

Developing and validating an instrument for assessing e-entrepreneurial idea feasibility: a critical review

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Abstract

Purpose – This study critically evaluates the theoretical foundations, methodological rigor, and psychometric properties of an instrument developed to assess e-entrepreneurial idea feasibility in higher education. The review focuses on whether the proposed instrument adequately captures the distinctive technological and digital characteristics of e-entrepreneurship and whether its validation procedures provide sufficient evidence of measurement quality.

Design/methodology/approach – This research adopts a critical review approach to systematically examine the conceptualization, instrument development, sampling procedures, experimental design, scale purification, and validity assessment reported in the original study. Particular attention is given to the use of the Business Model Canvas, the reduction of the initial 41-item pool, the characteristics of the validation sample, the experimental vignettes, and the application of Principal Component Analysis and Partial Least Squares Confirmatory Composite Analysis.

Findings – The review identifies several substantive theoretical, methodological, and psychometric concerns. The scale purification process reduced 41 items to 13 items across four factors, but eliminated the infrastructure management dimension that encompasses important technological and digital aspects of e-entrepreneurship. The review also identifies a mismatch between the intended target population and the EMBA validation sample, the absence of known-groups validity testing, and informational asymmetries between the experimental vignettes and the financial dimensions assessed by the instrument. These limitations raise concerns regarding the extent to which the instrument captures the feasibility of contemporary digital business concepts.

Originality/value – This study contributes a critical perspective on the measurement of e-entrepreneurial idea feasibility by highlighting the tension between the claimed digital distinctiveness of e-entrepreneurship and the predominantly generic business characteristics represented in the final instrument. The findings suggest that future instrument development should retain technological and digital infrastructure dimensions, strengthen alignment between target populations and validation samples, and employ more comprehensive validity testing to establish a contextually appropriate measure for digital entrepreneurship education.

Keywords E-entrepreneurship, entrepreneurial idea feasibility, critical review, scale development, psychometric validation, digital entrepreneurship

Paper type Critical review

1. Introduction

In the contemporary global economy, the proliferation of ubiquitous digital infrastructures, cloud computing architectures, and mobile ecosystems has fundamentally reconfigured the nature of new venture creation. As entrepreneurial activity increasingly migrates from brick-and-mortar environments to digital platforms, higher education institutions face mounting pressure to move beyond inspiring entrepreneurial intentions toward cultivating actionable competencies in generating, stress-testing, and validating viable digital business concepts. Yet a persistent pedagogical and psychometric bottleneck remains: how can educators and researchers objectively quantify the feasibility of an embryonic digital business concept before it enters the market? Addressing this question, the authors (Lin et al., 2024) endeavors to construct a standardized psychometric scale tailored to higher education entrepreneurship learning.

The authors Lin et al. (2024) seek to bridge the divide between conceptual business modeling and empirical educational assessment. They argue that existing entrepreneurial idea measures are hampered by three primary deficiencies: a lack of consensus on evaluative criteria, an implicit bias toward traditional offline ventures that overlooks the technological complexities of e-entrepreneurship, and a



focus on general industry stakeholders rather than undergraduate learners in academic settings (Lin et al., 2024). To overcome these limitations, the authors (Lin et al., 2024) anchor their scale development using Business Model Canvas (BMC) (Osterwalder & Pigneur, 2010) alongside typology of utilitarian and hedonic online consumer values (Ciocodeică et al., 2025; Wei et al., 2023). Through a two-phase quantitative validation involving $N = 299$ valid responses from Executive Master of Business Administration (EMBA) students in Taiwan, the authors (Lin et al., 2024) distill an initial 41-item pool into a 13-item, four-factor reflective-reflective second-order instrument encompassing Value Creation and Customer Relationship Management, Cost Structure, Business Viability, and Customer Segmentation and Personalization.

While the authors (Lin et al., 2024) warrant commendation for addressing an important assessment gap in digital entrepreneurship pedagogy and demonstrating strong internal consistency metrics across their condensed subscales, a rigorous critical evaluation reveals that the study's contribution is significantly compromised by foundational methodological, psychometric, and structural tensions. Specifically, the research design exhibits a pronounced misalignment between its stated target population (undergraduate learners and university faculty) and its validation sample (online-recruited EMBA students displaying an anomalous age profile), suffers from severe construct underrepresentation following a 68.3% item attrition rate that strips away specifically digital and technological dimensions, and commits a major analytical omission by failing to execute a known-groups validity test despite randomly assigning respondents to real-world successful and failed venture vignettes. Furthermore, when evaluating the manuscript through the dual lenses of stakeholder characterization and rhetorical pacing, examining both the narrative construction of the experimental business vignettes and the structural tempo of the academic argument, the study (Lin et al., 2024) exhibits informational asymmetries between its experimental stimuli and scale items, an abrupt compression of the item-purification phase, and contradictory characterizations of its raters' expertise.

2. Research methods

To evaluate and synthesize the literature, this research utilizes a critical review approach (By, 2005; Franzke et al., 2022; Mohamad Yunus et al., 2024; Pirmoradi et al., 2025). In contrast to conventional narrative reviews, this methodological framework systematically interrogates the theoretical underpinnings, methodological rigor, and contextual limitations of previous studies (Fernandez, 2019).

3. Results and discussion

The authors (Lin et al., 2024) organize their study into a classic five-section empirical structure supplemented by an appendix containing two experimental business vignettes. In Section 1 (Introduction), the authors (Lin et al., 2024) distinguish e-entrepreneurship from traditional entrepreneurship by emphasizing its reliance on the internet and advanced information and communication technologies (ICT), rapid scalability, global reach, and cost efficiency. They contend that because idea generation and validation form the bedrock of e-venture survival, universities require a dedicated, reliable instrument to evaluate the feasibility of undergraduate students' e-entrepreneurial ideas during coursework.

Synthesizes three theoretical streams. First, the authors (Lin et al., 2024) define an e-entrepreneurial idea as a raw conjecture regarding how a digital venture can profitably create utilitarian and hedonic value for customers through ICTs, mobile apps, and cloud platforms. Second, they review prior idea and opportunity evaluation instruments, arguing that these tools fail to evaluate the multidimensional feasibility of an independent e-entrepreneurial idea in an academic context. Third, they introduce nine-block Business Model Canvas (grouped into product, customer interface, infrastructure management, and financial aspects) (Osterwalder & Pigneur, 2010) to justify using the BMC as the structural blueprint for their assessment instrument.

The authors (Lin et al., 2024) outline their empirical procedures. They generated an initial pool of 41 items mapped onto the BMC components and value dimensions, refined via content validity reviews by three professors and two domain experts. To test the items, they crafted two anonymized e-entrepreneurial idea descriptions based on real-world Taiwanese parking-service ventures, one an ongoing commercial success (Idea I: a peer-to-peer smart-lock parking space sharing platform) and the other a defunct commercial failure (Idea II: an on-demand urban valet parking app), and randomly assigned survey participants to evaluate one of the two vignettes on a 7-point Likert scale. Purposive sampling via Google Forms posted on Facebook and PTT yielded 315 EMBA students with prior work experience, reduced to $N = 299$ after removing 16 outliers via z-scores. The valid sample was randomly split into two subsamples: $n = 149$ for exploratory Principal Component Analysis (PCA) with Varimax rotation in SPSS, and $n = 150$ for higher-order Partial Least Squares Confirmatory Composite Analysis (PLS-CCA) in SmartPLS.

Reports that iterative PCA pruning (retaining loadings > 0.70 and removing cross-loadings within 0.20) reduced the 41 items to 13 items across four factors explaining 79.676% of total variance. The PLS-CCA validated a reflective-reflective second-order measurement model with satisfactory composite reliability ($CR > 0.80$), convergent validity ($AVE > 0.50$), and discriminant validity ($HTMT < 0.85$). Criterion-related validity was supported by positive Pearson correlations between the scale/subscales and two single-item global measures of overall idea value ($r = 0.596$, $p < 0.001$) and overall idea feasibility ($r = 0.622$, $p < 0.001$). Finally, interprets the four surviving factors, connects

Theoretical grounding and construct conceptualization: where is the "e" in e-entrepreneurship?

A foundational tension of the study (Lin et al., 2024) lies in the disconnect between the theoretical distinctiveness claimed for *e-entrepreneurship* in the opening sections and the generic nature of the psychometric items that survive in the final validated instrument. The authors (Lin et al., 2024) build a compelling case that e-entrepreneurship is not merely traditional business conducted with computers, but a qualitatively distinct phenomenon characterized by omni-channel digital integration, virtual team coordination, rapid technological adaptation, network-driven scalability, and data/content monetization. Furthermore, they justify the creation of a new scale on the explicit premise that existing scales "have primarily been designed and used in offline contexts and may not fully capture the nuances and complexities of e-entrepreneurship".

However, an inspection of the final 13-item instrument presented in Table 1 reveals that virtually every uniquely digital, technological, or platform-specific attribute has been eliminated during scale purification. Apart from the repetitive stem "*This e-entrepreneurial idea...*" attached to each statement, the 13 items measure entirely conventional retail and business planning concepts:

- Factor 1 (Value Creation and CRM) assesses whether the idea brings convenience (VCCRM1), allows customers to share usage experiences (VCCRM2), helps customers find products/services without excessive effort (VCCRM3), and motivates repurchase (VCCRM4).
- Factor 2 (Cost Structure) evaluates whether the idea offers clear estimates of initial investment costs (CS1), fixed and variable operating costs (CS2), and unit costs (CS3).
- Factor 3 (Business Viability) asks whether the idea facilitates marketing activities (BV1), has a high gross profit margin (BV2), and holds potential for high profits (BV3).
- Factor 4 (Customer Segmentation and Personalization) measures whether the idea customizes products/services (CSP1), meets diverse needs of target groups (CSP2), and designs personalized customer services (CSP3).

If an educator were to replace the phrase "*This e-entrepreneurial idea*" with "*This neighborhood bakery concept*" or "*This traditional manufacturing venture*," all 13 items would remain grammatically and conceptually identical. Crucial dimensions of e-entrepreneurial feasibility—such as cybersecurity and data privacy compliance, digital platform architecture and technical feasibility, user interface/user experience (UI/UX) friction, customer acquisition cost (CAC) versus digital viral coefficient, cloud infrastructure scalability, and multi-sided network effects, are entirely absent.

This construct underrepresentation stems directly from how the authors operationalized and subsequently pruned the Business Model Canvas. The nine BMC building blocks divide into four pillars: Product, Customer Interface, Infrastructure Management (*Key Resources*, *Key Activities*, and *Key Partnerships*), and Financial Aspects (Osterwalder & Pigneur, 2010). By reducing 41 items to 13, the PCA entirely wiped out the Infrastructure Management pillar, leaving zero items measuring technological resources, software development partnerships, or digital platform governance. Although the authors (Lin et al., 2024) to argue that focusing on a subset of BMC components is acceptable, losing the infrastructure pillar in an *e-entrepreneurship* feasibility scale removes the exact domain where technical feasibility and digital execution reside.

Table 1. Critique of research methodology and psychometric design

Methodological Dimension	Authors' Reported Procedure	Identified Methodological / Psychometric Vulnerability
Sampling Frame & Recruitment	Purposive sample of N =	Population Mismatch &
	315 (299 valid) EMBA	Demographic Anomaly: Validated
	students recruited via	on EMBA students rather than
	Google Forms on Facebook	target users
	and PTT with a prize draw	(undergraduates/faculty); 41.27%
		of "EMBA" respondents were aged 20–29; unverified open-forum recruitment
Experimental Vignette Design	Randomly assigned raters	Omitted Known-Groups Validity
	to 1 of 2 real-world cases:	Test: Never tested whether the
	Idea I (successful venture)	scale scored the successful
	or Idea II (failed/closed	venture (Idea I) significantly
	venture)	higher
		than the failed venture (Idea II); pooled data across vignettes without controlling for between-

		group variance.
Stimulus-to-Item Alignment	Raters evaluated the	informational Asymmetry: Neither
	Appendix vignettes across	vignette in the Appendix contains
	41 items (13 retained,	data on initial investment costs,
	including 3 Cost Structure and 2 Profit Margin items)	fixed/variable operating costs, unit costs, or profit margins

Conclusion

[Lin et al \(2024\)](#) identify a crucial need for a standardized tool to evaluate e-entrepreneurial ideas in higher education and their proposed instrument is ultimately undermined by profound methodological, psychometric, and structural limitations. By aggressively pruning their scale from 41 to 13 items, the authors eliminated the technological and digital infrastructure dimensions essential to e-entrepreneurship, resulting in a generic assessment tool that fails to capture the unique digital nuances it claims to measure. Furthermore, the study's validity is severely compromised by a misaligned sampling frame that relies on EMBA students rather than the target undergraduate population, alongside a critical failure to conduct known-groups validity testing between the successful and failed venture vignettes. The reliability of the results is further questioned by informational asymmetries, as the experimental vignettes lacked the specific financial data that participants were asked to evaluate. Ultimately, until these foundational tensions and construct under-representations are resolved, the scale cannot be reliably deployed to assess the feasibility of modern digital business concepts.

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