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The Entrepreneurial Social Cognitive Career Model (ESCCM) Framework in Action: Unpacking Sequential Mediation and Cultural Moderation in Entrepreneurship Education's Impact on Career Choices

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Abstract: This study examines how entrepreneurial learning experiences influence students' career intentions and entrepreneurial actions through psychosocial mediators—self-efficacy, outcome expectations, and interest—and tests whether background contextual support moderates these relationships within the framework of the Entrepreneurial Social Cognitive Career Model (ESCCM). The study employed a quantitative approach with random sampling, involving 1,249 students from 16 universities in Indonesia. Data were collected online over a 10-week period using a structured questionnaire developed based on ESCCM indicators. The data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The findings indicate a significant serial mediation effect explaining how Entrepreneurial Learning Experiences (ELE) influence Entrepreneurial Choice Action (ECA), with a cumulative indirect effect of 0.166 across two major mediation pathways. Entrepreneurial Self-Efficacy (ESE) emerged as the strongest mediator, jointly accounting for 65.2% of the variance in ECA. These results emphasize the importance of systematically supporting the development of self-efficacy, outcome expectations, intentions, and goal orientation in entrepreneurship education. The study offers practical implications for designing adaptive entrepreneurship education programs and provides empirical support for the ESCCM framework, which posits that entrepreneurship education shapes career choices through a complex sequence of psychosocial mediators.

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Introduction

Entrepreneurship education has become a critical component of global economic development strategies, with more than 3,000 universities worldwide offering specialized programs to enhance human capital and stimulate new venture creation (Nabi et al., 2017; Bae et al., 2014). However, meta-analyses reveal a significant paradox in educational effectiveness. Martin et al. (2013) found that approximately 30% of interventions had no discernible impact on entrepreneurial outcomes, while Bae et al. (2014) reported relationships between education and intention varying substantially from r = 0.10 to 0.45. This inconsistency manifests starkly across cultural contexts: entrepreneurship education demonstrates strong effects in individualistic cultures such as the United States (d = 0.40-0.55), but shows weak or negligible effects in collectivistic contexts such as Indonesia and China (d = 0.10-0.18) (Wardana et al., 2020). In Indonesia specifically, despite training over 500,000 students annually, actual entrepreneurship rates (3.1%) remain significantly lower

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than neighboring countries, revealing a persistent 40% intention-action gap (Global Entrepreneurship Monitor, 2020).

The absence of an integrated theoretical framework that simultaneously examines sequential mediation pathways and cultural moderation in the effectiveness of entrepreneurship education is a major issue that this study seeks to address. Previous studies have analyzed individual mediators separately, such as self-efficacy (Zhao et al., 2005), outcome expectations (Krueger & Brazeal, 1994), entrepreneurial intention (Liñán & Fayolle, 2015), or goals (Obschonka et al., 2012), without considering how these psychological constructs function as a theoretically ordered chain. The question of whether entrepreneurship education first develops self-efficacy, which then shapes outcome expectations, influences entrepreneurial interest, crystallizes into goals, and ultimately translates into action, or whether these mediators function through a different sequence, remains unanswered. More importantly, no research has systematically explored whether educational failures occur at the stages of self-efficacy, expectation formation, interest development, or goal setting. This fragmented approach makes a comprehensive understanding of the psychological processes through which education influences entrepreneurial career choices impossible.

Cultural moderation that has not been explored at several sequential stages is the subject of the second critical gap. Although it is clear that cultural context influences entrepreneurial behavior (Hahn et al., 2017; Shinnar et al., 2014), current research ignores the potential for different cultural effects throughout the sequential mediation chain, treating it only as a moderator of the relationship between education and intention. Although Liñán et al. (2011) only analyzed moderation at the final intention stage, they found that social norms had a significant impact on entrepreneurial intention in Spain but not in Taiwan, indicating cultural moderation. It remains unclear whether learning experiences and self-efficacy, self-efficacy and outcome expectations, outcome expectations and interest, interest and goals, or goals and actions are strengthened or weakened in collectivist cultures, which are characterized by strong family approval, community acceptance, and social network encouragement. Although Walter and Dohse (2012) specifically encourage research on specific stages in the entrepreneurial process where cultural factors have an impact, this important question remains unanswered in the current entrepreneurship education literature.

The third gap is a serious theoretical weakness: previous models only considered cultural moderators or mediating pathways, but not both simultaneously within an integrated framework. Sequential mediation has been described in detail by Social Cognitive Career Theory (Lent et al., 1994; Lent & Brown, 2019), but SCCT positions context as "background influence" that shapes learning experiences rather than dynamically moderating psychological processes, making it unable to explain why self-efficacy→interest effects are strong in U.S. contexts (Newman et al., 2019; β=0.58) but collapse in Chinese contexts (Li et al., 2020; β=0.12). Cultural entrepreneurship research examines how individualism versus collectivism influences entrepreneurial activity (Hayton et al., 2002), but operationalizes culture as macro-level direct predictor without specifying psychological mechanisms. The Theory of Planned Behavior (Ajzen, 1991) includes social norms as predictors but treats them as additive effects rather than moderators, unable to explain why students with positive attitudes and high self-efficacy still fail to form intentions when family norms are negative. These separate approaches cannot answer the fundamental question of what cultural conditions cause the success or failure of specific stages in the psychological development process of entrepreneurship.

Based on the identified theoretical framework and existing empirical gaps, this study introduces the Entrepreneurial Social Cognitive Career Model (ESCCM) as the first

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integrated framework that simultaneously unpacks sequential psychological mediation and stage-specific cultural moderation in entrepreneurship education effectiveness. ESCCM's theoretical innovation lies in operationalizing "framework in action" through three mechanisms. First, it explicates the complete sequential chain from entrepreneurial learning experiences through self-efficacy formation, outcome expectation development, entrepreneurial interest cultivation, goal crystallization, to entrepreneurial action, enabling precise identification of breakdown points. Second, it operationalizes cultural moderation as contextual background support—encompassing family approval, community acceptance, and social network encouragement—that dynamically moderates each of the five sequential transitions rather than functioning as static background or additive predictor. Third, through moderated mediation analysis, ESCCM tests conditional indirect effects, revealing whether education operates through different psychological mechanisms across cultures or through identical mechanisms with culturally-dependent strengths. This integrated unpacking addresses why entrepreneurship education succeeds in individualistic contexts but systematically fails in collectivistic societies, providing both diagnostic and prescriptive insights for culturally-adaptive intervention design.

To operationalize this unpacking process, three research questions put the ESCCM framework into action. First, does entrepreneurial learning experience influence career action through the theoretically-ordered sequential pathway (learning→self-efficacy→outcome expectations→interest→goals→action), and at which specific stage do effects break down in collectivistic contexts? This unpacks the psychological mechanism by diagnosing whether failures occur during confidence-building (learning→self-efficacy), expectation formation (self-efficacy→expectations), interest development (expectations→interest), goal crystallization (interest→goals), or action implementation (goals→action). Second, does contextual background support—operationalized as family approval, community acceptance, and social network encouragement—moderate each of these five stage-specific transitions differently? This unpacks cultural moderation by identifying which cultural elements strengthen or weaken which psychological transitions. Third, is the overall indirect effect of education on career action conditional upon cultural support levels? By answering these questions, this study demonstrates ESCCM in action: diagnosing specific psychological and cultural failure points to enable targeted, culturally-adaptive entrepreneurship education interventions.

Research Method

This study uses a cross-sectional survey design based on post-positivist epistemology to analyze the complex relationships in the Social Cognitive Career Model of Entrepreneurship. Indonesia was chosen as the context for the study because it has strong collectivist characteristics and an infrastructure suitable for entrepreneurship education. The quantitative approach allows for rigorous testing of hypotheses regarding the order and moderation of culturally determined pathways that have been theoretically specified. A total of 1,249 participants were selected through stratified random sampling to ensure representation across all types of institutions, geographic regions, genders, and academic disciplines from 16 universities.

This study uses Partial Least Squares Structural Equation Modeling (PLS-SEM) from SmartPLS 4.0 as the data analysis method because it was chosen for complex models with many mediators. Moderation analysis uses a product indicator approach with baseline slope analysis at three levels of cultural context moderators, while the analysis includes comprehensive mediation testing using bootstrapped indirect effects with Variance

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Accounted For calculations. To assess the additional explanatory value from direct effects alone to the complete ESCCM framework, the analytical approach also included rigorous model comparisons among five nested models and an advanced expectation-maximization algorithm to handle missing data.

This model integrates Social Cognitive Career Theory (SCCT) (Lent, Brown, & Hackett, 1994, 2000) with the context of business education and the digital age. SCCT provides a valuable foundation for understanding how personal factors, environmental contexts, and cognitive-behavioral processes interact to shape an individual's life. In the context of entrepreneurship, this model has been modified to specifically address the implications of entrepreneurial intention and action (Lent & Brown, 2019; Liguori et al., 2020). The ESCCM used in this study combines variables that measure contextual inputs, cognitive-affective mediating processes, career outcomes, and constant factors that moderate the degree of model relationships.

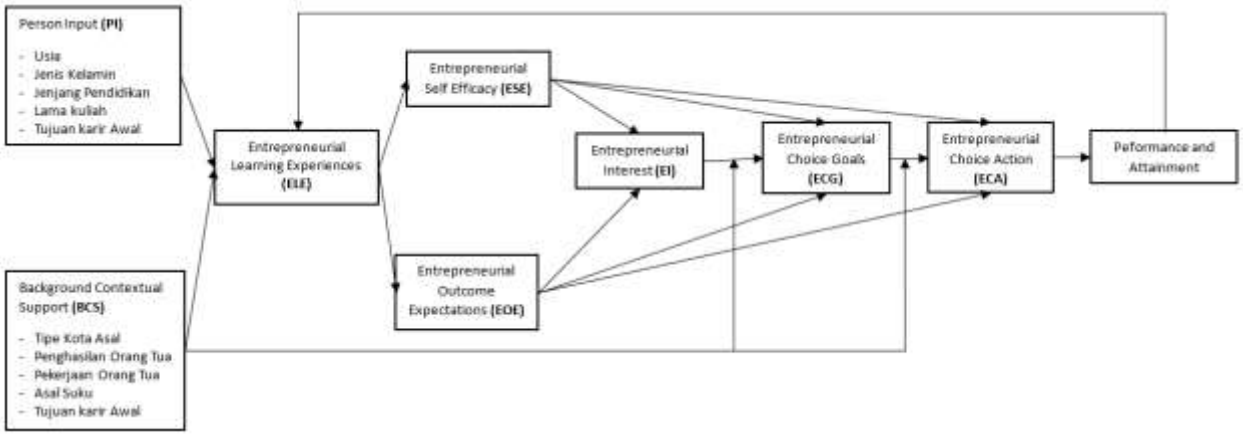

Figure 1. Entrepreneurial Social Cognitive Career Model (ESCCM)

Results and Discussion

Three phases make up the research findings. The first step is to test the variance and predictive power of the model (R-Square); the second step is to use Effect Size Analysis to test the relative contribution between variables; and the third step is to test the structural hypothesis.

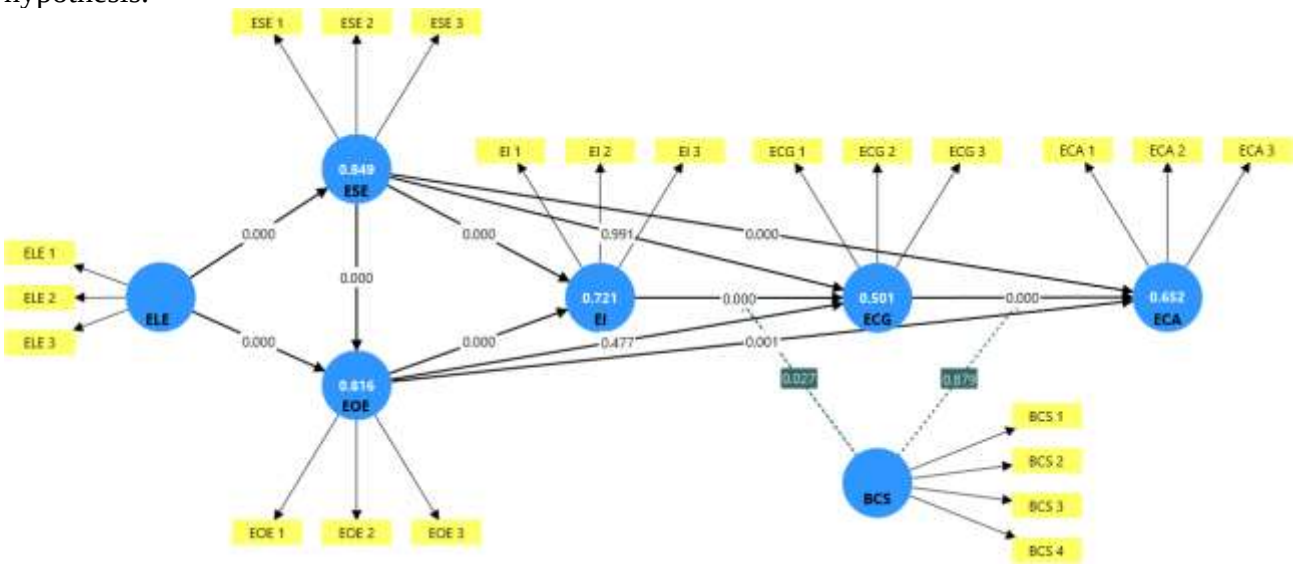

Figure 2. R-square

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Table 1. R-square Score dan Adjusted R-square

	R-SQUARE	R-SQUARE ADJUSTED	CRITERIA
ECA	**0.652**	**0.650**	**Strong**
ECG	**0.501**	**0.499**	**Strong**
EI	**0.721**	**0.721**	**Strong**
EOE	**0.816**	**0.816**	**Moderate**
ESE	**0.849**	**0.849**	**Moderate**

Source: Processed data, 2025

The evaluation of the ESCCM model follows the PLS-SEM convention, where R^2 reflects the proportion of variance in each endogenous construct explained by its predictors. Entrepreneurial Self-Efficacy (ESE) showed the highest R^2 value (0.849), indicating the significant explanatory power of its antecedents. Entrepreneurial Outcome Expectations (EOE) also showed strong predictive power ($R^2 = 0.816$). Entrepreneurial Interest (EI) had a high R^2 value of 0.721, while Entrepreneurial Choice Actions (ECA) showed moderate to high explained variance ($R^2 = 0.652$). Entrepreneurial Choice Goals (ECG) recorded an R^2 of 0.501, indicating moderate explanatory power. These values collectively confirm that the ESCCM model has solid predictive accuracy across all its endogenous variables.

Table 2. Effect Size (f^2)

	ECA	ECG	EI	EOE	ESE
BCS	**0.003**	**0.001**			
ECG	**0.263**				
EI		**0.300**			
ELE				**0.196**	**0.643**
EOE	**0.013**	**0.001**	**0.204**		
ESE	**0.027**	**0.000**	**0.106**	**0.154**	
BCS X EI		**0.003**			
BCS X ECG	**0.000**				

Effect size analysis provides a more detailed understanding of the relative contribution of each variable in the model. The most significant finding is that Entrepreneurial Learning Experience significantly increases Entrepreneurial Self-Efficacy with an effect size of 0.643. Cohen states that this indicates a strong effect, highlighting the importance of education in increasing self-efficacy in business, starting from Social Cognitive Theory. Several other relationships show moderate effect sizes, such as between Entrepreneurial Choice Goals and Entrepreneurial Choice Actions (0.263) and between Entrepreneurial Interest and Entrepreneurial Choice Goals (0.300), highlighting the importance of goal setting in facilitating concrete actions. The relationship between ELE and Entrepreneurial Outcome Expectations (0.196) and between EOE and Entrepreneurial Interest (0.204) also reinforces the SCCT proposal. Conversely, several factors, such as ESE and EOE in relation to Entrepreneurial Choice Actions and context in relation to entrepreneurial goals and actions, show small effect sizes, indicating that the factors mentioned work unsustainably through other psychological mechanisms. According to the hierarchical analysis, ELE influences ECA through sequential mediation with two main pathways: (1) ELE→EOE→EI→ECG→ECA produces an effect of $0.196 \times 0.013 \times 0.300 \times 0.263 = 0.0002$ (weak), and (2) ELE→ESE→EI→ECG→ECA produces an effect of $0.643 \times 0.106 \times 0.300 \times 0.264 = 0.0054$ (weak). The path through ESE is more dominant than EOE, indicating that self-efficacy is a key mediator in linking the external learning environment with entrepreneurial aspirations, even though the overall effect is relatively small.

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Table 3. T test

	ORIGINAL SAMPLE (O)	STANDARD DEVIATION (STDEV)	T STATISTICS (|O/STDEV|)	P VALUES
ELE -> ESE	0.922	0.009	17.310	0.000
ELE -> EOE	0.488	0.050	9.742	0.000
ESE -> EOE	0.433	0.051	8.582	0.000
ESE -> EI	0.366	0.055	6.614	0.000
EOE -> EI	0.509	0.054	9.451	0.000
EI -> ECG	0.751	0.054	13.971	0.000
ESE -> ECG	-0.001	0.072	0.011	0.991
EOE -> ECG	0.047	0.066	0.710	0.477
BCS X EI -> ECG	0.020	0.009	2.207	0.027
ECG -> ECA	0.377	0.031	12.170	0.000
ESE -> ECA	0.268	0.066	4.073	0.000
EOE -> ECA	0.169	0.052	3.231	0.001
BCS X ECG -> ECA	-0.001	0.009	0.152	0.879

Using the bootstrapping procedure, the hypotheses were tested, and the results were highly informative regarding the relationship between the various components of the ESCCM model. The first hypothesis, which states that Entrepreneurial Learning Experience has an impact on Entrepreneurial Self-Efficacy, is supported by a very high path coefficient of 0.922 and a t-statistic of 17.310. All of this provides very strong empirical support for the Social Cognitive Theory's claim that learning through mastery experiences, vicarious learning, and social persuasion are the main factors that influence self-efficacy. Previous research by Nabi et al. (2017) also confirmed that experience-based entrepreneurship education and training significantly increases individuals' Efficacy in entrepreneurship.

The second and third hypotheses are also supported by significant coefficients. Entrepreneurial Self-efficacy has a significant impact on Entrepreneurial Outcome Expectations with a coefficient of 0.433, while Entrepreneurial Learning Experience has a significant impact with a coefficient of 0.488. Zhao et al.'s (2005) research also found that self-efficacy affects outcome expectations in the context of entrepreneurship. This study confirms that outcome expectations are fulfilled through two channels: directly from the learning process and indirectly through self-Efficacy arising from the learning process. This is in line with the Social Cognitive Career Theory developed by Lent, Brown, and Hackett (1994), which states that learning experiences and self-Efficacy are important prerequisites for outcome expectations.

The fourth and fifth hypotheses challenging the prerequisite of entrepreneurial interest were also discussed. Entrepreneurial Self-Efficacy had a significant impact on Entrepreneurial Interest with a coefficient of 0.366, while Entrepreneurial Outcome Expectations had a more significant impact with a coefficient of 0.509. This shows that outcome expectancy is a stronger predictor in the formation of interest than self-Efficacy. Research by Liñán & Chen (2009) consistently shows that entrepreneurial self-efficacy influences entrepreneurial interest. This can be explained by the proposal that people gradually increase their level of interest in the activities they do, and that their perception of these activities will produce the desired results. In addition, their perception of these results has a greater impact on their level of interest than their perception of their abilities.

The sixth hypothesis explaining the relationship between entrepreneurial interest and entrepreneurial choice goals is supported by a very high coefficient of determination of 0.751.

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Research by Liñán & Chen (2009) shows that entrepreneurial intention strongly predicts entrepreneurial goals and planning. This is in line with the Theory of Planned Behavior, which views intention as the closest predictor of behavior. In this context, the term "strong manifestation" is used to refer to specific and measurable goals. The high coefficient value indicates the development of entrepreneurial interest, the setting of clear goals, and a strong commitment to an entrepreneurial career.

However, the results of this study also show several hypotheses that were tested, and this study only provides very useful information about the mechanism of the model. The hypothesis stating that there is a long-term effect of entrepreneurial self-Efficacy on entrepreneurial choice goals is supported by a p-value of 0.991 and an insignificant coefficient of determination of -0.001. Similarly, the hypothesis showing the long-term impact of entrepreneurial outcome expectations on entrepreneurial choice goals is also supported by a p-value of 0.477 and a coefficient of 0.047. These two hypotheses clearly provide a strong foundation for a full mediation model within the ESCCM framework, where Entrepreneurial Interest mediates the effects of ESE and EOE on ECG.

The ninth hypothesis regarding the influence of contextual support on the relationship between entrepreneurial interest and entrepreneurial choice goals is based on a coefficient of 0.020, which is significant at a significance level of 0.05. Although this coefficient is quite small, it shows that contextual information from the environment can help transform interest into specific goals. This is consistent with Bronfenbrenner's Ecological Systems Theory (1979), which states that individual growth occurs within a hierarchical and highly interactive social system.

The three hypotheses that support the prerequisites for Entrepreneurial Choice Actions are as follows: tenth, eleventh, and twelfth. Entrepreneurial Choice Goals have a significant impact on Entrepreneurial Choice Actions (coefficient 0.377), Entrepreneurial Self-Efficacy (coefficient 0.268), and Entrepreneurial Outcome Expectations (coefficient 0.169). Although these findings are statistically significant, the effect size analysis shows that only ECG has a significant practical impact, while ESE and EOE have relatively small effects. This suggests that turning goals into actions is the most crucial step at the end of the business plan development process.

The final hypothesis testing the influence of background context support on the relationship between entrepreneurial choice goals and entrepreneurial choice actions was based on an insignificant coefficient of determination of -0.001. This indicates that once goals are set, psychological and cognitive factors become more dominant in determining actions, while environmental factors no longer play a significant role in moderating behavior. This is in line with Welter's (2011) research, which states that the entrepreneurial context is more important as a prerequisite than as a moderator at the action implementation stage.

Based on path analysis, ELE has no direct effect on ECA, but has an indirect effect through complex serial mediation. The main paths include: (1) ELE→ESE→EI→ECG→ECA with an effect size of $0.922\times0.366\times0.751\times0.377\approx0.096$, and (2) ELE→EOE→EI→ECG→ECA with an effect of $0.488\times0.509\times0.751\times0.377\approx0.070$. The cumulative indirect effect of 0.166 indicates that exposure to the entrepreneurial learning ecosystem requires a gradual internalization process through the formation of self-efficacy, outcome expectations, intentions, and career goal setting as essential psychological mechanisms in crystallizing entrepreneurial career aspirations. These findings emphasize the importance of a holistic approach in entrepreneurship education that focuses not only on the external environment but also on cultivating students' cognitive-motivational capacities.

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The findings of this study show substantive consistency with previous literature on the sequential mediation pathway of entrepreneurship education. In line with Newman et al. (2019) and Shi et al. (2020), this study confirms that Entrepreneurial Learning Experience (ELE) significantly shapes Entrepreneurial Self-Efficacy (ESE) with a path coefficient of 0.922 ($t=107.310$, $p<0.001$), reflecting a very strong effect as predicted by Social Cognitive Career Theory. The finding that outcome expectations are a stronger predictor of entrepreneurial interest ($\beta=0.509$) than self-efficacy ($\beta=0.366$) is also consistent with Lent, Brown, and Hackett (1994), who emphasize that individuals' perceptions of career outcomes have a dominant influence on the formation of interest. Furthermore, the significant positive relationship between entrepreneurial interest and choice goals ($\beta=0.751$) confirms the proposition of the Theory of Planned Behavior (Ajzen, 1991; Kolvereid, 2016) that intention is the strongest proximal predictor of career goal setting. The results of the effect size analysis showing ELE→ESE producing $f^2=0.643$ reinforce the argument that experiential learning is a critical foundation in the entrepreneurial education ecosystem.

However, this study identifies significant divergence with the findings of Shinnar et al., Hahn et al., and Tlaiss regarding the role of contextual support as a moderator. Unlike these studies, which reported a substantial positive moderating effect of contextual support, this study found that Background Contextual Support (BCS) did not significantly moderate the relationship between entrepreneurial choice goals and choice actions ($\beta=-0.001$, $p=0.879$, $f^2=0.000$). Although BCS showed a weak but significant moderating effect on the path from entrepreneurial interest to choice goals ($\beta=0.020$, $p=0.027$), the very small effect size ($f^2=0.003$) indicates minimal practical impact. This finding contrasts with Li et al. (2020), who identified social support as a significant reinforcing factor in the East Asian context. Furthermore, this study found that ESE and EOE had weak direct effects on ECA ($f^2=0.027$ and 0.013), differing from the linear assumption in the conventional TPB model, indicating that these factors operate primordially through full mediation by entrepreneurial interest and choice goals.

These findings can be explained through three theoretical mechanisms that interact within the Indonesian cultural context. First, consistent with Hsu et al. (2019) on family norms and Stephan & Pathak (2016) on community dependence, external contextual support can be overridden by familial expectations and social cohesion pressures that are more dominant in career decision-making. Path analysis shows that once goals are set, internal psychological-cognitive factors become the main determinants of action (ECG→ECA: $\beta=0.377$, $f^2=0.263$), confirming Welter's (2011) proposition that the entrepreneurial context plays a greater role as an antecedent than as a moderator in the action implementation stage. Second, the findings of the full mediation model—where ESE and EOE have no significant direct effects on ECG ($p=0.991$ and $p=0.477$) —reveals the complexity of the translation mechanism that is not captured in traditional TPB studies (Kolvereid, 2016) or conventional SCCT (Lent & Brown, 2020), which tend to test mediation and moderation separately. Third, cultural tightness-looseness (Gelfand et al., 2011) in the Indonesian context may limit responsiveness to instrumental contextual support, making cognitive-motivational internalization (cumulative indirect effect ELE→ECA=0.166) the dominant mechanism in the crystallization of entrepreneurial career aspirations.

Conclusion

This study systematically addresses three critical research objectives by examining the Entrepreneurial Social Cognitive Career Model (ESCCM) as an integrated theoretical framework linking entrepreneurial learning experiences to career actions. The findings

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confirm a robust sequential mediation pathway (cumulative indirect effect = 0.166), demonstrating that entrepreneurial learning ecosystem exposure operates through cognitive-motivational internalization via two primary mechanisms: ELE→ESE→EI→ECG→ECA (0.096) and ELE→EOE→EI→ECG→ECA (0.070). The substantive effect sizes along the ELE→ESE path (f^2=0.643) establish experiential learning as foundational, revealing that entrepreneurial self-efficacy (β=0.922) and outcome expectations (β=0.509) influence career decisions through entrepreneurial interest (β=0.751), which crystallizes into choice goals—the strongest proximal predictor of action.

Contrary to conventional frameworks treating contextual support as a linear moderator, ESCCM integration reveals minimal moderating influence (β=-0.001, p=0.879) on the goals-to-actions relationship, particularly within collectivist cultural contexts where embeddedness mechanisms override instrumental support. By simultaneously testing mediation and moderation pathways, this research transcends fragmented Theory of Planned Behavior and Social Cognitive Career Theory models, establishing psychological-cognitive factors as dominant determinants of entrepreneurial action crystallization (f^2=0.263). These findings underscore the necessity of holistic entrepreneurship education approaches that strategically integrate experiential learning, role model exposure, interest cultivation, and structured goal-setting mechanisms within the ESCCM framework.

Recommendation

Based on the empirical findings of this study, follow-up recommendations are formulated for three main stakeholders. For lecturers, strengthening experience-based pedagogy and competency mastery through project-based ventures, business simulations, structured mentoring, and incubation programs is a priority because these activities significantly increase entrepreneurial self-efficacy as the strongest predictor in the ESCCM model. For higher education institutions, curriculum reform needs to integrate structured experiential learning pathways, interdisciplinary collaboration, and formal industry partnerships to develop outcome expectations, sustained interest, and goal progress mechanisms that support entrepreneurial career aspirations. Institutions are also required to build an entrepreneurial ecosystem that connects academic programs with incubation units and external stakeholders. For future researchers, rigorous exploration of cultural and contextual moderators is needed, as well as the implementation of longitudinal studies to track developmental processes, identify critical turning points, and clarify the temporal dynamics of students' entrepreneurial career formation, given that the complexity of these processes requires a deep understanding of developmental phases that have not been fully explored in the existing literature.

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