* (2022), entrepreneurship education is a catalyst for students' entrepreneurial competencies, which not only arouse the participants' career interest in new business formation but also bolster their subsequent career development as an intrapreneur and innovator in established organizations. Employees who have had startup experience or received entrepreneurship education are more likely to identify innovative ideas, take calculated risks in implementing the ideas and achieve goals through teamwork and effective communication (Ahmetoglu *et al.*, 2017). Therefore, not only does entrepreneurship education develop individuals' human capital for new venture initiatives but also it elevates the professional skills that allow them to thrive in and be committed to an employment-based professional career. With this rationale, we propose:

*H2.* Entrepreneurship education is positively associated with career commitment.

### *2.4 Entrepreneurship education and turnover intention*

While the entrepreneurial aspirations inspired by entrepreneurial education do not typically result in the immediate launch of a new business, the long-term effects of engaging with entrepreneurial processes can be profound. This can manifest as shifts in career attitudes, an increased propensity for risk-taking and enhanced mental resilience (Larsen and Neergaard, 2024; Lv *et al.*, 2021). From the perspective of self-concept theory (Mai and Dickel, 2021), employees who receive entrepreneurial education may be more likely to quit their jobs because they have developed a sense of self-reliant identity that is more closely aligned with being an entrepreneur than with being an employee. The pro-entrepreneurship self-identity creates dissonance between a stable, structurally supervised employment job and a venturing career where they enjoy more autonomy in building up their own business by grasping market opportunities (Ahmetoglu *et al.*, 2021). Entrepreneurial education equips students with the knowledge and business skills needed for launching a startup project, enhancing an individual's entrepreneurial self-efficacy and the motivation to pursue an entrepreneurial career path.

Entrepreneurial education plants a seed of entrepreneurship in students' minds and self-identity, and it begins to sprout when they are ready for an enterprising career through years of accumulation of personal resources, including work experience, financial capital and social capital (Ahmetoglu *et al.*, 2021). Building on this rationale, employees with entrepreneurial education are more likely to quit their job for starting up a new business. Hence,

*H3.* Entrepreneurship education is positively associated with turnover intention.

### *2.5 Entrepreneurial intention on career commitment and turnover intention*

Entrepreneurship is a career path profoundly impacted by the extent to which individuals possess and harness the knowledge and resources for new venture creation (Das *et al.*, 2024). Employees with strong entrepreneurial intentions may exhibit low engagement with their current role but actively seek market opportunities and supporting infrastructure that enables them to embark upon an entrepreneurial journey (Zhu *et al.*, 2021). Additionally, employees interested in becoming entrepreneurs may invest more time researching potential businesses and networking with potential partners or investors, further decreasing their loyalty and dedication toward their positions in the current firm (Ye *et al.*, 2021). Prior research shows that participation in entrepreneurship courses or training programs equips students with entrepreneurial competence and increases their motivation to become

entrepreneurs; the impact may last for a decade (Lv *et al.*, 2021). Employees with strong aspirations for venturing endeavors tend to stay committed to an entrepreneurial career rather than their current employment position, thereby leading to a greater likelihood of voluntary turnover for starting a new business (Cardon and Kirk, 2015; Lin, 2020). Accordingly, we propose:

*H4.* Entrepreneurial intention is negatively associated with career commitment.

*H5.* Entrepreneurial intention is positively associated with turnover intention.

### *2.6 Mediating effect of entrepreneurial intention and career commitment on turnover intention*

Research has revealed that the alignment between personal growth, self-identity and expected job development is essential for fostering meaningful career commitment (Son and Kim, 2021). As a result, employees who are highly committed to their career tend to be more satisfied with their job and organization, feel more loyal toward their employer and demonstrate better organizational citizenship behaviors – ultimately reducing turnover intentions.

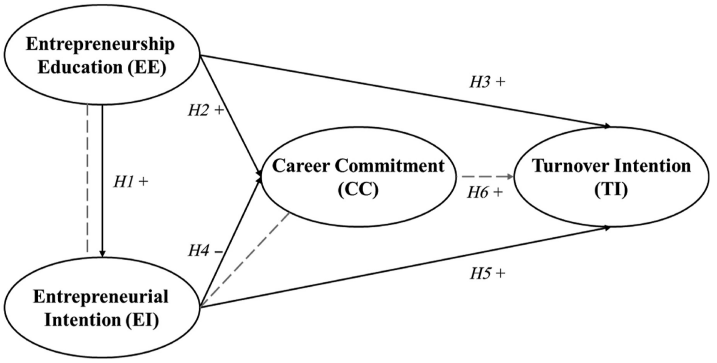
As discussed above, entrepreneurship education experience can provoke individuals' entrepreneurial intentions. In line with Fayolle and Gailly (2015), learning entrepreneurship sharpens students' ability to identify opportunities, develop ideas into viable products or services, craft a feasible business model, secure financing and learn from setbacks. Moreover, entrepreneurial education encourages students to gain hands-on experience and self-efficacy in running a new firm (Gera *et al.*, 2024; Şahin *et al.*, 2019). As their professional career unfolds, students with work experience become more aware of the risks associated with entrepreneurship and are better equipped to assess and handle them (Lin, 2020). The existing literature implies that employees with a keen interest in starting their own business may leave the established organization and do so on their own (Murnieks *et al.*, 2020; Ye *et al.*, 2021). Taken together, the effects of entrepreneurship experience obtained from startup training courses or programs may last for a long time and exert impacts on individuals' job-switching decisions by influencing their career commitment and arousing the intentions to leave their current job for an enterprising career. Therefore, we propose:

*H6.* Entrepreneurship education positively affects employees' turnover intention through the dual-mediating effects of entrepreneurial intention and career commitment.

## 3. Methodology

### *3.1 Research framework*

The conceptual framework of this study is shown in Figure 1. By focusing on employees in established companies, this study aims to disentangle the longitudinal effect of entrepreneurship education on individuals' long-term entrepreneurship and intention to leave their current job for pursuing venturing activities. The study's empirical context is the workforce of Indonesia, which provides a unique institutional setting for testing our hypotheses. Specifically, given that in 2010 the Indonesian government launched a nationwide policy that makes entrepreneurship education a compulsory curriculum of most higher education institutes, the year 2014 (e.g. four years after the policy enactment) shall be the cut-off point between the batch of students who received systematic entrepreneurship training and those who did not.

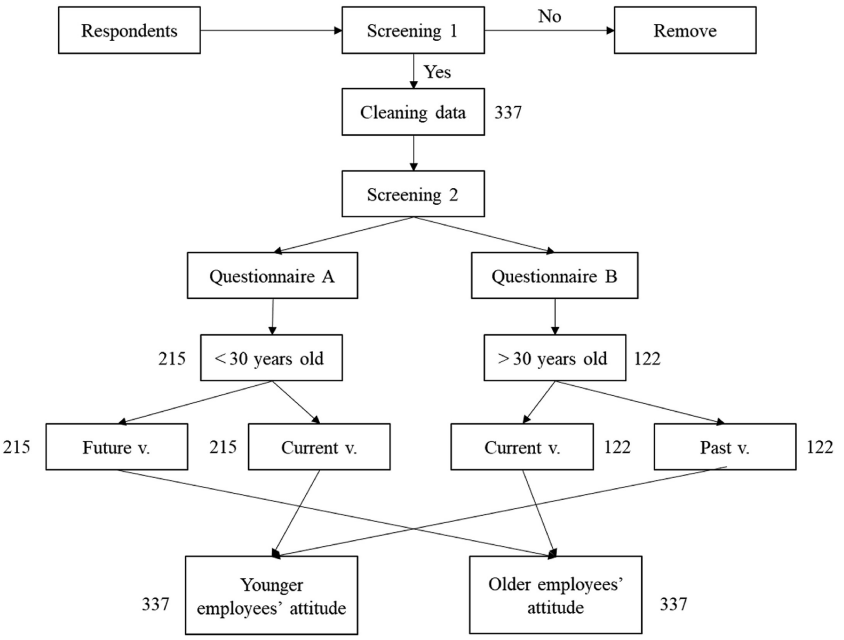



**Note(s):** *H6* depicts entrepreneurship education's positive indirect relationship with turnover intention through a dual-mediating effect (i.e. EE → EI → CC → TI), as illustrated by the dashed gray line
**Source(s):** Figure by authors

**Figure 1.**
Research model and predictions

### *3.2 Sample and procedure*

Since the regulation of nationwide entrepreneurship education in Indonesia was activated in 2014 (issued in 2010), we compared the effect of compulsory entrepreneurial education with two cohorts who graduated before and after 2014. We collected our data through an online survey platform (i.e. Google Form) following several steps as illustrated in Figure 2.




**Source(s):** Figure by authors

**Figure 2.**
Data collection procedure

The targeted subjects were screened by the following criteria: We first screened whether the participant was an Indonesian, graduated from Indonesian higher education (for a bachelor degree), and is currently full-time working for a company. In the second step, we assigned participants different survey versions based on whether they graduated years before and after 2014. For the cohort of before-2014 graduates, they were older (30 years old or older) and without the compulsory entrepreneurial education. The questionnaire they answered involved two sets of questions regarding their perceptions and thoughts at the *current time* (noted as $old_c$) and *at 10 years before* (noted as $old_{-10}$), respectively. For the cohort of graduates after 2014, they are younger and took compulsory entrepreneurial education. The questionnaire they answered involved two sets of questions regarding their perceptions and thoughts at the *current time* (noted as $young_c$) and *at 10 years after* (noted as $young_{+10}$), respectively, see Table 1. The data does not allow us to make a clean comparison between the two cohorts directly; however, we attempted to reduce some noises, i.e. social status bias, wealth effect, age effect, etc. by cognitively placing participants in different temporal presences. Therefore, we compare $old_c$ to $young_{+10}$ for the older employee's attitude and $old_{-10}$ to $young_c$ for the younger employee' attitude with more parallel conditions between the two cohorts. We reached out to the targeted sampling subjects by sending out invitations to participate in the survey via LinkedIn, the leading social networking and professional platform. Previous studies on entrepreneurial behaviors have utilized LinkedIn to connect with entrepreneurs and professionals for gathering empirical data (Graziano *et al.*, 2023; Piazza *et al.*, 2023). The questionnaire was designed in English, translated into Indonesian by a professional translator and used a back-translation approach to ensure that the item meanings remained intact. After removing the invalid and incomplete responses, a total of 337 participants were included in our sample for further analysis.

### *3.3 Measures*

All variables were measured using multiple-item scales developed in previous studies. The scale of entrepreneurship education (EE), which was adopted from Lv *et al.* (2021), consists of nine items. Entrepreneurship education captures the extent to which individuals receive training programs for entrepreneurial activities (e.g. courses, competitions and grants for startup initiatives) when they study at college. To measure entrepreneurial intentions, we adopted the six-item scale developed by Liñán *et al.* (2011a). For career commitment (CC), a four-item scale was adapted from the work of Kim *et al.* (2012) and Chang (1999). Turnover intention (TI), which reflects the possibility of an employee leaving his/her current job for starting a new business, was measured on a three-item scale obtained from Liñán *et al.* (2011a, b). Given that our sample consists of two cohorts of participants (i.e. those below age 30 who received compulsory entrepreneurship education and those above age 30 who did not receive the compulsory entrepreneurship education), respondents were directed to different versions of the questionnaire based on their age. To measure EE, EI, CC and TI in the appropriate decision scenario, we set up the time frames for each item. For instance, an original question

| Decision scenarios | Graduation year<br>Questionnaire A (<30 y/o) | Questionnaire B (>30 y/o) |
|---|---|---|
| Younger employees | Current<br>Measurement ($young_c$, as is) | Past measurement ($old_{-10}$, as was) |
| Older employees | Future<br>Measurement ($young_{+10}$, as if) | Current<br>Measurement ($old_c$, as is) |

**Source(s):** Table by authors

**Table 1.** Comparison illustration of two cohorts

item from construct TI is "*I have been trying to set up a business*" as the current scenario; when it is measured in the past scenario, the item is modified as "*During the past 10 years, I have tried to set up a business*" and when it is measured in the future scenario, the item is modified as "*In the next 10 years, I will try to set up a business*". All items were measured on a seven-point Likert scale (1 = totally disagree; 7 = totally agree). All questionnaire items are presented in the Appendix.

In addition, we controlled for variables that have been found to profoundly affect individuals' entrepreneurial intention and career decisions, namely age, marital status, course experience and education major (Chang *et al.*, 2021; Fayolle and Gailly, 2015; Lent *et al.*, 1994).

## 4. Results

### *4.1 Measurement model*

In this study, the evaluation of the measuring model serves as the basis for evaluating the quality of the constructs. Before determining construct validity and reliability, loadings are investigated for each factor in the model.

*4.1.1 Factor loadings.* As shown in Table 2, we divided our sample into the cohort of younger employees (under age 30) and older employees (above age 30) in running the factor analysis. According to the results, all factor loadings are above the threshold recommended in the prior literature (Hair and Babin, 2018). Table 2 shows the factor loadings of all questionnaire items included in the study.

*4.1.2 Reliability and validity analysis.* As shown in Table 3, the test of measurement reliability and validity for all constructs is conducted on two sub-samples of this study. Based on the confirmatory factor analysis, the results suggest that the average variance extracted (AVE) and composite reliability (CR) for all construct measures meet the criteria recommended in the literature (Hair and Babin, 2018), indicating that the scales used in this study have adequate reliability and convergent validity. We adopted the analytic approach proposed by Fornell and Bookstein (1982) to examine the discriminant validity. Results indicate that the square roots of AVE for all constructs are all greater than their

| | Younger employees | | | | Older employees | | | |
|---|---|---|---|---|---|---|---|---|
| | EE | EI | CC | TI | EE | EI | CC | TI |
| EE1 | 0.877 | | | | 0.877 | | | |
| EE2 | 0.892 | | | | 0.893 | | | |
| EE3 | 0.890 | | | | 0.890 | | | |
| EE4 | 0.783 | | | | 0.783 | | | |
| EE5 | 0.797 | | | | 0.797 | | | |
| EI1 | | 0.858 | | | | 0.928 | | |
| EI2 | | 0.889 | | | | 0.905 | | |
| EI3 | | 0.866 | | | | 0.884 | | |
| EI4 | | 0.869 | | | | 0.850 | | |
| EI5 | | 0.862 | | | | 0.878 | | |
| EI6 | | 0.907 | | | | 0.927 | | |
| CC1 | | | 0.884 | | | | 0.833 | |
| CC2 | | | 0.852 | | | | 0.863 | |
| CC3 | | | 0.843 | | | | 0.856 | |
| CC4 | | | 0.817 | | | | 0.849 | |
| TI1 | | | | 0.933 | | | | 0.888 |
| TI2 | | | | 0.930 | | | | 0.929 |
| TI3 | | | | 0.782 | | | | 0.863 |

**Table 2.**
Factor loadings

**Source(s):** Table by authors

| | CR | AVE | EE | CC | TI | EI |
|---|---|---|---|---|---|---|
| *Younger employees* | | | | | | |
| EE | 0.928 | 0.721 | *0.849* | | | |
| CC | 0.912 | 0.721 | −0.197 | *0.849* | | |
| TI | 0.915 | 0.782 | 0.304 | −0.716 | *0.884* | |
| EI | 0.952 | 0.766 | 0.506 | −0.554 | 0.635 | *0.875* |
| *Older employees* | | | | | | |
| EE | 0.928 | 0.721 | *0.849* | | | |
| CC | 0.913 | 0.723 | −0.178 | *0.850* | | |
| TI | 0.922 | 0.799 | 0.331 | −0.568 | *0.894* | |
| EI | 0.961 | 0.809 | 0.490 | −0.624 | 0.667 | *0.896* |

**Source(s):** Table by authors

**Table 3.**
Reliability and validity of construct measurement

correlation coefficients with any other variables in the correlation matrix. Therefore, the discriminant validity for the variable measurement is established.

### *4.2 Hypothesis testing*

The present study employs a structural equation modeling (SEM) for testing the hypotheses. The bootstrapping approach was utilized to verify the indirect effects. Thus, at a confidence level of 95%, it is examined whether the existence of non-mediation is possible, that is, the indirect effect is zero for several bootstrap samples (Brown, 2015). Results suggest that the model fit of the structural model is satisfactory for both sub-samples (younger employees: Chi-Square/df = 2.528, goodness-of-fit index (GFI) = 0.904, normed fit index (NFI) = 0.947, comparative fit index (CFI) = 0.967, root mean square error of approximation (RMSEA) = 0.067; older employees: Chi-Square/df = 2.104, GFI = 0.922, NFI = 0.957, CFI = 0.977 and RMSEA = 0.057).

Table 4 displays the results of the SEM. The In the sample of younger employees, EE positively affected EI ($\beta = 0.501$, $p < 0.01$) but shows not significant effect on CC ($\beta = 0.104$, *n.s.*) and TI ($\beta = -0.083$, *n.s.*). In the older employees, EE was positively related to EI ($\beta = 0.481$, $p < 0.01$) and CC ($\beta = 0.156$, $p < 0.01$). In contrast, EE does not have a positive impact on TI as predicted by the H3 ($\beta = -0.203$, $p < 0.01$). Based on these results, H1 was supported, H2 was partially supported and H3 was not supported.

Second, we examine the direct impacts of EI on the CC and TI. In the sample of younger employees, results show that EI is negatively related to CC ($\beta = -0.605$, $p < 0.01$) and positively related to TI ($\beta = 0.378$, $p < 0.01$). For the sample of older employees, EI was negatively associated with CC ($\beta = -0.682$, $p < 0.01$) and positively associated with TI ($\beta = 0.629$, $p < 0.01$). Therefore, H4 and H5 are both supported.

Third, we examine the relationship between CC and TI. The tests on both younger and older employees show that CC is negatively related to TI ($\beta = -0.494$, $p < 0.01$ and $\beta = -0.166$, $p < 0.01$, respectively). Furthermore, we investigated the EE's indirect impact on TI through the mediating role of EI. Results confirm that EI mediates the relationship between EE and TI for the younger employees ($\beta = 0.227$, LB = 0.125 and UB = 0.318) and older employees ($\beta = 0.389$, LB = 0.263 and UB = 0.511) with the 95% confidence intervals excluding zero. Likewise, we test the EE's indirect effect on TI via the mediating effect of CC. We found that CC also plays a mediating role that underpins the negative indirect effect of EE on TI for both sub-samples (younger employees: $\beta = -0.062$, LB = −0.134 and UB = −0.005; older employees: $\beta = -0.033$, LB = −0.080 and UB = −0.009) and the two confidence intervals do not include zero.

| Younger employees<br>Hypotheses | Estimate | SE | CR | *p*-value |
|---|---|---|---|---|
| EE → EI (H1) | 0.501 | 0.051 | 9.255 | 0.000 |
| EE → CC (H2) | 0.104 | 0.058 | 1.725 | 0.085 |
| EE → TI (H3) | −0.083 | 0.059 | −1.679 | 0.093 |
| EI → CC (H4) | −0.605 | 0.067 | −9.208 | 0.000 |
| EI → TI (H5) | 0.378 | 0.069 | 6.974 | 0.000 |
| CC → TI | −0.494 | 0.065 | −9.443 | 0.000 |
| *Control variable* | | | | |
| Age | −0.104 | 0.151 | −2.336 | 0.019 |
| Marital status | −0.048 | 0.122 | −1.332 | 0.183 |
| Course experience | 0.328 | 0.170 | 7.023 | 0.000 |
| Educational major | 0.007 | 0.176 | 0.186 | 0.852 |

| Mediating relation | Estimate | SE | LB | UB | T-T |
|---|---|---|---|---|---|
| EE → EI → TI | 0.227 | 0.046 | 0.125 | 0.318 | 0.015 |
| EE → CC → TI | −0.062 | 0.033 | −0.134 | −0.005 | 0.022 |
| EE → EI → CC → TI (H6) | 0.180 | 0.035 | 0.120 | 0.239 | 0.014 |

| Hypotheses | Estimate | SE | CR | *p*-value |
|---|---|---|---|---|
| *Older employees* | | | | |
| EE → EI (H1) | 0.481 | 0.058 | 8.981 | 0.000 |
| EE → CC (H2) | 0.156 | 0.052 | 2.793 | 0.005 |
| EE → TI (H3) | −0.203 | 0.062 | −4.205 | 0.000 |
| EI → CC (H4) | −0.682 | 0.052 | −10.998 | 0.000 |
| EI → TI (H5) | 0.629 | 0.067 | 11.124 | 0.000 |
| CC → TI | −0.166 | 0.068 | −3.385 | 0.000 |
| *Control variable* | | | | |
| Age | 0.136 | 0.158 | 3.109 | 0.002 |
| Marital status | −0.007 | 0.128 | −0.189 | 0.850 |
| Course experience | 0.295 | 0.179 | 6.460 | 0.000 |
| Educational major | 0.088 | 0.186 | 2.257 | 0.024 |

| Mediating relation | Estimate | SE | LB | UB | T-T |
|---|---|---|---|---|---|
| EE → EI → TI | 0.389 | 0.065 | 0.263 | 0.511 | 0.025 |
| EE → CC → TI | −0.033 | 0.015 | −0.080 | −0.009 | 0.006 |
| EE → EI → CC → TI (H6) | 0.070 | 0.027 | 0.024 | 0.137 | 0.004 |

**Source(s):** Table by authors

**Table 4.**
Results of structural equation modeling

The tests in the third step justify the necessity of examining hypothesis 6, which postulates the dual-mediating effects of entrepreneurial education on employees' turnover intention through entrepreneurial intention and career commitment. According to the results obtained from 5,000 bootstrapping estimations, the EE's indirect effect on TI through EI and CC is positively significant for the subsample of younger employees ($\beta$ = 0.180, LB = 0.120 and UB = 0.239) and for the sub-sample of older employees ($\beta$ = 0.070, LB = 0.024 and UB = 0.137); the 95% confidence intervals for the two sub-samples exclude zero too. Based on the above-mentioned results, H6 is supported.

## 5. Discussion

### *5.1 Theoretical implications*

Studies indicate that a majority of individuals do not immediately pursue entrepreneurial ventures after completing entrepreneurship training programs (Alsos *et al.*, 2022). However, the literature has yet to fully address how entrepreneurship education impacts the long-term career paths of students. This study leverages longitudinal research to examine the enduring effects of entrepreneurship education on the entrepreneurial intentions and career choices of individuals employed in established firms, utilizing social cognitive career theory (Lent *et al.*, 1994) and concepts of entrepreneurial intentionality (Kuratko, 2005; Kuratko and Morris, 2018). Focusing on Indonesia, where entrepreneurship education became a mandatory aspect of higher education in 2010 (implemented in 2014), this research investigates the potential for entrepreneurship education to influence the intentions of company employees to start their own businesses, particularly examining intentional variances between groups with and without mandatory entrepreneurship education through the lens of younger versus older employees.

The findings suggest that entrepreneurship education significantly affects the propensity of employees to leave their jobs to embark on entrepreneurial endeavors, enhancing their entrepreneurial aspirations while diminishing their loyalty to their current positions. According to Treanor *et al.* (2021), individuals educated in entrepreneurship are more receptive to innovation and more adept at seizing market opportunities, a reflection of how entrepreneurship education fosters cognitive skills and knowledge that motivate employees toward entrepreneurial pursuits. Specifically, such education prepares individuals to deal with uncertainties and take risks by assessing the benefits and drawbacks of leaving their jobs (Lembana *et al.*, 2021). Thus, collegiate entrepreneurship education indirectly but lastingly influences entrepreneurial ambitions, lowering commitment to present employment and increasing entrepreneurial intentions.

A comparison between two groups – one with extensive entrepreneurship education and the other with minimal – revealed that thorough engagement with entrepreneurial education significantly boosts employees' enthusiasm for entrepreneurship, especially among younger employees who benefited from compulsory entrepreneurship training. Entrepreneurship education has become a unique pedagogical approach that emphasizes knowledge creation and experience in innovation, problem-solving and risk-taking through a practice-based learning model (Neergaard *et al.*, 2021; Thomassen *et al.*, 2020). This method, which involves startup projects, interaction with market players and collaborative learning, not only strengthens entrepreneurial self-efficacy but also prepares participants for the challenges of starting new ventures.

Interestingly, while entrepreneurship education tends to increase the likelihood of employees starting new businesses by fostering entrepreneurial intentions, the study uncovered that previous entrepreneurship training directly enhances commitment to their current careers among older employees, a contrast to its negligible impact on younger employees. Entrepreneurial training is deemed valuable for its comprehensive skillset and emotional resilience against failure (Shepherd *et al.*, 2009). Hence, entrepreneurship education can also enhance job satisfaction and loyalty among older employees, albeit this value develops over time.

For younger employees, the emphasis on entrepreneurship in their education might initially seem less pertinent to their current job roles. However, this view tends to shift with age, aligning with observations by Chang *et al.* (2022) that indicate a marked decrease in entrepreneurial endeavor post-mid-30s. Our results indicate that, for younger employees, entrepreneurial education does not have a significant association with their intentions to leave their current positions, despite its positive effect on fostering their entrepreneurial aspirations. Specifically, being at the nascent stages of their career paths, younger employees

are more adept at channeling the entrepreneurial mindset and skills acquired through mandatory entrepreneurial education into the exploration of startup opportunities (Murnieks *et al.*, 2020; Schulze and Dada, 2024). Although entrepreneurial education might not immediately influence younger employees' commitment to their current careers, it acts as a catalyst for fostering their entrepreneurial ambitions.

### *5.2 Practical implications*

While entrepreneurship education may not directly lead to immediate startup endeavors by students, it effectively plants a conceptual seed within their minds. The knowledge and experience gained from subsequent professional endeavors act as nourishment, enabling this seed to flourish into resilience, professional adeptness and the confidence to establish their own enterprises. For governments focused on innovation-driven economic growth and sectoral evolution, embedding entrepreneurship within educational systems and nurturing a collaborative ecosystem that includes partnerships between universities, businesses, investors and policymakers are pivotal actions. More crucially, the evaluation of entrepreneurship education's success should extend beyond short-term quantitative metrics (i.e. startup formation rates) to encompass long-term societal effects, such as a qualitative evaluation of the entrepreneurial culture's pervasiveness. This approach can have a profound impact on steering a country toward industrial innovation and economic rejuvenation.

Individuals with entrepreneurial experience are often distinguished by their comprehensive skillset, which encompasses problem-solving, project management, marketing and innovation as well as notable psychological attributes such as risk-taking propensity, resilience and a growth mindset. Despite the high value traditionally placed on these qualities, recent research by Botelho and Chang (2022) suggests that having a background as a startup founder might negatively impact an individual's employability. Recruiters may view candidates with entrepreneurial backgrounds as potentially difficult to assimilate into existing organizational cultures, fearing that they might exhibit lower engagement levels and a greater likelihood of leaving the company. However, our study reveals that while entrepreneurship education may heighten the likelihood of long-term turnover intentions, it does not imply that prior entrepreneurial endeavors diminish an individual's contribution. In fact, entrepreneurship education aims not only to stimulate the creation of new businesses but also to enrich the caliber of human resources. In a market characterized by relentless uncertainty and swift transformations, entrepreneurship's relevance extends beyond the realm of self-employment, proving indispensable for a knowledge-driven workforce adept at navigating these changes.

Far from being seen as liabilities, employees with entrepreneurial experiences are valuable assets to their organizations. To maintain their engagement, leadership should cultivate a workplace that nurtures their entrepreneurial spirit, sparks their work enthusiasm and resonates with their personal goals (Zenger and Folkman, 2022). Providing them with the autonomy to take strategic risks and encouraging a culture of inquiry can render their roles more impactful, solidify their dedication to their careers and enable them to contribute their entrepreneurial expertise for the organization's benefit as intrapreneurs.

### *5.3 Limitation and future research*

This study is not without limitations. First, despite the uniqueness of our sample that allows us to adopt a quasi-natural experimental approach to testing the effect of entrepreneurship education, the findings should be interpreted with caution. Specifically, because our sample is obtained in Indonesia, it is unclear if our findings are affected by the country's institutional system and contextual dynamics, leading to a concern over the study's intercultural

generalizability. A cross-national experiment is recommended for future research to control for the potential bias of the methodological design. In addition, future studies may yield more robust results by adopting a longitudinal approach to data collection. Second, it is plausible that employees' entrepreneurship is rooted in their professional background and their satisfaction with their current job. For example, the opportunity cost for high-income employees in an established company can be too high for them to leave the job and take the risk of new venture creation. Third, our model does not consider employees' familial conditions (e.g. marital status, average family income, financial abundance, etc.), which are the essential factors in determining adults' entrepreneurial motivation. This line of work can benefit from the effort in a comprehensive investigation of employees' motivation and decisional process in starting a new business. Finally, according to prior research (Murnieks *et al.*, 2020), individuals' gender and the industry in which they currently work are two fundamental factors that may either encourage or hinder their entrepreneurial motivation; this is due to the dynamics in the perceived startup feasibility, professional circumstances, and identity centrality, ultimately contributing to different levels of affordable loss. Therefore, we encourage future research to disentangle the complex relationship between entrepreneurial education and the different aspects of employees' career development in order to gain a more comprehensive understanding of the factors influencing employees' entrepreneurial mindsets (Ye *et al.*, 2023).

## References


Ahmetoglu, G., Chamorro-Premuzic, T., Klinger, B. and Karcisky, T. (2017), *The Wiley Handbook of Entrepreneurship*, John Wiley & Sons, Hoboken, New Jersey.

Ahmetoglu, G., Nefyodova, V., Chamorro-Premuzic, T. and Codreanu, S.C. (2021), "What leads entrepreneurial employees to want to quit, or stay in, their job? Exploring two conflicting mechanisms", *Applied Psychology*, Vol. 70 No. 2, pp. 738-758, doi: 10.1111/apps.12250.

Alsos, G., Hägg, G., Lundqvist, M., Politis, D., Stockhaus, M., Williams-Middleton, K. and Djupdal, K. (2022), "Graduates of venture creation programs–where do they apply their entrepreneurial competencies?", *Small Business Economics*, Vol. 60, pp. 1-23, doi: 10.1007/s11187-022-00641-6.

Botelho, T.L. and Chang, M. (2022), "The evaluation of founder failure and success by hiring firms: a field experiment", *Organization Science*, Vol. 34 No. 1, pp. 484-508, doi: 10.1287/orsc.2022.1592.

Brown, T.A. (2015), *Confirmatory Factor Analysis for Applied Research*, Guilford Publications, New York, New York.

Cardon, M.S. and Kirk, C.P. (2015), "Entrepreneurial passion as mediator of the self–efficacy to persistence relationship", *Entrepreneurship Theory and Practice*, Vol. 39 No. 5, pp. 1027-1050, doi: 10.1111/etap.12089.

Chang, E. (1999), "Career commitment as a complex moderator of organizational commitment and turnover intention", *Human Relations*, Vol. 52 No. 10, pp. 1257-1278, doi: 10.1177/001872679905201002.

Chang, Y.Y., Wannamakok, W. and Kao, C.P. (2021), "Entrepreneurship education, academic major, and university students' social entrepreneurial intention: the perspective of Planned Behavior Theory", *Studies in Higher Education*, Vol. 47 No. 11, pp. 1-20, doi: 10.1080/03075079.2021.2021875.

Chang, Y.Y., Sanchez-Loor, D.A., Hsieh, H.C. and Chang, W.S. (2022), "How aging affects opportunity-necessity entrepreneurship: demographic and perceptual view", *Australian Journal of Management*, Vol. 48 No. 1, pp. 67-89, doi: 10.1177/03128962221101084.

Das, P., Kar, B. and Misra, S.N. (2024), "Career course, coach, and cohort framework: a design thinking approach to enhance career self-efficacy", *The International Journal of Management Education*, Vol. 22 No. 1, 100898, doi: 10.1016/j.ijme.2023.100898.

Fayolle, A. and Gailly, B. (2015), "The impact of entrepreneurship education on entrepreneurial attitudes and intention: hysteresis and persistence", *Journal of Small Business Management*, Vol. 53 No. 1, pp. 75-93, doi: 10.1111/jsbm.12065.

Fayolle, A., Gailly, B. and Lassas-Clerc, N. (2006), "Assessing the impact of entrepreneurship education programmes: a new methodology", *Journal of European Industrial Training*, Vol. 30 No. 9, pp. 701-720, doi: 10.1108/03090590610715022.

Fornell, C. and Bookstein, F.L. (1982), "Two structural equation models: LISREL and PLS applied to consumer exit-voice theory", *Journal of Marketing Research*, Vol. 19 No. 4, pp. 440-452, doi: 10.2307/3151718.

Gera, N., Vesperi, W., Rohatgi, S. and Jain, N. (2024), "The impact of education on the transition from university students to entrepreneurs: a theory of planned behaviour perspective", *Management Decision*, Vol. ahead-of-print No. ahead-of-print, doi: 10.1108/md-10-2023-1772.

Graziano, E.A., Fattobene, L., Giovando, G. and Pellicelli, A. (2023), "Contacts on LinkedIn: equity crowdfunding platforms' networks and creators' innovation performance", *European Journal of Innovation Management*. doi: 10.1108/ejim-03-2022-0125.

Hair, J.F. and Babin, B.J. (2018), *Multivariate Data Analysis*, Cengage, Boston, Massachusetts.

Kim, Y.-G., Kim, S. and Yoo, J.-L. (2012), "Travel agency employees' career commitment and turnover intention during the recent global economic crisis", *The Service Industries Journal*, Vol. 32 No. 8, pp. 1247-1264, doi: 10.1080/02642069.2010.545393.

Kuratko, D.F. (2005), "The emergence of entrepreneurship education: development, trends, and challenges", *Entrepreneurship Theory and Practice*, Vol. 29 No. 5, pp. 577-597, doi: 10.1111/j.1540-6520.2005.00099.x.

Kuratko, D.F. and Morris, M.H. (2018), "Examining the future trajectory of entrepreneurship", *Journal of Small Business Management*, Vol. 56 No. 1, pp. 11-23, doi: 10.1111/jsbm.12364.

Lamb, P., Darouichi, O. and Jonczyk Sedes, C. (2022), "The performance of international small and medium-sized enterprises: overview and future research directions", *Canadian Journal of Administrative Sciences/Revue Canadienne des Sciences de l'Administration*, Vol. 39 No. 4, pp. 432-451, doi: 10.1002/cjas.1674.

Larsen, I.B. and Neergaard, H. (2024), "What lies beneath: using student reflections to study the entrepreneurial mindset in entrepreneurship education", *International Journal of Entrepreneurial Behavior and Research*, Vol. 30 No. 5, pp. 1149-1176, doi: 10.1108/ijebr-06-2023-0578.

Lembana, D.A.A., Chang, Y.Y. and Liang, W.K. (2021), "Satisfied with the status quo or dare to challenge the future? Institutional environment and entrepreneurial self-efficacy of company employees", *Review of Integrative Business and Economics Research*, Vol. 10 No. 2, pp. 88-107.

Lent, R.W., Brown, S.D. and Hackett, G. (1994), "Toward a unifying social cognitive theory of career and academic interest, choice, and performance", *Journal of Vocational Behavior*, Vol. 45 No. 1, pp. 79-122, doi: 10.1006/jvbe.1994.1027.

Lin, C.-P. (2020), "Exploring career commitment and turnover intention of high-tech personnel: a socio-cognitive perspective", *The International Journal of Human Resource Management*, Vol. 31 No. 6, pp. 760-784, doi: 10.1080/09585192.2017.1380061.

Liñán, F., Rodríguez-Cohard, J.C. and Rueda-Cantuche, J.M. (2011a), "Factors affecting entrepreneurial intention levels: a role for education", *International Entrepreneurship and Management Journal*, Vol. 7 No. 2, pp. 195-218, doi: 10.1007/s11365-010-0154-z.

Liñán, F., Urbano, D. and Guerrero, M. (2011b), "Regional variations in entrepreneurial cognitions: intentions of university students in Spain", *Entrepreneurship and Regional Development*, Vol. 23 Nos 3-4, pp. 187-215, doi: 10.1080/08985620903233929.

Lv, Y., Chen, Y., Sha, Y., Wang, J., An, L., Chen, T., Huang, X., Huang, Y. and Huang, L. (2021), "How entrepreneurship education at universities influences entrepreneurial intention: mediating effect

based on entrepreneurial competence", *Frontiers in Psychology*, Vol. 2612, 655868, doi: 10.3389/fpsyg.2021.655868.

Mai, R. and Dickel, P. (2021), "What we say= what we think? How implicit beliefs shape nascent entrepreneurial behavior", *Journal of Small Business Management*, Vol. 61 No. 6, pp. 1-41, doi: 10.1080/00472778.2021.1956505.

Murnieks, C.Y., Klotz, A.C. and Shepherd, D.A. (2020), "Entrepreneurial motivation: a review of the literature and an agenda for future research", *Journal of Organizational Behavior*, Vol. 41 No. 2, pp. 115-143, doi: 10.1002/job.2374.

Neergaard, H., Robinson, S. and Jones, S. (2021), "Transformative learning in the entrepreneurship education process: the role of pedagogical nudging and reflection", *International Journal of Entrepreneurial Behavior and Research*, Vol. 27 No. 1, pp. 251-277, doi: 10.1108/ijebr-04-2020-0235.

Piazza, A., Reese, D. and Chung, S.H. (2023), "Venturing through the doors of perception", *Academy of Management Discoveries*, Vol. 9 No. 1, pp. 1-16, doi: 10.5465/amd.2021.0046.

Roslan, M.H.H., Hamid, S., Ijab, M.T., Yusop, F.D. and Norman, A.A. (2022), "Social entrepreneurship in higher education: challenges and opportunities", *Asia Pacific Journal of Education*, Vol. 42 No. 3, pp. 588-604, doi: 10.1080/02188791.2020.1859354.

Şahin, F., Karadağ, H. and Tuncer, B. (2019), "Big five personality traits, entrepreneurial self-efficacy and entrepreneurial intention: a configurational approach", *International Journal of Entrepreneurial Behavior and Research*, Vol. 25 No. 6, pp. 1188-1211, doi: 10.1108/ijebr-07-2018-0466.

Schulze, A. and Dada, O. (2024), "Building strategic human capital resources: the effects of strategic entrepreneurship on employee recruitment and retention", *Journal of Small Business Management*, pp. 1-34, doi: 10.1080/00472778.2024.2322985.

Shepherd, D.A., Covin, J.G. and Kuratko, D.F. (2009), "Project failure from corporate entrepreneurship: managing the grief process", *Journal of Business Venturing*, Vol. 24 No. 6, pp. 588-600, doi: 10.1016/j.jbusvent.2008.01.009.

Son, S. and Kim, D.-Y. (2021), "Organizational career growth and career commitment: moderated mediation model of work engagement and role modeling", *The International Journal of Human Resource Management*, Vol. 32 No. 20, pp. 4287-4310, doi: 10.1080/09585192.2019.1657165.

Spurk, D., Hofer, A., Burmeister, A., Muehlhausen, J. and Volmer, J. (2019), "Occupational commitment from a life span perspective: an integrative review and a research outlook", *Career Development International*, Vol. 24 No. 3, pp. 190-221, doi: 10.1108/cdi-07-2018-0184.

Thomassen, M.L., Williams Middleton, K., Ramsgaard, M.B., Neergaard, H. and Warren, L. (2020), "Conceptualizing context in entrepreneurship education: a literature review", *International Journal of Entrepreneurial Behavior and Research*, Vol. 26 No. 5, pp. 863-886, doi: 10.1108/ijebr-04-2018-0258.

Tomy, S. and Pardede, E. (2020), "An entrepreneurial intention model focussing on higher education", *International Journal of Entrepreneurial Behavior and Research*, Vol. 26 No. 7, pp. 1423-1447, doi: 10.1108/ijebr-06-2019-0370.

Treanor, L., Noke, H., Marlow, S. and Mosey, S. (2021), "Developing entrepreneurial competences in biotechnology early career researchers to support long-term entrepreneurial career outcomes", *Technological Forecasting and Social Change*, Vol. 164, 120031, doi: 10.1016/j.techfore.2020.120031.

van Hooft, E.A., Kammeyer-Mueller, J.D., Wanberg, C.R., Kanfer, R. and Basbug, G. (2021), "Job search and employment success: a quantitative review and future research agenda", *Journal of Applied Psychology*, Vol. 106 No. 5, pp. 674-713, doi: 10.1037/apl0000675.

Villena-Martínez, E.I., Rienda-Gómez, J.J., Sutil-Martín, D.L. and García-Muiña, F.E. (2024), "Psychometric properties and factor structure of a motivation scale for higher education students to graduate and stimulate their entrepreneurship", *International Entrepreneurship and Management Journal*, pp. 1-28, doi: 10.1007/s11365-024-00948-8.

Ye, Q., Wang, D. and Zeng, K. (2021), "Opening the black box of employee entrepreneurship decision-making", *International Journal of Entrepreneurial Behavior and Research*, Vol. 27 No. 6, pp. 1548-1579, doi: 10.1108/ijebr-08-2020-0541.

Ye, Q., Zhu, Y., Jin, Y. and Wang, D. (2023), "Will there always be a return on investment? The effects of investment in employee development on employee entrepreneurship", *Journal of Vocational Behavior*, Vol. 141, 103843, doi: 10.1016/j.jvb.2023.103843.

Zenger, J. and Folkman, J. (2022), "Quiet quitting is about bad bosses, not bad employees", *Harvard Business Review*.

Zhu, D., Kim, P.B., Milne, S. and Park, I.-J. (2021), "A meta-analysis of the antecedents of career commitment", *Journal of Career Assessment*, Vol. 29 No. 3, pp. 502-524, doi: 10.1177/1069072720956983.

## Appendix

**Table A1.**
Survey question item for current measurement

| Construct | Questions (current measurement) | Source |
|---|---|---|
| Entrepreneurship education (EE) | There are various types of entrepreneurship education courses in my school<br>My entrepreneurship course teachers have entrepreneurial experience<br>The contents of the entrepreneurship courses were closely combined with my professional knowledge<br>A special entrepreneurial fund supported the entrepreneurial practice<br>My school provides integrated entrepreneurial practice services<br>Entrepreneurial practice projects are highly integrated with professional learning<br>Business plan competitions improve my entrepreneurial confidence<br>Business plan competitions expand my interpersonal networks<br>Business plan competition improves my teamwork ability | Lv *et al.* (2021) |
| Entrepreneurial intention (EI) | I am ready to do anything to be an entrepreneur<br>My professional goal is to become an entrepreneur<br>I will make every effort to start and run my own firm<br>I am determined to create a firm In the next 10 years<br>I have got the intention to start a firm in the next 10 years<br>I have a strong intention to start a business in the next 10 years | Liñán *et al.* (2011a) |
| Career commitment (CC) | I definitely want to pursue a career in my current area<br>My current job is the ideal job for a work life<br>I like my current job too well to give it up<br>If I had all the money needed, I still wanted in this vocation | Chang (1999), Kim *et al.* (2012) |
| Turnover intention (TI) | I frequently thought about leaving my current employer to establish a business<br>I am thinking of quitting my current job to establish a business<br>I have been trying to set up a business | Chang (1999), Kim *et al.* (2012) |

**Source(s):** Table by authors

| Construct | Questions (past measurement) | Source |
|---|---|---|
| Entrepreneurship education (EE) | There are various types of entrepreneurship education courses in my school | Lv *et al.* (2021) |
| | My entrepreneurship course teachers have entrepreneurial experience | |
| | The contents of the entrepreneurship courses were closely combined with my professional knowledge | |
| | A special entrepreneurial fund supported the entrepreneurial practice | |
| | My school provides integrated entrepreneurial practice services | |
| | Entrepreneurial practice projects are highly integrated with professional learning | |
| | Business plan competitions improve my entrepreneurial confidence | |
| | Business plan competitions expand my interpersonal networks | |
| | Business plan competition improves my teamwork ability | |
| Entrepreneurial intention (EI) | During the past 10 years, I have done everything to be an entrepreneur | Liñán *et al.* (2011a) |
| | During the past 10 years, becoming an entrepreneur has been my professional goal | |
| | During the past 10 years, I have made every effort to start and run my own company | |
| | During the past 10 years, I have been intended to create a firm in the following 10 years | |
| | During the past 10 years, I intended to start a firm in the following ten years | |
| | During the past 10 years, I had a strong intention to start a business in the following ten years | |
| Career commitment (CC) | During the past 10 years, I have built a career in my current area | Chang (1999), Kim *et al.* (2012) |
| | During the past 10 years, I thought my current job was ideal for work life | |
| | During the past 10 years, I really liked my current job, and it is hard to leave it | |
| | During the past 10 years, I worked in this vocation even after getting all the money I need | |
| Turnover intention (TI) | During the past 10 years, I frequently thought about leaving my job back then to establish a business | Chang (1999), Kim *et al.* (2012) |
| | During the past 10 years, I was thinking of quitting my job to establish a business | |
| | During the past 10 years, I tried to set up a business | |

**Source(s):** Table by authors

**Table A2.**
Survey question item for past measurement

| Construct | Questions (future measurement) | Source |
|---|---|---|
| Entrepreneurship education (EE) | There are various types of entrepreneurship education courses in my school | Lv *et al.* (2021) |
| | My entrepreneurship course teachers have entrepreneurial experience | |
| | The contents of the entrepreneurship courses were closely combined with my professional knowledge | |
| | A special entrepreneurial fund supported the entrepreneurial practice | |
| | My school provides integrated entrepreneurial practice services | |
| | Entrepreneurial practice projects are highly integrated with professional learning | |
| | Business plan competitions improve my entrepreneurial confidence | |
| | Business plan competitions expand my interpersonal networks | |
| | Business plan competition improves my teamwork ability | |
| Entrepreneurial intention (EI) | In the next 10 years, I believe I will do everything to be an entrepreneur | Liñán *et al.* (2011a) |
| | In the next 10 years, I believe I will choose entrepreneurship or becoming an entrepreneur as my professional goal | |
| | In the next 10 years, I believe I will start and run my own company worth every effort | |
| | In the next 10 years, I believe I will always be intended to create a firm even for the following ten years again | |
| | In the next 10 years, I believe my intention will remain to start a firm even for the following ten years again | |
| | In the next 10 years, I believe my intention will remain strong to start a business even for the following ten years again | |
| Career commitment (CC) | In the next 10 years, I will build a career in my current area | Chang (1999), Kim *et al.* (2012) |
| | In the next 10 years, I believe my current job will always be ideal for work life | |
| | In the next 10 years, I believe I will still love my current job, and it will be hard to leave it | |
| | In the next 10 years, I believe I will stay in this vocation even if I have all the money I need | |
| Turnover intention (TI) | In the next 10 years, I believe I will often think about not staying long in a job because I want to establish a business | Chang (1999), Kim *et al.* (2012) |
| | In the next 10 years, I believe I will often think about switching jobs to establish a business | |
| | In the next 10 years, I will try to set up a business | |

**Table A3.** Survey question item for future measurement

**Source(s):** Table by authors


## About the authors

Dr Yu-Yu Chang is Associate Professor at the Institute of International Management and the Cross College Elite Program, National Cheng Kung University, Taiwan. He also serves as Director of the Innovative Teaching Center at NCKU College of Management and the Executive Secretary of the Chinese Professional Management Association of Tainan City. His current research focuses on entrepreneurship, user innovation and innovation commons. Dr Chang is Associate Editor of the *Canadian Journal of Administrative Sciences* and serves as Editorial Board Member for the *British Journal of Management* and the *Journal of Business Economics and Management*. He has published papers in the *Journal of Business Research*, *Technological Forecasting and Social Change*,

*Entrepreneurship Research Journal*, *International Journal of Entrepreneurial Behavior and Research*, *International Entrepreneurship and Management Journal*, *Human Resource Management Review*, *European Management Journal*, *Technovation* and more.

Dr Wei-Shiun Chang is Associate Professor of Behavioral Decision Sciences at National Cheng Kung University. His research interests include individual preferences and decision-making in operations management and entrepreneurship. His work can be found in various scholarly journals, such as *Management Science*, *Journal of Behavioral and Experimental Economics*, *Electronic Commerce Research*, etc. Wei-Shiun Chang is the corresponding author and can be contacted at: wschang@mail.ncku.edu.tw

Ahmad Fadhil earned his Master's Degree from the Institute of International Management, National Cheng Kung University, Taiwan. His research focuses on entrepreneurship education and human capital development.