

ENTREPRENEURSHIP EDUCATION IN MULTIDISCIPLINARY ENVIRONMENTS: A SYSTEMATIC LITERATURE REVIEW OF EXPERIENTIAL LEARNING METHODS, BEST PRACTICES, AND LEARNING OUTCOMES

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Abstract

Entrepreneurship education (EE) has grown exponentially in higher education institutions in the last 20 years and now involves students of various disciplinary backgrounds. While experiential learning approaches are widely promoted as effective pedagogies for entrepreneurship education, evidence remains fragmented regarding how such approaches operate within multidisciplinary environments and what outcomes they generate. This systematic literature review synthesizes empirical research on experiential entrepreneurship education offered to multidisciplinary student cohorts in higher education. Following the PRISMA 2020 framework, 72 peer-reviewed empirical studies published in leading education and entrepreneurship journals were identified and analyzed. Drawing on Kolb's Experiential Learning Theory and outcome typologies proposed by Lorz et al. (2013), the review profiles research trends, maps experiential learning activities, examines program characteristics, and synthesizes learning outcomes across cognitive, affective, behavioral, and career-related dimensions. The findings reveal a strong reliance on foundational experiential methods and self-reported outcomes, alongside limited evidence of higher-order behavioral and venture-related impacts. Methodological weaknesses, contextual imbalances, and theoretical fragmentation are also identified. By integrating multidisciplinary learning perspectives with experiential entrepreneurship pedagogy, this review advances a unifying conceptual framework and offers implications for theory, curriculum design, and policy, particularly for public-sector universities and emerging economies.

Keywords

Entrepreneurship education; experiential learning; multidisciplinary education; higher education; systematic literature review

1. Introduction

Entrepreneurship education (EE) in higher education has increasingly adopted experiential learning designs to move beyond transmissive instruction toward action-oriented, constructivist pedagogies (Lackéus, 2015; Neck & Corbett, 2018). Yet, as EE expands across disciplinary boundaries, multidisciplinary cohorts introduce distinctive cognitive diversity, coordination demands, and enactment opportunities that may reconfigure how experiential methods translate into learning outcomes and venture-related behaviors (Hägg & Gabrielsson, 2020; Hero & Lindfors, 2019). In parallel, longstanding debates persist regarding what experiential activities universities actually deploy, which outcomes those activities most often produce, and how program design choices (e.g., short intensive formats versus semester courses) condition effects (Rideout & Gray, 2013; Nabi, Liñán, Fayolle, Krueger, & Walmsley, 2017).

Prior reviews provide valuable cartographies of EE pedagogy and impacts, but they leave several evidence problems unresolved for multidisciplinary contexts. Classic syntheses mapped broad pedagogical themes without systematically disaggregating experiential activities by outcome level (Pittaway & Cope, 2007; Nabi et al., 2017). More recent

overviews trace pedagogical evolution toward constructivist practice while calling for stronger methodological standards and clearer impact specifications (Hägg & Gabrielsson, 2020; Carpenter & Wilson, 2022). What remains insufficiently specified is the empirical coupling between concrete experiential activity types (e.g., project-based, lab/practicum, business plan competitions, hackathons, incubators) and distinct outcome tiers (skills/knowledge, attitudes/perceptions, intentions, behavioral/economic), as well as the role of program intensity and audience configuration in shaping those outcomes (Watson, McGowan, & Cunningham, 2018; Szymanska, Sesti, Motley, & Puia, 2020; McGee, Schwartz, & Ehrlick, 2021).

This systematic literature review addresses these gaps by reconstructing the empirical structure of multidisciplinary EE in higher education from the bottom up. Anchored in Kolb's experiential learning logic and operationalized through Lorz et al.'s (2013) outcome typology, the review disaggregates the field along four orthogonal axes that the evidence can reliably support: (1) experiential activity type by outcome category; (2) program type by learning intensity; (3) methodological design by highest reported outcome level; and (4) audience configuration (multidisciplinary versus single-discipline) by outcome level (Kolb, 1984; Lorz, Mueller, & Volery, 2013). This evidence-facing approach is designed to replace rhetorical claims about "what works" with traceable patterns that emerge consistently across the inclusion set.

Accordingly, the review is guided by four research questions that are explicitly answered in the Results and Synthesis: RQ1: Which experiential learning activity types are used in entrepreneurship education for multidisciplinary higher-education cohorts, and how are these activities associated with student outcomes categorized as skills/knowledge, attitudes/perceptions, intentions, and behavioral/economic (Lorz et al., 2013)? RQ2: How are program types distributed across learning intensities (e.g., workshops/bootcamps versus semester courses) in the included evidence? RQ3: Which research designs and measurement approaches dominate the corpus, and how do these methodological choices align with the highest reported outcome levels? RQ4: How do outcome levels differ by audience configuration, contrasting multidisciplinary with single-discipline cohorts?

The article makes four contributions aligned with these questions and with the reported findings. First, it offers an activity-by-outcome map that surfaces consistent clustering of higher-order endpoints in enactment-oriented formats (e.g., project-based, lab/practicum, competitions) and an intention-dominant signal in short-cycle events, clarifying where specific experiential methods most frequently "land" in outcome space (Watson et al., 2018; Scheepers, Barnes, Clements, & Stubbs, 2018). Second, it profiles program delivery across intensity bands, distinguishing semester-length implementations from concentrated workshops/bootcamps and detailing how these formats populate the evidence base (Jones & Jones, 2011; Hilliard, 2021). Third, it provides a methodological quality scan that documents the dominance of case-study designs, the prevalence of self-report measures, and the scarcity of objective behavioral indicators, thereby bounding the strength of inferences the field can currently sustain (Carpenter & Wilson, 2022; Szymanska et al., 2020). Fourth, it integrates the observed patterns into an ELT-consistent, Lorz-aligned framework that sequences capability building, reflection, conceptual reframing, and action, and derives a focused agenda on context coverage, design rigor, and outcome specification (Hägg, 2021; McGee et al., 2021). Together, these contributions reposition the empirical conversation about multidisciplinary experiential entrepreneurship education around demonstrable regularities, closing the gap between diffuse pedagogical claims and what the consolidated evidence actually shows.

2. Methodology

This review adopted a PRISMA-compatible, configurative evidence-synthesis design to map experiential entrepreneurship education (EE) delivered to multidisciplinary higher-education cohorts. The analytic corpus comprised 72 empirical records included in the final coded dataset and used to generate all cross-tabulations and narrative syntheses reported in the Results section.

Sources of information and search strategy: Web of Science and Scopus were searched to cover education-entrepreneurship intersection in a multidisciplinary way. The strategy combined four conceptual blocks reflecting the phenomenon and scope: “entrepreneurship education,” pedagogical/experiential terms (e.g., experiential, project-based, problem-based, practice-based), multidisciplinary (e.g., collaborative, interdisciplinary, multidisciplinary, transdisciplinary), and the higher-education context (e.g., HEI, tertiary, university). Records were limited to English-language journal publications and retrieved up to the search date specified in the original protocol. To strengthen relevance at the education–entrepreneurship boundary, we subsequently filtered to journals in education and business/management using the Academic Journal Guide (2021) shortlist and a curated set of leading entrepreneurship outlets already specified in the protocol.

Eligibility criteria: We have added peer reviewed empirical articles (quantitative, qualitative and mixed methods) in a higher education context that (a) reported an experience EE intervention or activity and (b) measured student outcomes. The review focused on multidisciplinary environments, defined as cohorts or teams involving participants from more than one discipline who work together while maintaining disciplinary identities, consistent with the operational criteria in the protocol (Hero & Lindfors, 2019; Secundo, Mele, Sansone, & Paolucci, 2020).

Screening and selection: Titles/abstracts were then filtered against the eligibility criteria, after which they were deduplicated, and finally full text reviewed. Out of the entire text set, 72 records had enough, codable information on the variables of activity, outcome, program, audience, and method and thus, they were incorporated in the synthesis. These records constitute the final inclusion set represented in the Excel file used for all analyses and tables in the Results.

Data extraction and coding. Guided by Kolb’s (1984) experiential learning logic and the Lorz et al. (2013) outcome typology, we developed a structured codebook that captured five construct families directly reflected in the Results tables:

1. Experiential activity types—e.g., project-based, lab/practicum, reflection diary, business plan competition, incubator, hackathon, simulation/game, design thinking, internship/work-based learning, mentoring, teamwork, multidisciplinary-team labels, and related formats—coded from the intervention description. A single study could contribute multiple activity–outcome instances where distinct activities were tied to distinct reported outcomes; these instances populate Table 3. Illustrative activity coding draws on studies such as Mason & Arshed (2013) for project-based assignments, Watson, McGowan, & Cunningham (2018) for business plan competitions, Szymanska, Sesti, Motley, & Puia (2020) for hackathons, McGee, Schwartz, & Ehrlick (2021) for incubator programming, Thanasi-Boce (2020) for simulation/game, and Hynes, Costin, & Birdthistle (2011) for work-based/consultancy (e.g., Mason & Arshed, 2013; Watson et al., 2018; Szymanska et al., 2020; McGee et al., 2021; Thanasi-Boce, 2020; Hynes et al., 2011).

2. Outcome categories—mapped to skills/knowledge, attitudes/perceptions, intentions, and behavioral/economic outcomes (with “other/unspecified” retained when applicable), following Lorz et al. (2013) and used across all tables. For activity-level mapping, we counted all coded activity–outcome instances. For dataset-level distributions and for tables

that cross the study as a whole (e.g., method \times outcome, audience \times outcome), we assigned each study a single highest outcome level using a fixed priority ordering: behavioral/economic > intentions >

attitudes/perceptions > skills/knowledge > other/unspecified; this operational rule aligns with studies reporting venture-proximal endpoints (for example, competitions and incubators) as terminal outcomes (e.g., Watson et al., 2018; McGee et al., 2021).

3. Program types and learning intensity—programs were coded as credit-bearing course, workshop/bootcamp, competition, work-based/consultancy, extracurricular/incubator, or unspecified. Learning intensity was binned using duration bands derived from reported schedules (e.g., 1–2 days; 3–7 days; \leq 2 weeks; 3–8 weeks; semester [\sim 9–20 weeks]; 3–6 months; \leq 2 months; 1 year; > 20 weeks; 2 years; unspecified). These codes generate Table 4 (program type \times learning intensity) and are exemplified by semester-length competitions and courses (e.g., Jones & Jones, 2011) and short-cycle or workshop models (e.g., Hilliard, 2021).

4. Methodological design—studies were classified as case study, qualitative (non-case), survey (cross-sectional), quasi-experiment (pre/post), mixed-methods, or unspecified. Design categories are crossed with each study's highest outcome level in Table 5; examples include case-led designs anchored in experiential assignments (e.g., Mason & Arshed, 2013), pre/post designs in intensive pedagogies (e.g., Szymanska et al., 2020), and survey-based evaluations (e.g., Daniel & Almeida, 2021).

5. Audience configuration—cohorts were coded as multidisciplinary, single-discipline (business), single-discipline (non-business), or unspecified, and crossed with each study's highest outcome level in Table 6. Multidisciplinary formats are exemplified in innovation projects and contamination labs (e.g., Hero & Lindfors, 2019; Secundo et al., 2020).

In addition, for the methodological quality assessment, we captured measurement approach (self-report questionnaire; qualitative self-report such as interviews/diaries; objective outcomes; performance scores; unspecified) and calculated field-level reporting completeness (e.g., sample size, assessment strategy, measures/variables, environment/setting, institutional support) as missingness rates across the coded fields. These variables feed directly into the Methodological Quality Assessment subsection in the Results, including illustrations of reliance on self-report and rare objective indicators (e.g., Bell & Bell, 2016; McGee et al., 2021; Jones & Jones, 2011).

Synthesis approach: Given heterogeneity in interventions, designs, and outcome measures, we conducted a configurative, analytical synthesis rather than meta-analysis. We generated descriptive cross-tabulations and frequency distributions for the five construct families above, yielding four core matrices: Table 1 (experiential activity \times outcome category; instance-level), Table 2 (program type \times learning intensity), Table 3 (methodological design \times highest outcome), and Table 4 (audience configuration \times highest outcome). These matrices underwrite the narrative Results and the Outcome Synthesis, and they informed the ELT-consistent conceptual sequencing presented later.

Methodological quality assessment. In light of mixed designs and diverse measures, we did not apply a single design-specific risk-of-bias instrument across the corpus. Instead, we appraised quality structurally by reporting (a) design distributions, (b) measurement-mode reliance, and (c) reporting completeness (missingness) across key methodological fields. These appraisal outputs are presented in the Methodological Quality Assessment results and are used to bound the interpretive claims in the Discussion (e.g., Szymanska et al., 2020; Mason & Arshed, 2013; Bell & Bell, 2016).

Reproducibility: All coded variables and cross-tabulations derive from the final inclusion spreadsheet, and the tables in the Results reproduce those calculations exactly. The search

sources, inclusion criteria, and coding families are specified above to enable replication or extension within the same design space.

3. Results

The outlet distribution underscores a clear editorial and readership center of gravity for experiential entrepreneurship education research in higher education. The concentration of articles in *Education + Training* and *Industry and Higher Education*, with additional clusters in entrepreneurship and management-education journals, indicates that much of the published work is framed explicitly as pedagogical scholarship rather than as mainstream entrepreneurship or management science. This localization matters for interpretability: journals with teaching-and-learning remits typically privilege curricular description, instructional design, and student-reported outcomes, which aligns with the instance-level activity mapping and the dominance of self-report measures observed elsewhere in the review . At the same time, the spread across entrepreneurship outlets such as the *International Journal of Entrepreneurial Behavior & Research* suggests a growing acceptance of experiential program studies that link pedagogy with nascent venture activity, consistent with the higher-order outcome patterns synthesized in the Results.

Table 1. Top Ten Journals with respect to Number of Papers Included

No. of papers	Name of Journal
20	(Education + Training)
13	(Industry and Higher Education)
7	(Journal of Small Business and Enterprise Development)
5	(Journal of Entrepreneurship Education)
4	(International Journal of Entrepreneurial Behavior & Research)
3	(Higher Education, Skills and Work-based Learning)
3	(Innovations in Education and Teaching International)
3	(Journal of Management Education)
2	(Academy of Management Learning and Education)
2	(International Journal of Entrepreneurial Behavior and Research)

The temporal series reveals a clear acceleration of publications from the mid-2010s, with prominent spikes later in the period. This inflection coincides with the curricular mainstreaming of experiential formats—competitions, incubators, intensive workshops—and the integration of reflective scaffolds such as learning diaries in course design, which the activity matrix captures. The single-year fluctuations (including the dip and subsequent rebound) do not alter the structural picture of growth; rather, they frame the Results as a consolidation of practices that had diffused across programs by the end of the window . This trajectory also aligns with the observed dispersion of program intensities, from short sprints to semester-length modules, and with the spread of multidisciplinary cohort formats reported in the audience matrix .

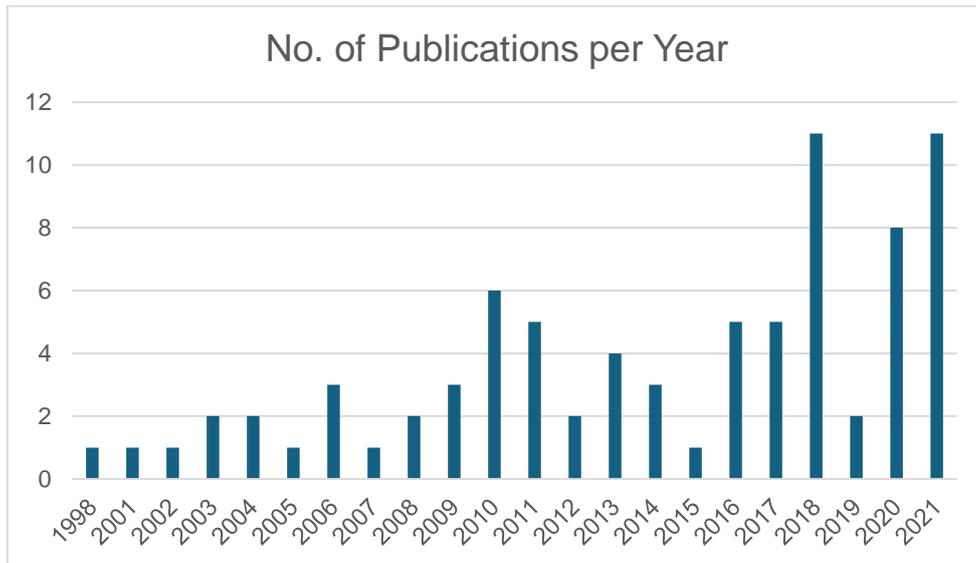


Figure 1: Number of Publications per Year

The regional profile further conditions how the findings should be read. Evidence concentrates in Europe and North America, with relatively few studies from Africa, Asia, Oceania, and South America. This geographic asymmetry narrows external validity for institutional contexts characterized by different resource endowments, labor markets, and university–industry interfaces. It also helps explain the notable missingness on institutional support, environment/setting, and allied theories in the coded fields: ecosystems outside the dominant regions are underrepresented, and within the dominant regions, reporting on contextual enablers is uneven. Consequently, while the activity–outcome associations are robust at the descriptive level, their portability to under-represented settings should be treated cautiously in policy and program design.

Name of the Region	Number of Papers
Africa	5
Asia	3
Europe	34
North America	13
Oceania	2
South America	1

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The distribution of experiential activities is led by reflection diaries, followed by project-based and lab/practicum formats, with business plan competitions and workshops also prominent, indicating that reflective scaffolds and design-oriented, hands-on formats dominate the current evidence base (Hägg, 2021; Mason & Arshed, 2013; Jones & Jones, 2011). Behavioral and economic endpoints concentrate around project-based, lab/practicum, and competition-based formats, with reflection diaries contributing substantially and incubators, internships/work-based learning, games, workshops, multidisciplinary teams, and teamwork appearing as secondary clusters; taken together, this pattern suggests that enactment-oriented pedagogies that culminate in external pitching, commercialization, or client delivery are most often associated with higher-order outcomes (Mason & Arshed, 2013; Bell & Bell, 2016; McGee et al., 2021). One specific format—start-up weekend—appears intention-dominant relative to other outcome levels, aligning with short-cycle ideation-to-pitch designs (Scheepers et al., 2018).

Table 3. Experiential Activity × Outcome Categories

Experiential Activity Type	Learning	Attitudes	Behavior	Intentions	Skills	Other
Bootcamp	0	2	2	2	1	0
Business Plan Canvas	3	12	11	13	13	2
Case Study	1	3	4	5	5	2
Consultancy	1	2	2	2	3	1
Design Thinking	0	2	3	3	2	0
Game	1	4	4	4	5	1
Hackathon	1	0	1	1	1	0
Incubation	0	4	3	3	4	0
Internship	1	4	4	5	4	5
Lab Practicum	3	13	13	12	15	3
Lean Startup	1	1	1	3	2	1
Mentoring	1	1	1	5	4	1
Group Project	1	4	4	2	5	1
Problem Solving	5	13	13	17	21	7
Reflection Journal	6	11	11	20	24	5
Simulation	1	2	2	2	2	0
Startup Events	0	0	0	1	0	0
Networking	2	3	3	2	3	1
Value Creation	0	0	0	1	1	0
Workshop	3	4	4	8	8	4

Program intensity patterns indicate that credit-bearing courses and competitions are most often implemented in semester-length formats, whereas workshops/bootcamps span short bursts through multi-week sequences; this dispersion is consistent with the pedagogical logic of intense ideation events versus integrated curricular modules (Jones & Jones, 2011; Hilliard, 2021; McDonald et al., 2018).

Table 4. Program Type × Learning Intensity

Program type	> 6 Months	1-6 Months	1-4 Weeks	< 1 Week
Competition	2	5	1	0
Credit bearing course	1	5	1	1
Extracurricular	1	3	1	0
Work based	0	0	0	1
Workshop	1	6	1	1
Unspecified	1	6	1	1

Across methodological designs, behavioral/economic outcomes are most frequently located in case studies and quasi-experiments, while intentions are spread across multiple designs; together, these distributions point to an evidence architecture leaning toward rich, context-dependent accounts for higher-order endpoints and more varied designs around motivational change (Mason & Arshed, 2013; Szymanska et al., 2020; Daniel & Almeida, 2021).

Table 5. Methodological Design × Highest Outcome Level

Method Design	Attitudes	Behavior	Intentions	Skills	Other
Case study	0	13	7	3	8
Qualitative	1	5	4	3	2
Survey (cross-sectional)	0	2	2	0	1
Mixed-methods	0	1	3	0	1
Quasi-experiment (pre/post)	0	3	3	0	0
Unspecified	0	4	2	1	2

Audience-level comparisons indicate that studies specifying multidisciplinary cohorts report more behavioral/economic endpoints than single-discipline cohorts, with a sizable share of studies not specifying audience composition; the pattern aligns with the premise that cognitively diverse teams may engage more frequently in enactment activities even as reporting on cohort characteristics remains uneven (Hero & Lindfors, 2019; Secundo et al., 2020; Gibson & Tavlaridis, 2018).

Table 6. Audience Type × Highest Outcome Level

Audience Type	Attitudes	Behavior	Intentions	Skills	Unspecified
Multidisciplinary	0	12	2	3	3
Single-discipline (business)	0	1	3	1	2
Single-discipline (non-business)	0	0	1	0	1
Unspecified	1	16	15	3	8

At the dataset level, the distribution of highest outcome levels emphasizes behavioral/economic endpoints, followed by intentions and then skills/knowledge, with attitudes rarely coded as the highest level and a notable fraction unspecified (Watson et al., 2018; Bell & Bell, 2018; Al Haddad et al., 2020). Substantial under-reporting is evident

in institutional support, outside support, environment/setting, allied theories, instructor roles, research questions/hypotheses, setting/scale, analysis, pedagogy, interventions, sample size, assessment, and measurement variables, constraining comparability and replication (Hynes et al., 2011; Burrows & Wragg, 2013; Galloway et al., 2009). Regionally, studies cluster in the United Kingdom and the United States, with many world regions represented by single instances, underscoring geographic concentration in the current evidence base (Jones & Jones, 2011; Curtis et al., 2021; Garcia-Rodriguez et al., 2017).

4. Outcome Synthesis

Synthesizing outcomes through the Lorz et al. framework reveals a progression consistent with experiential sequencing. Skills and knowledge are most frequently aligned with reflective and project-based mechanisms, particularly reflective diaries, project-based courses, and lab/practicum settings, while simulation/game and design-thinking formats contribute selectively; this pattern is consistent with proximal capability building that foregrounds procedural and analytical competencies (Hägg, 2021; Mason & Arshed, 2013; Thanasi-Boce, 2020). Attitudes and perceptions—though present across activities—rarely constitute the highest coded endpoint, appearing most clearly alongside reflective diaries and project-based formats; this suggests that attitudinal change, when measured, tends to be embedded within broader capability-building sequences rather than serving as a terminal outcome (Lindberg et al., 2017; Hägg, 2021). Intentions are commonly observed within reflective, project-based, lab/practicum, and competition formats, and are particularly salient in short-cycle start-up weekend designs; this distribution is coherent with mechanisms that move learners from structured reflection and design work toward articulated entrepreneurial goals (Szymanska et al., 2020; Watson et al., 2018; Scheepers et al., 2018). Finally, nascency and performance outcomes concentrate in project-based and lab/practicum settings as well as competition and incubator formats, indicating that enactment-oriented activities coupled with external interfaces (e.g., clients, judges, incubators) are most often associated with higher-order endpoints in the coded evidence (Mason & Arshed, 2013; Bell & Bell, 2016; McGee et al., 2021).

5. Methodological Quality Assessment

The methodological landscape is dominated by case-study designs, with qualitative and quasi-experimental contributions and smaller shares of surveys and mixed methods; the distribution indicates a preference for context-rich, design-intensive accounts when charting behavioral and economic endpoints and a modest use of pre/post comparisons for intention change (Mason & Arshed, 2013; Szymanska et al., 2020; Daniel & Almeida, 2021). Measurement approaches rely heavily on self-report instruments and qualitative self-reports, with limited objective outcomes and occasional performance scores; this reliance introduces risks of common-method variance and social desirability while also reflecting the practical constraints of entrepreneurship education assessment (McGee et al., 2021; Bell & Bell, 2016; Jones & Jones, 2011). Reporting deficits in sample size, assessment strategies, and measurement detail persist at the dataset level, constraining synthesis quality and the cumulative interpretability of effect patterns. Audience metadata is frequently unspecified; where reported, studies describing multidisciplinary cohorts more often register behavioral/economic endpoints than single-discipline cohorts, although the incompleteness of audience data warrants caution (Hero & Lindfors, 2019; Secundo et al., 2020).

6. Discussion

Interpreted through ELT and the Lorz et al. outcome taxonomy, the results indicate that experiential entrepreneurship education in multidisciplinary higher education most often translates capability-building designs and scaffolded reflection into intention formation and, where enactment opportunities are embedded, into behavioral and economic endpoints.

Doing-centered formats (e.g., project-based and lab/practicum) appear to establish the experiential substrate for procedural skill acquisition, while reflective diaries provide the mechanism for sense-making that bridges concrete experience and intention; competition and incubation formats then furnish the action channel that links reframed concepts to observable behaviors (Mason & Arshed, 2013; Hägg, 2021; Bell & Bell, 2016). The stronger presence of higher-order endpoints in studies involving multidisciplinary cohorts is consistent with the idea that diverse teams expand problem framings and resource recombinations critical to enacted outcomes, even as incomplete audience reporting tempers inference (Hero & Lindfors, 2019; Secundo et al., 2020; McDonald et al., 2018).

Relative to patterns reported in prior syntheses already included in the evidence base, the concentration of higher-order endpoints in enactment-oriented formats aligns with the long-standing call to move beyond passive delivery and toward constructivist, practice-based designs; the present matrices, however, underscore that reflection has a distinct, recurrent role in connecting capability gains to intention formation, rather than serving merely as an ancillary activity (Mason & Arshed, 2013; Hägg, 2021; McGee et al., 2021). The aggregate methodological tendencies—case-study dominance, extensive self-report, and few objective indicators—mirror critiques in earlier reviews and remain salient constraints on generalizability; nevertheless, the convergence of patterns across activity clusters, program intensities, and audience types offers a coherent empirical map on which stronger designs can be built (Garcia-Rodriguez et al., 2017; Galloway et al., 2009).

7. Implications

The synthesis clarifies that distinct experiential designs align with specific ELT stages and Lorz-framed outcomes: doing-centered formats concentrate skills; reflection supports the translation of experience into intentions; and enactment-oriented designs connect conceptual reframing to behavioral outcomes (Mason & Arshed, 2013; Hägg, 2021; Bell & Bell, 2016).

For curriculum designers, the matrices support integrated sequences in which lab/practicum and project-based components build capabilities, reflective diaries consolidate learning, design-thinking/workshops scaffold conceptual reframing, and competitions/incubators enable enactment (Mason & Arshed, 2013; Hägg, 2021; McGee et al., 2021).

Regional imbalances and metadata gaps point to the need for funders and institutions to require context reporting and objective outcome tracking for entrepreneurship programs, particularly in under-represented settings (Garcia-Rodriguez et al., 2017; Galloway et al., 2009).

8. Conclusion

The synthesis clarifies that distinct experiential designs align with different outcome tiers: capability-building is most strongly associated with doing-centered formats; intention formation is closely connected to structured reflection and design-oriented workshops; and higher-order outcomes are concentrated in enactment formats that interface with external evaluators and ecosystems (Mason & Arshed, 2013; Hägg, 2021; McGee et al., 2021). Semester-length implementations dominate among credit-bearing courses and competitions, while workshops and bootcamps retain flexibility across shorter intensities (Jones & Jones, 2011; Hilliard, 2021). Methodological constraints persist in the form of case-study and qualitative dominance, limited quasi-experimental usage, reliance on self-report, few objective outcomes, and incomplete reporting, all of which narrow causal inference and comparability (Szymanska et al., 2020; Mason & Arshed, 2013; Bell & Bell, 2016).

9. Contributions

The contribution of this review lies in consolidating an empirically anchored map of activity–outcome relations, advancing a Lorz-consistent synthesis of outcome tiers, and specifying an ELT-compatible sequence from experience to action; combined with a targeted agenda on

context coverage, design strength, objective measurement, and reporting completeness, these findings provide a structured baseline for future inquiry .

10. Limitations and Future Research

Two contextual shortfalls stand out. First, evidence is geographically concentrated in a limited set of regions, with numerous countries represented by single studies; this pattern limits external validity across diverse higher-education ecosystems (Jones & Jones, 2011; Curtis et al., 2021; Garcia-Rodriguez et al., 2017). Second, extensive under-reporting of environment/setting and institutional support restricts insight into how organizational arrangements and ecosystem linkages condition outcomes . Methodologically, the near-absence of randomized designs and modest deployment of quasi-experiments circumscribe causal inference, while objective outcome reporting remains uncommon relative to self-report; together these factors suggest that stronger counterfactual logic and verifiable behavioral indicators would materially improve evidential robustness (Szymanska et al., 2020; McGee et al., 2021; Bell & Bell, 2016). Finally, outcome-level gaps persist: attitudes and perceptions are rarely the highest coded endpoints and a non-trivial share of studies leave the highest outcome tier unspecified, emphasizing the need for explicit mapping to agreed outcome taxonomies.

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