The BETA Module in Action: An Empirical Study on Enhancing Entrepreneurial Skills Through Kearney's and Bloom's Guiding Principles

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Abstract
This study investigates the efficacy of integrating Kearney's "4 Principles of Entrepreneurial Pedagogy" and Bloom's "Three Domains of Learning" in entrepreneurial education, using the Business Essentials through Action (BETA) module at Singapore Polytechnic as a case study. The BETA module, a novel approach to business education, combines venture creation with foundational business courses, emphasizing experiential learning and practical application of theoretical concepts. We assessed the impact of this module on students' entrepreneurial competencies using the Personal Entrepreneurial Competencies (PEC) questionnaire, comparing outcomes between participants in the BETA module and those following a traditional curriculum. Our findings indicate that students involved in the BETA module exhibited significant improvement in key entrepreneurial competencies such as "Opportunity Seeking and Initiative" and "Persistence," compared to their counterparts in the traditional curriculum. Furthermore, the study explores the correlation patterns among various entrepreneurial competencies within both groups, revealing how the BETA module fosters a synergistic development of skills, distinguishing it from conventional educational approaches. The research contributes to the broader academic discussion by providing empirical evidence of the effectiveness of integrating Kearney's and Bloom's frameworks in entrepreneurial education. It highlights the BETA module's potential to enhance entrepreneurial competencies, suggesting that such pedagogical innovations could play a crucial role in preparing future entrepreneurs to navigate the complexities of the global business landscape. The study also identifies areas for further curriculum refinement, particularly in competencies like "Risk Taking" and "Persuasion and Networking," to bolster the module's comprehensive skill-building approach. This study not only reinforces the value of innovative educational models in entrepreneurial education but also opens new avenues for future research in optimizing pedagogical strategies for nurturing entrepreneurial talent.

Keywords: Entrepreneurial Education, Entrepreneurial Mindset, Entrepreneurial Pedagogy, Business Essentials through Action (BETA) Module

Introduction

Entrepreneurial education is increasingly recognized for its critical contribution to equipping emerging generations with the capabilities required to lead and innovate in a dynamic global context (Porfírio et.al, 2022). This study focuses on the application of Kearney's "4 Principles of Entrepreneurial Pedagogy" (Kearney, 2010) and Bloom's "Three Domains of Learning" (Bloom, 1956) within this educational sphere, proposing a structured approach to developing essential entrepreneurial skills through engagement and critical analysis. Kearney's framework, centred on experiential learning, emphasizes the importance of creating real-world, learner-centred experiences (Kearney, 2010). Bloom's taxonomy complements this by categorizing learning objectives across cognitive, affective, and psychomotor domains (Anderson & Krathwohl, 2001), thus advocating for a comprehensive learning experience beyond mere knowledge acquisition to include the development of values and practical skills. The relevance of these frameworks to entrepreneurial education lies in their shared emphasis on a dynamic, application-oriented approach to learning, which is crucial in entrepreneurship (Lackéu,2020). However, despite the theoretical prominence of these models, there remains a notable gap in the literature regarding their empirical application within entrepreneurial education, particularly in environments focused on the practical development of entrepreneurial skills and mindsets (Banha et al., 2022). Addressing this gap, the present study examines the Business Essentials through Action (BETA) module implemented at the Singapore Polytechnic School of Business (Lynn, 2021). This module, which integrates venture creation with foundational business education, provides a practical case for exploring the effectiveness of Kearney's and Bloom's frameworks in fostering entrepreneurial competencies. The aim is to conduct an empirical assessment of the BETA module's impact on students' entrepreneurial skills (Chen, 2021), thereby offering insights into the practical application of these educational frameworks in nurturing future entrepreneurs and leaders. This research contributes to the existing body of knowledge by detailing the application of Kearney's and Bloom's models in a real-world educational setting, highlighting the potential for these frameworks to enhance entrepreneurial education in response to the evolving challenges of the 21st-century entrepreneurial landscape (Porfírio et, al 2022; Lackéus, 2020).

Literature Review

Overview of the BETA Program at Singapore Polytechnic School of Business

The Business Essentials Through Action (BETA) is a year-long program offered to first-year students at the Singapore Polytechnic School of Business (Singapore Polytechnic, 2024). It integrates foundational business courses such as Marketing Fundamentals, Management and Human Resource Practices, and Business Negotiation Skills with the practical experience of starting a venture. The program emphasizes learning through action, where students apply theoretical knowledge in real-world contexts by working in teams to develop and prototype business ideas. A key component of BETA is the incorporation of Design Thinking principles and marketing strategies, which guide students in understanding market needs and crafting effective value propositions for their products or services. This process culminates in presentations to a panel of judges, allowing students to hone their presentation skills and gain confidence in public speaking. The program is structured around experiential learning, moving away from the traditional lecture-tutorial format. Instead, students are engaged in hands-on activities that encourage the application of business concepts to their projects. This approach aims to enhance the retention of knowledge and the development of practical skills. Classes are conducted with a focus on personalized learning, facilitated by a low student-to-teacher

ratio. Two classes are combined for BETA sessions, with two experienced lecturers guiding the larger group, which fosters a collaborative learning environment and exposes students to a variety of perspectives. Students in the BETA program have the opportunity to create a diverse range of businesses, from artisanal crafts to digital services. The program includes activities such as organizing events to showcase these businesses on campus and participating in pop-up sales, providing students with firsthand experience in decision-making and business operations. The BETA program represents an innovative approach to business education at Singapore Polytechnic, aiming to equip students with both the theoretical knowledge and practical skills necessary for entrepreneurial success. This initiative is part of the institution's broader effort to adapt its curriculum to the evolving needs of the business landscape.

Kearney's Experiential Learning Framework in Entrepreneurial Education

Kearney's (2010) "4 Principles of Entrepreneurial Pedagogy" pivot around the core idea of experiential learning, where the educational process is structured to simulate the complexities and unpredictability of the entrepreneurial world. These principles underscore the importance of engaging students in problem-solving tasks, collaborative projects, and reflective practices that mimic the decision-making processes and challenges faced by entrepreneurs. By doing so, Kearney's approach seeks to cultivate a mindset that is adaptable, creative, and resilient to the uncertainties inherent in entrepreneurial ventures. This pedagogical framework resonates with the constructivist theory of learning, which posits that learners construct knowledge through experiences and interactions with their environment (Piaget, 2013). Kearney's emphasis on experiential learning aligns with this theory by advocating for an educational setting where students are active participants, not mere recipients of information. This approach encourages learners to engage deeply with the material, fostering a deeper understanding and retention of entrepreneurial concepts and practices.

Integrating Bloom's Taxonomy for Holistic Entrepreneurial Learning

Bloom's taxonomy, a foundational educational framework, extends beyond the mere classification of learning objectives; it serves as a multidimensional tool that guides the creation of a holistic educational experience. Initially conceptualized by Bloom in 1956 and later refined by Anderson and Krathwohl in 2001, the taxonomy delineates learning into three distinct domains: cognitive (mental skills or knowledge), affective (growth in feelings or emotional areas), and psychomotor (manual or physical skills). This tripartite division facilitates a structured approach to curriculum development, ensuring that educational programs are comprehensive and cater to the multifaceted nature of learning. In the realm of entrepreneurial education, the application of Bloom's taxonomy is particularly pertinent. The cognitive domain encompasses the theoretical and analytical skills required for entrepreneurship, such as understanding business concepts, analyzing market trends, and applying strategic thinking. By systematically structuring learning objectives within this domain, educators can scaffold students' knowledge from basic recall of facts to complex analysis and evaluation, laying a solid foundation for entrepreneurial expertise.

Entrepreneurial Competencies

The Personal Entrepreneurial Competencies (PEC) framework, as conceptualized by McClelland (1961) and further refined by Boyatzis (1982), is instrumental in evaluating the traits and capabilities essential for entrepreneurial success. This framework distinguishes itself by identifying specific competencies that are closely associated with entrepreneurial

performance and potential, making it a valuable tool in both educational and professional development contexts. The 10 PEC Competencies:

1. Opportunity Seeking and Initiative: Entrepreneurs are distinguished by their proactive nature in identifying and pursuing new business opportunities.
2. Persistence: This trait involves the entrepreneur's relentless drive to overcome obstacles and challenges.
3. Fulfilling Commitments: Demonstrating reliability and a strong sense of responsibility towards commitments is crucial.
4. Demand for Efficiency and Quality: Entrepreneurs strive for high standards in efficiency and quality, seeking continuous improvement.
5. Taking Calculated Risks: The ability to evaluate and take strategic risks is a key entrepreneurial trait.
6. Goal Setting: Effective entrepreneurs are adept at setting clear, achievable goals and working towards them.
7. Information Seeking: An entrepreneurial mindset includes a keenness to seek relevant information for decision-making.
8. Systematic Planning and Monitoring: Planning and monitoring systematically are essential for navigating the entrepreneurial journey.
9. Persuasion and Networking: Building and leveraging networks, along with persuasive communication, are critical.
10. Independence and Self-Confidence: Independence and a strong belief in one's abilities underpin entrepreneurial actions.

The inclusion of the PEC framework in this study leverages its comprehensive approach to assessing entrepreneurial readiness and potential (McClelland, 1961; Boyatzis, 1982). The framework's balance of personal attributes and skills provides a holistic view of what constitutes entrepreneurial competence. In the context of entrepreneurship education, specifically, the PEC framework aids in the evaluation of how pedagogical strategies impact the development of essential entrepreneurial competencies. This study aims to empirically assess the effectiveness of the Business Essentials through Action (BETA) module in fostering these competencies, contributing insights into the optimization of entrepreneurship education programs. The adoption of the PEC framework is substantiated by its validation and widespread acceptance within the entrepreneurial research community, affirming its relevance and reliability for this research.

Empirical Application and Pedagogical Innovation

Despite the rich theoretical foundations provided by Kearney and Bloom, there exists a notable gap in the literature concerning the empirical application of these frameworks in entrepreneurial education. The BETA module offers an innovative case study in this regard, integrating venture creation with foundational business education in a manner that embodies Kearney's experiential learning principles and Bloom's taxonomy (Lynn, 2022). This integration represents a novel approach to entrepreneurship education, one that emphasizes the practical development of entrepreneurial skills and mindsets within an academic setting. The need for empirical evidence supporting the effectiveness of such pedagogical innovations is critical, particularly as the field of entrepreneurial education continues to evolve (Lackéus, 2020). By exploring the impact of the BETA module on student competencies, this study contributes valuable insights into the practical application of Kearney's and Bloom's educational theories, offering potential pathways for the enhancement of entrepreneurial education programs globally.

Methods

In this study, we explored the effectiveness of the Business Essentials through Action (BETA) module in enhancing entrepreneurial competencies among students at Singapore Polytechnic. Utilizing the Personal Entrepreneurial Competencies (PEC) questionnaire, a tool validated by prior research (McClelland, 1987; Spencer, 2008), we gauged entrepreneurial skills in students before and after their engagement with the BETA module or a traditional curriculum. The study involved 141 participants in the BETA module and 119 in the control group, with data analysis performed using descriptive and inferential statistics in SPSS to assess changes and correlations in competencies. Guided by our research questions, we aimed to uncover:

Competency Changes: We sought to identify which entrepreneurial competencies underwent significant changes from the pre-test to the post-test phase within both the Beta and Non-Beta groups. This analysis was intended to illuminate how the BETA module and traditional curriculum each contribute to the development of these competencies, thereby addressing our second research question.

Correlation Patterns: Our investigation also focused on discerning patterns of correlation among entrepreneurial competencies within both groups at the post-test stage. By examining how these patterns vary between the Beta and Non-Beta groups, we aimed to shed light on the distinct impacts of the educational experiences provided by the BETA module and the conventional curriculum, as per our fourth research question.

This structured approach allowed us to systematically evaluate the influence of the BETA module in fostering entrepreneurial skills, comparing it against traditional educational methods to draw insights into the most effective pedagogical practices for nurturing future entrepreneurs.

Analysis & Results

Comparison of Entrepreneurial Competencies

In evaluating the Non-Beta group's performance through a pre-post assessment (Table 1), significant developments were noted in two key entrepreneurial competencies. The "Opportunity Seeking and Initiative" competency exhibited marked improvement, with a notable mean difference of -.731, supported by a t-value of -2.171 and a statistically significant p-value of .031. This enhancement suggests that the conventional curriculum effectively bolstered the participants' propensity to identify and act on opportunities. Similarly, the "Risk-taking" competency also showed a positive shift, evidenced by a mean difference of -.562, a t-value of -1.994, and a p-value of .047. This indicates an increased willingness among participants to undertake calculated risks, pointing to the traditional educational approach's role in fostering a more entrepreneurial risk-taking disposition.

Table 1: *Pre-Post Test Comparison of Entrepreneurial Competencies for Non-Beta Group*

Competency	Levene's Test F	Sig.	t(DF)	Sig. (2-tailed)	Mean Difference	95% CI Lower	95% CI Upper	Cohen's d
Opportunity Seeking and Initiative	2.963	.087	-2.171 (234)	.031	-.731	-1.395	-.068	2.587
Risk Taking	.171	.679	-1.994 (234)	.047	-.562	-1.117	-.007	2.164
Demand for Efficiency and Quality	1.018	.314	-1.772 (234)	.078	-.658	-1.390	.074	2.853
Persistence	.035	.852	-1.572 (234)	.117	-.509	-1.147	.129	2.488
Commitment to The Work Contract	.127	.722	-1.375 (234)	.171	-.425	-1.035	.184	2.377
Information Seeking	.820	.366	-.350 (234)	.726	-.113	-.750	.524	2.483
Goal Setting	.492	.484	-.428 (234)	.669	-.166	-.931	.599	2.981
Systematic Planning and Monitoring	.948	.331	-.667 (234)	.505	-.227	-.897	.443	2.612
Persuasion and Networking	1.957	.163	-1.834 (234)	.064	-.650	-1.348	.048	2.722
Independence & Self Confidence	1.176	.279	-.789 (234)	.431	-.306	-1.070	.458	2.979

CI = Confidence Interval, DF = Degrees of Freedom

Table 2 presents a comprehensive comparison of entrepreneurial competencies before and after participation in the BETA module for the Beta group. The analysis indicates significant improvements in several competencies. Notably, "Opportunity Seeking and Initiative" saw a significant uplift with a mean difference of -.850 and a p-value of .006, suggesting an enhanced capability in identifying and capitalizing on opportunities. Although "Risk Taking" showed improvement with a mean difference of -.501, it did not achieve statistical significance ($p = .060$). Further, substantial enhancements were recorded in "Demand for Efficiency and Quality" (mean difference: -.655, $p = .047$), "Persistence" (mean difference: -.916, $p = .003$), and "Commitment to The Work Contract" (mean difference: -.698, $p = .020$), among others.

The most pronounced progress was observed in "Systematic Planning and Monitoring" with a mean difference of -.915 ($p < .001$), highlighting the BETA module's strong influence on students' strategic planning capabilities. Improvements in "Persuasion and Networking" and "Independence & Self Confidence" were also noted, with mean differences of -.372 and -.699 respectively, although the former did not reach statistical significance ($p = .276$). These findings underscore the BETA module's effectiveness in cultivating a broad spectrum of entrepreneurial skills among participants.

Table 2: *Pre-Post Test Comparison of Entrepreneurial Competencies for Beta Group*

Competency	Levene's Test F	Sig.	t(DF)	Sig. (2-tailed)	Mean Difference	95% CI Lower	95% CI Upper	Cohen's d
Opportunity Seeking and Initiative	1.437	.232	-2.783 (245)	.006	-.850	-1.452	-.249	2.377
Risk Taking	3.299	.071	-1.888 (245)	.060	-.501	-1.024	.022	2.064
Demand for Efficiency and Quality	1.224	.270	-1.998 (245)	.047	-.655	-1.302	-.009	2.553
Persistence	.769	.381	-2.971 (245)	.003	-.916	-1.523	-.309	2.398
Commitment to The Work Contract	1.228	.269	-2.348 (245)	.020	-.698	-1.284	-.113	2.313
Information Seeking	.001	.980	-2.396 (245)	.017	-.701	-1.278	-.125	2.277
Goal Setting	.057	.811	-1.427 (245)	.035	-.552	-1.314	.210	3.009
Systematic Planning and Monitoring	.513	.474	-3.335 (245)	< .001	-.915	-1.456	-.375	2.135
Persuasion and Networking	.587	.444	-1.091 (245)	.276	-.372	-1.043	.299	2.650
Independence & Self Confidence	.634	.427	-1.877 (245)	.022	-.699	-1.432	.034	2.895

CI = Confidence Interval, DF = Degrees of Freedom

Correlation Among Entrepreneurial Competencies

The examination of correlation patterns between entrepreneurial competencies in the Beta and Non-Beta groups, detailed in Tables 3 and 4, sheds light on the nuanced effects of different educational methodologies. These patterns reveal the interconnectedness of competencies within each group, offering insights into the unique impacts of the BETA module versus conventional education methods. In the Non-Beta group, as depicted in Table 3, there's a pronounced correlation between "Opportunity Seeking" and "Persistence" (.673**), suggesting that traditional education may reinforce the idea that recognizing opportunities is closely linked with persistent effort. Additionally, the correlation between "Efficiency and Quality" and "Risk Taking" (.594**) indicates that in conventional settings, a focus on high standards is often associated with an openness to risk-taking. The relationship between "Systematic Planning and Monitoring" and "Information Seeking" (.524**) further illustrates the emphasis traditional education places on comprehensive planning and diligent information gathering.

Table 3: *Pearson Correlation on Entrepreneurial Competencies for Non-Beta Group (Post-Test)*

	Opportunity Seeking	Risk Taking	Efficiency and Quality	Persistence	Commitment
Opportunity Seeking	-	.253**	.438**	.673**	.488**
Risk Taking	.253**	-	.594**	.327**	.178
Efficiency and Quality	.438**	.594**	-	.453**	.385**
Persistence	.673**	.327**	.453**	-	.399**
Commitment	.488**	.178	.385**	.399**	-
	Information Seeking	Goal Setting	Systematic Planning and Monitoring	Persuasion and Networking	Independence & Self Confidence
Information Seeking	-	.441**	.524**	.332**	.164
Goal Setting	.441**	-	.409**	.397**	.216
Systematic Planning and Monitoring	.524**	.409**	-	.435**	.406**
Persuasion and Networking	.332**	.397	.435	-	.341**
Independence & Self Confidence	.164	.216	.226	.341**	-

*N = 117 for all correlations. **Correlation is significant at the 0.01 level (2-tailed)*

Conversely, the Beta group's correlation patterns, as presented in Table 4, highlight different emphases. The strong connection between "Persistence" and "Efficiency and Quality" (.644**) may reflect the BETA module's success in embedding the principle that consistent effort is key to achieving excellence. The link between "Systematic Planning and Monitoring" and "Goal Setting" (.494**) suggests the module's effective focus on strategic alignment between planning and goal achievement. Significantly, the correlation between "Persuasion and Networking" and "Independence & Self Confidence" (.460**) implies the module's role in bolstering self-assurance, thereby enhancing students' networking and persuasive skills, an area less emphasized by traditional educational approaches.

Table 4: *Pearson Correlation on Entrepreneurial Competencies for Beta Group (Post-Test)*

	Opportunity Seeking	Risk Taking	Efficiency and Quality	Persistence	Commitment
Opportunity Seeking	-	.196	.494**	.599**	.464**
Risk Taking	.196	-	.438**	.493**	.189
Efficiency and Quality	.494**	.438**	-	.644**	.472**
Persistence	.599**	.493**	.644**	-	.500**
Commitment	.464**	.189	.472**	.500**	-
	Information Seeking	Goal Setting	Systematic Planning and Monitoring	Persuasion and Networking	Independence & Self Confidence
Information Seeking	-	.329**	.449**	.306**	.170
Goal Setting	.329**	-	.494**	.390**	.186
Systematic Planning and Monitoring	.449**	.494**	-	.396**	.275**
Persuasion and Networking	.306**	.390**	.396**	-	.460**
Independence & Self Confidence	.170	.186	.275**	.460**	-

*N = 106 for all correlations. **Correlation is significant at the 0.01 level (2-tailed)*

Discussions

Comparison of Entrepreneurial Competencies

The comparative analysis between the Non-Beta and Beta groups, utilizing pre-post test measures, yielded valuable insights into the evolution of entrepreneurial competencies, pivotal for refining entrepreneurship education strategies. In the Non-Beta group, notable progress was recorded in "Opportunity Seeking and Initiative" and "Risk Taking," underscoring the capacity of conventional educational frameworks to nurture foundational entrepreneurial qualities, such as proactive opportunity identification and calculated risk engagement. This aligns with existing scholarship that underscores the critical nature of these competencies for entrepreneurial efficacy (Lumpkin & Dess, 1996). Conversely, participants in the Beta group, engaged with the BETA module, demonstrated substantial growth across a broader range of entrepreneurial competencies. Enhancements were particularly significant in areas like "Persistence," "Demand for Efficiency and Quality," and "Systematic Planning and Monitoring," among others. These findings lend support to the comprehensive skill-building approach of the BETA module, resonating with the holistic educational paradigms advocated by scholars such as Neck and Greene (2011). However, the lack of marked improvement in "Risk Taking" and "Persuasion and Networking" within the Beta group warrants a reevaluation of the BETA curriculum. This suggests an opportunity to further tailor the module's content to address these essential elements explicitly, enhancing its capacity to cultivate versatile entrepreneurs adept at managing risks and forging robust networks, as emphasized by Morris (1991). Optimizing the curriculum in these respects could significantly elevate the module's effectiveness in preparing students to adeptly navigate the entrepreneurial domain.

Correlation Among Entrepreneurial Competencies

Analyzing the correlation patterns between entrepreneurial competencies in both Beta and Non-Beta groups sheds light on the subtle impacts of diverse educational frameworks on skill development. These correlations reveal how different competencies are interlinked and how varied educational experiences might shape these connections. In the Non-Beta group, traditional educational approaches appear to reinforce a significant relationship between "Opportunity Seeking" and "Persistence" (correlation coefficient: .673**), suggesting that within conventional settings, the knack for spotting opportunities is closely tied to the perseverance to chase them. This finding aligns with the entrepreneurial literature that considers persistence a key enabler for leveraging opportunities (Shane & Venkataraman, 2000). Moreover, the link between "Efficiency and Quality" and "Risk Taking" (correlation coefficient: .594**) may reflect the traditional pedagogical belief that high standards and efficiency necessitate a readiness to embrace calculated risks, resonating with the notion that adept risk management underpins quality entrepreneurial outcomes (Knight, 1921). The notable correlation between "Systematic Planning and Monitoring" and "Information Seeking" (correlation coefficient: .524**) emphasizes the value placed on meticulous planning and informed decision-making within traditional educational paradigms. Conversely, the Beta group's correlations provide a nuanced view of the experiential BETA module's influence on entrepreneurial competencies. The strong association between "Persistence" and "Efficiency and Quality" (correlation coefficient: .644**) implies the module's success in embedding the ethos that consistent, diligent efforts yield superior results, echoing the deliberate practice principles where ongoing, focused endeavors are crucial for skill mastery (Ericsson et al., 1993). The linkage between "Systematic Planning and Monitoring" and "Goal Setting" (correlation coefficient: .494**) suggests the module's emphasis on aligning detailed planning

with clear goal orientation, a critical success factor in entrepreneurship as per goal-setting theory (Locke & Latham, 2002). This approach equips participants with strategic planning capabilities, crucial for navigating the entrepreneurial landscape. Furthermore, the correlation between "Persuasion and Networking" and "Independence & Self-Confidence" (correlation coefficient: .460**) highlights the module's role in enhancing self-efficacy and social skills, essential for stakeholder engagement and resource mobilization in entrepreneurial ventures, as suggested by Bandura's (1977) social learning theory. These findings articulate the comprehensive and synergistic nature of the skill set fostered by the BETA module, underscoring its potential to prepare students for the multifaceted challenges of entrepreneurship with a strategic, confident approach.

Conclusion

The study's exploration into the efficacy of the Business Essentials through Action (BETA) module, underpinned by Kearney's and Bloom's educational principles, has yielded significant insights pertinent to entrepreneurial education. Conducted within the vibrant academic milieu of Singapore Polytechnic and engaging a diverse student cohort, the research methodically assessed the module's impact on key entrepreneurial competencies using the Personal Entrepreneurial Competencies (PEC) questionnaire. The findings reveal a pronounced enhancement in competencies such as "Opportunity Seeking and Initiative" and "Persistence" among students engaged with the BETA module, underscoring the module's robustness in nurturing essential entrepreneurial traits. These improvements were notably more substantial than those observed in the control group, which followed a conventional curriculum, suggesting the unique value the BETA module brings to entrepreneurial education. However, the research also identified areas within the BETA curriculum, such as "Risk Taking" and "Persuasion and Networking," where enhancements were not as significant. This insight opens avenues for further refinement of the module, potentially incorporating more targeted strategies to bolster these competencies. In delving into the correlation patterns among various entrepreneurial competencies, the study highlighted how the BETA module fosters a synergetic development of skills, distinguishing it from traditional educational approaches. The significant correlations observed within the Beta group between competencies like "Persistence" "Efficiency and Quality," "Systematic Planning and Monitoring" and "Goal Setting," reflect the holistic and strategic focus of the BETA module. These correlations not only illuminate the interconnected nature of entrepreneurial skills but also the module's capacity to cultivate a comprehensive skill set essential for navigating the complexities of the entrepreneurial landscape.

In conclusion, this study contributes to the discourse on entrepreneurial education by providing empirical evidence of the BETA module's effectiveness in enhancing entrepreneurial competencies through an integrated application of Kearney's and Bloom's educational frameworks. The insights gleaned from this research underscore the potential of such innovative pedagogical approaches in preparing future entrepreneurs to meet the challenges of the 21st-century business world. The findings also highlight the need for continuous curriculum evaluation and adaptation to ensure that entrepreneurial education remains responsive to the evolving demands of the global market. As this study opens new pathways for academic inquiry, it invites further exploration into optimizing educational strategies to nurture the next generation of entrepreneurial leaders.

References

Anderson, L. W., & Krathwohl, D. R. (2001). A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives: complete edition. Addison Wesley Longman, Inc.

Bandura, A. (1977). Self-efficacy: toward a unifying theory of behavioural change. Psychological review, 84(2), 191.

Banha, F., Coelho, L. S., & Flores, A. (2022). Entrepreneurship education: A systematic literature review and identification of an existing gap in the field. Education Sciences, 12(5), 336.

Bell, R. (2015). Developing the next generation of entrepreneurs: Allowing students to gain experience and thrive. The International Journal of Management Education, 13(1), 37-47.

Bloom, B. S. (1956). Taxonomy of educational objectives: The classification of educational goals. Handbook I: Cognitive domain. David McKay Company.

Boyatzis, R. E. (1982). The competent manager: A model for effective performance. John Wiley & Sons.

Ericsson, K. A., Krampe, R. T., & Tesch-Römer, C. (1993). The role of deliberate practice in the acquisition of expert performance. Psychological Review, 100(3), 363-406.

Jones, C. (2010). Entrepreneurship education: Revisiting our role and its purpose. Journal of Small Business and Enterprise Development, 17(4), 500-513.

Kearney, P. (2010). Enterprising ways to teach and learn. Enterprise Design Associates.

Knight, F. H. (1921). Risk, uncertainty, and profit. Houghton Mifflin.

Lackéus, M. (2020). Comparing the impact of three different experiential approaches to entrepreneurship in education. International Journal of Entrepreneurial Behavior & Research, 26(5), 937-971.

Locke, E. A., & Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. American Psychologist, 57(9), 705-717.

Lumpkin, G. T., & Dess, G. G. (1996). Clarifying the entrepreneurial orientation construct and linking it to performance. Academy of Management Review, 21(1), 135-172.

Lynn, L. A. M., Roland, S. O. H., & George, T. E. O. (2022, May). The Effectiveness of Business Essentials through Action Module in Developing Entrepreneurial Thinking. In Tenth International Conference on Entrepreneurship and Business Management 2021 (ICEBM 2021) (pp. 364-369). Atlantis Press.

Man, T. W., & Lau, T. (2005). The context of entrepreneurship in Hong Kong: An investigation through the patterns of entrepreneurial competencies in contrasting industrial environments. Journal of Small Business and Enterprise Development, 12(4), 464-481.

McClelland, D. C. (1961). The achieving society van Nostrand Reinhold. Princeton, NJ.

McClelland, D. C. (1987). Characteristics of successful entrepreneurs. The Journal of Creative Behavior, 21(3), 219-233.

Morris, M. H., & Lewis, P. S. (1991). Entrepreneurship is a significant factor in societal quality of life. Journal of Business Research, 23(1), 21-36.

Neck, H. M., & Greene, P. G. (2011). Entrepreneurship education: Known worlds and new frontiers. Journal of Small Business Management, 49(1), 55-70.

Piaget, J. (2013). The construction of reality in the child. Routledge.

Porfírio, J., Carrilho, T., Jardim, J., & Wittberg, V. (2022). Fostering entrepreneurship intentions: The role of entrepreneurship education. Journal of Small Business Strategy, 32, 1-10.

Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. Academy of Management Review, 25(1), 217-226.

Singapore Polytechnic. (2024). Business Administration: What you'll study. Retrieved from https://www.sp.edu.sg/sb/courses/full-time-diplomas/business-administration/what-you'll-study

Spencer, L. M., & Spencer, S. M. (2008). Competence at work: Models for superior performance. John Wiley & Sons, Inc.

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