Entrepreneurship education in art and design universities: A review of pedagogical approaches and their effectiveness

Song Jie[1], Wang Min[2*]
[1,2]Hubei Business College, Wuhan, China, 430079; 117373663@qq.com (W.M.).

Abstract: This study aims to evaluate the current state, effectiveness, and challenges of entrepreneurship education in art and design universities globally. Through a systematic literature review, the research analyzes traditional, innovative, and interdisciplinary mainstream teaching approaches and assesses their impact on students' entrepreneurial intentions and skills. The study identifies key challenges, including curriculum limitations, funding constraints, and misalignment between student interests and course requirements. Entrepreneurship education in art and design fields requires further integration of practical experience and theoretical knowledge to address the specific needs of creative industries. This research provides recommendations for universities, industries, and policymakers to optimize entrepreneurship education in creative sectors and proposes future research directions such as digital art entrepreneurship and cultural heritage entrepreneurship.

Keywords: Art entrepreneurship, Design education, Creative economy, Pedagogical approaches, Review.

1. Introduction

Entrepreneurship education has gained significant importance in higher education worldwide, as it equips students with the skills and mindset needed to thrive in an increasingly dynamic and uncertain job market [1]. For art and design disciplines, entrepreneurship education takes on unique characteristics, as it combines creativity, individual entrepreneurship, and the intersection of business and art [2]. The creative industries have experienced rapid growth and transformation in recent years, fueled by digital technologies and the rise of the creative economy [3]. This has led to a pressing need for art and design universities to integrate entrepreneurship education into their curricula, in order to enhance the employability and market competitiveness of their graduates [4].

However, entrepreneurship education in art and design universities faces distinct challenges compared to other disciplines. Art students often have reservations about the "commercialization" of their creative work, perceiving a conflict between artistic integrity and business imperatives [5]. Moreover, there is often a disconnect between the skills taught in entrepreneurship courses and the actual demands of the creative industries [6]. Art and design universities also struggle with limited resources, such as a lack of industry mentors and insufficient funding for incubation and support services [7].

Given these challenges and the growing importance of entrepreneurship education in the creative sectors, there is a need to comprehensively review the current state of entrepreneurship pedagogy in art and design universities. While several studies have examined entrepreneurship education in general [8] there is a lack of comprehensive reviews focused specifically on the art and design context. This review aims to address this gap by providing an overview of the pedagogical approaches used in art and design entrepreneurship education, assessing their effectiveness, and identifying areas for improvement.

- Despite the growing body of literature on entrepreneurship education, several gaps remain, particularly within the context of art and design universities:

- Lack of discipline-specific focus: Most existing studies on entrepreneurship education adopt a general perspective, with limited attention to the unique needs, values, and creative processes of art and design students.
- Limited empirical evidence on effectiveness: While various pedagogical models are proposed—such as experiential learning, project-based approaches, or interdisciplinary collaboration—few studies provide robust empirical assessments of their actual impact on students' entrepreneurial skills and intentions.
- Insufficient exploration of contextual and cultural influences: There is a lack of comparative studies that consider how regional, institutional, or cultural contexts shape the design and outcomes of entrepreneurship education in creative disciplines.
- Neglected emerging themes: Critical topics such as the integration of digital tools, the role of cultural heritage in creative entrepreneurship, and the impact of social or sustainable entrepreneurship models are underexplored in current literature.
- Addressing these gaps is essential for developing more effective and contextually relevant educational models that align with the evolving needs of art and design students.

2. Theoretical Foundations of Entrepreneurship Education

2.1. Evolving Theoretical Frameworks

Entrepreneurship education is grounded in various theoretical perspectives that inform its pedagogical approaches and objectives. Effectuation theory, developed by Sarasvathy [9] emphasizes the importance of experimentation, flexibility, and leveraging contingencies in the entrepreneurial process. This contrasts with the traditional "causation" approach, which assumes a linear, goal-oriented process. Effectuation has been applied to entrepreneurship education, particularly in courses that emphasize experiential learning and iterative business model development [10].

Another influential theory is the opportunity identification perspective, which highlights the cognitive processes and skills involved in recognizing and evaluating entrepreneurial opportunities [11]. Entrepreneurship education based on this perspective focuses on developing students' ability to identify market needs, generate creative solutions, and assess the feasibility of business ideas [12].

2.2. Entrepreneurial Mindset and Creative Industries

The entrepreneurial mindset is a key concept in entrepreneurship education, referring to a set of attitudes, beliefs, and cognitive strategies that enable individuals to navigate uncertainty, take calculated risks, and persist in the face of challenges [13]. Educational approaches that cultivate an entrepreneurial mindset emphasize resilience, adaptability, and a growth-oriented perspective [14].

In the context of art and design education, the relationship between creativity and entrepreneurship has received particular attention. The creative industries, which include sectors such as visual arts, design, media, and entertainment, are characterized by a high degree of individual creativity, innovation, and cultural value creation [15]. Art entrepreneurship education recognizes the unique challenges and opportunities associated with commercializing creative work, such as managing intellectual property, building networks, and balancing artistic vision with market demands [16].

2.3. Pedagogical Categorization

Entrepreneurship education can be broadly categorized into three main approaches: cognitive-based, action-based, and experience-based [17].

Cognitive-based approaches focus on imparting knowledge and theories related to entrepreneurship, such as business planning, market research, and financial management. These approaches typically rely on traditional teaching methods like lectures, readings, and case discussions to develop students' understanding of entrepreneurial concepts and principles [10].

Action-based approaches emphasize hands-on learning through activities such as business simulations, case studies, and real-world projects. These approaches encourage students to apply entrepreneurial concepts in practical contexts, fostering skill development through active engagement with entrepreneurial processes and challenges [18].

Experience-based approaches, such as internships, mentoring, and student-run ventures, provide students with direct exposure to entrepreneurial environments and challenges. These approaches immerse students in authentic entrepreneurial experiences, allowing them to develop tacit knowledge and practical wisdom through firsthand engagement with the entrepreneurial journey [4].

3. Global Landscape of Entrepreneurship Education in Art and Design

In recent years, the integration of entrepreneurship education within art and design disciplines has gained momentum globally. This development reflects a broader shift in how creative practices are being redefined—not only as expressions of cultural value but also as powerful vehicles for innovation, social change, and economic impact. The cultivation of entrepreneurial thinking in art and design education increasingly draws upon foundational theories that highlight experimentation, resourcefulness, and opportunity recognition.

As illustrated in the conceptual framework below, the cultivation of entrepreneurial thinking lies at the intersection of several key theoretical perspectives: Effect Theory emphasizes experimental and adaptive processes [9]. Opportunity Identification Theory highlights the creative matching of ideas with market demands [11]. Piecing Together Theory focuses on innovation under constraints [19] and the Intersection of Creativity and Entrepreneurship underscores the transformation of cultural value into marketable offerings [15, 16]. These theoretical lenses jointly inform the design of educational programs that prepare art and design students to navigate complex creative economies.
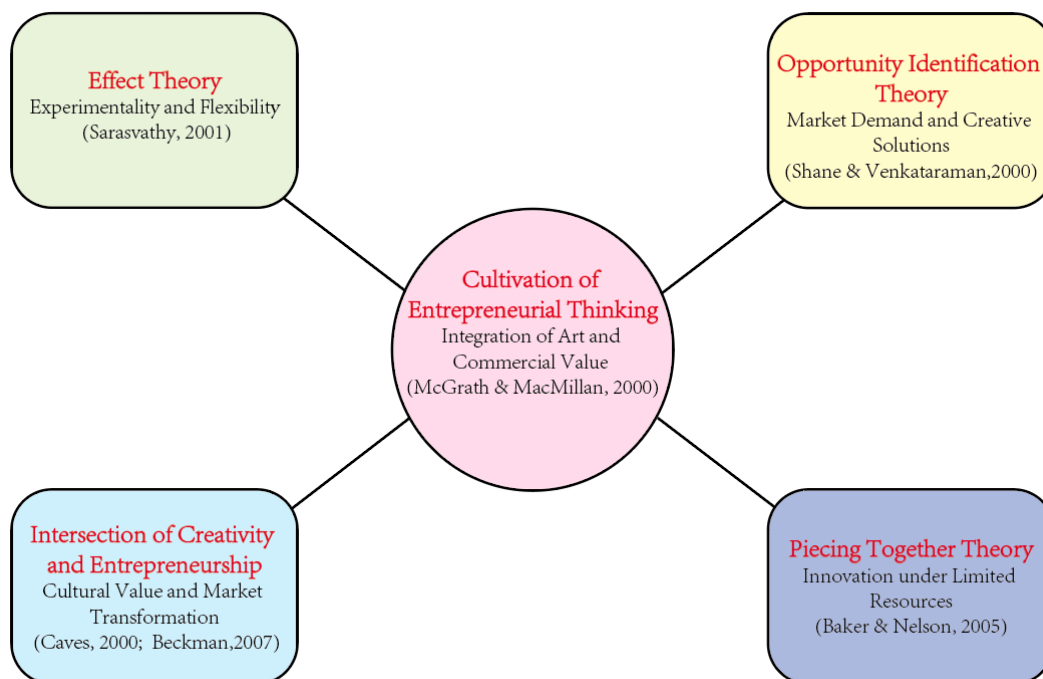
Figure 1.
Conceptual Framework of Entrepreneurial Thinking in Art and Design.
Source: Sarasvathy [9]; Shane and Venkataraman [11]; Caves [15]; Beckman [16] and Baker and Nelson [19]

Building upon these foundations, universities and cultural institutions across different regions have adopted diverse approaches to embed entrepreneurship into art and design education. The following section outlines how various regions have developed and implemented such programs to support creative entrepreneurship.

3.1. Regional Program Development

Entrepreneurship education has been increasingly integrated into art and design university curricula worldwide, reflecting the growing recognition of the creative industries' economic and societal significance [20]. In the United States, pioneering programs such as the Entrepreneurship Center for Music at the University of Colorado Boulder and the Arts Entrepreneurship Program at Southern Methodist University have paved the way for other institutions to develop dedicated courses and resources for creative entrepreneurs [21].

In Europe, the European Commission has emphasized the importance of entrepreneurship education in the cultural and creative sectors, launching initiatives such as the "Creative Europe" program to support skills development and cross-border collaboration [22]. In the United Kingdom, the National Endowment for Science, Technology and the Arts (NESTA) has conducted extensive research on the creative economy and advocated for policies that foster creative entrepreneurship [23].

3.2. Interdisciplinary Approaches and Institutional Models

Interdisciplinary collaboration has emerged as a key trend in art and design entrepreneurship education, as it enables students to develop a broader skill set and network across multiple domains. For example, the d.school at Stanford University brings together students from art, design, engineering, and business to work on innovation projects, fostering a culture of "creative confidence" and entrepreneurial thinking [24]. Similarly, the Innovation Design Engineering program at the Royal College of Art in London combines design, engineering, and business perspectives to nurture "disruptive innovators" who can create value in various industries [18].

Several influential institutional models have emerged globally. The "T-shaped" education model at Aalto University in Finland integrates deep disciplinary knowledge with broad interdisciplinary capabilities, providing students with both specialized expertise and collaborative skills [13]. The "practice-based entrepreneurship" model at Emily Carr University in Canada emphasizes learning through making and experimentation, encouraging students to develop entrepreneurial capabilities through creative practice [25].

3.3. Policy Support and Ecosystem Development

Government policies and funding programs have played a crucial role in supporting entrepreneurship education in the creative sectors. In Singapore, the government has established the Design Singapore Council to promote design as a strategic tool for innovation and economic growth, providing grants and training opportunities for designers and entrepreneurs [5]. In South Korea, the Ministry of Culture, Sports and Tourism has launched the "Creative Venture Program" to support startups in the cultural and creative industries, offering mentoring, networking, and funding resources [26].

The development of entrepreneurial ecosystems around art and design universities has enhanced the effectiveness of entrepreneurship education. These ecosystems typically include incubators, accelerators, coworking spaces, mentoring networks, and investment vehicles dedicated to supporting creative ventures. For example, the Creative Industries Cluster in Barcelona connects education institutions, research centers, creative businesses, and public agencies to create a supportive environment for creative entrepreneurship [4]. Similarly, the Design Terminal in Budapest provides a comprehensive support system for design entrepreneurs, including training, mentoring, and access to international markets [14].

4. Challenges in Implementing Entrepreneurship Education for Art Students

4.1. Cultural and Identity Barriers

Despite the growing recognition of the importance of entrepreneurship education in art and design universities, several challenges hinder its effective implementation. One of the primary obstacles is the resistance among some art students towards the perceived "commercialization" of their creative work [5]. Many art students view their artistic practice as a personal expression or social commentary, and are hesitant to engage with business concepts that they fear may compromise their artistic integrity [2]. This resistance often stems from the traditional dichotomy between art and commerce that has been reinforced through art education [27]

The tension between artistic identity and entrepreneurial identity creates cognitive dissonance for many art students. Research by Landström, et al. [20] found that art students frequently experience identity conflicts when required to engage with entrepreneurship education, perceiving it as contradictory to their artistic values and aspirations. Overcoming this mindset requires a reframing of entrepreneurship as a means to sustain and amplify the impact of creative work, rather than a purely profit-driven pursuit [28].

4.2. Curriculum and Pedagogical Challenges

A significant challenge is the disconnect between the skills taught in entrepreneurship courses and the actual demands of the creative industries [6]. Traditional business education, with its emphasis on planning, financial analysis, and management theory, may not fully address the unique challenges faced by creative entrepreneurs, such as developing a distinctive artistic voice, building a personal brand, and navigating the informal networks that characterize the creative sectors [29].

The pedagogical approaches used in entrepreneurship education often conflict with the learning styles and preferences of art and design students. While business education typically emphasizes analytical thinking, linear processes, and quantitative assessment, art education values creative exploration, iterative development, and qualitative evaluation [15]. This mismatch can lead to disengagement and resistance from art students, who may perceive entrepreneurship education as irrelevant or inappropriate for their disciplinary context.

There is a need for entrepreneurship curricula that are tailored to the specific needs and contexts of art and design students, incorporating industry-relevant case studies, practical skills, and mentoring from experienced creative professionals. Research by Bonin-Rodriguez [29] indicates that entrepreneurship education is most effective when it is embedded within disciplinary contexts and aligned with the values and practices of creative disciplines.

4.3. Resource and Support Limitations

The lack of industry mentors and role models is another barrier to effective entrepreneurship education in art and design universities [7]. Unlike traditional business sectors, the creative industries often operate through informal networks and rely heavily on social capital. Art students may struggle to find mentors who can provide guidance on navigating the complex landscape of the creative economy, including issues such as intellectual property protection, contract negotiation, and work-life balance.

Insufficient funding and incubation support is another common obstacle faced by art and design universities in implementing entrepreneurship education [11]. Creative startups often require specialized resources, such as studios, equipment, and software, which can be costly to provide. Moreover, the uncertain and protracted nature of creative ventures may not fit well with traditional incubator models that prioritize rapid growth and investment readiness [24].

Universities also face challenges in securing qualified faculty who possess both industry experience and academic credentials in entrepreneurship and creative disciplines. This "dual expertise" is relatively rare but essential for delivering effective entrepreneurship education to art and design students [30].

4.4. Structural and Systemic Barriers

Broader structural factors also impede the effective implementation of entrepreneurship education in art and design universities. The fragmented nature of the creative industries, with their mix of freelancers, micro-businesses, SMEs, and large corporations, makes it difficult to develop uniform approaches to entrepreneurship education [3]. The precarious working conditions and non-standard career paths that characterize many creative sectors challenge conventional entrepreneurship models focused on business growth and scalability [2].

Institutional barriers within universities can also hinder the integration of entrepreneurship education into art and design curricula. Disciplinary silos, bureaucratic structures, and traditional assessment methods may impede innovation in curriculum design and delivery [15]. Additionally, the tension between academic freedom and market orientation can create resistance to entrepreneurship education among faculty and administrators in art and design schools [21].

Universities can address these challenges by actively cultivating relationships with industry partners, alumni networks, and professional associations to provide students with access to experienced mentors and role models. They also need to develop innovative funding and support mechanisms that are tailored to the needs of creative entrepreneurs, such as micro-grants, flexible incubation programs, and partnerships with cultural institutions and creative hubs [23].

5. Pedagogical Approaches in Art Entrepreneurship Education

In response to the growing need for entrepreneurial capabilities in the creative industries, art and design institutions have adopted a range of pedagogical models aimed at fostering entrepreneurial thinking and behavior among students. These approaches differ in their emphasis on theory, practice, interdisciplinarity, and industry engagement. Table 1 presents a comparative overview of three widely recognized teaching models—Traditional, Innovative, and Interdisciplinary—highlighting their main methods, learning outcomes, representative cases, effectiveness, and key challenges. This comparison provides insights into how different educational strategies influence students' entrepreneurial readiness and long-term career outcomes in the arts.

Table 1.
Comparison of Teaching Methods for Art and Design Entrepreneurship Education.

Characteristic	Traditional Model	Innovative Model	Interdisciplinary Model
Main Methods	Lectures Case Studies Business Plans	Workshops Incubators Creative Project Practice	Interdisciplinary Collaboration Industry Partnerships Community-Engaged Projects
Learning Points	Theoretical Knowledge Business Skills Market Analysis	Practical Experience Entrepreneurial Mindset Prototype Development and Testing	Cross-Disciplinary Thinking Collaborative Skills Systems Approach
Representative Case	SCAD "Arts Entrepreneurship" Course Saks and Gaglio [12]	QUT "Creative Entrepreneurship Accelerator Program" Queensland University of Technology [27]	Aalto University "Design Factory" Aalto University [28]
Effectiveness	Solid foundation of basic knowledge Low entrepreneurial intention Low post-graduation entrepreneurship rate	Improved practical skills Strong sense of self-efficacy Moderate post-graduation entrepreneurship rate	High innovation capacity Strong network building High post-graduation entrepreneurship rate
Main challenges	Disconnected from artistic practice Low student engagement Thom [5]	High resource demand Sustainability challenges Pollard and Wilson [4]	Challenges in coordinating complex disciplinary boundaries Bridgstock [2]

5.1. Traditional Knowledge-Based Models

Current literature reveals three main categories of pedagogical approaches used in art entrepreneurship education, each with distinct characteristics and implementation strategies.

Traditional models encompass courses that focus on imparting entrepreneurial knowledge and skills through lectures, case studies, and business plan development. These courses typically cover topics such as market research, financial management, intellectual property, and business strategy [21]. The knowledge-based approach is founded on the premise that understanding entrepreneurial concepts and frameworks is necessary before applying them in practice [6].

Within traditional models, several distinct approaches have emerged. Instructor-led courses provide structured learning experiences with clearly defined learning objectives and assessment criteria. For example, the "Entrepreneurship in the Arts" course at the Savannah College of Art and Design (SCAD) provides students with a foundation in business concepts and practices relevant to the creative industries, including market analysis, budgeting, and legal issues [12]. Case study methods use real or fictional examples of creative entrepreneurs to illustrate business concepts and stimulate discussion [15]. Business plan competitions encourage students to develop comprehensive business proposals for creative ventures, often with the opportunity to win funding or support [18].

5.2. Innovative Experiential Models

Innovative models emphasize experiential learning and hands-on practice through workshops, incubators, and creative projects. These approaches aim to cultivate an entrepreneurial mindset and provide students with opportunities to test their ideas and develop their skills in real-world contexts [2]. Experiential learning theory suggests that knowledge is created through the transformation of experience, making it particularly relevant for entrepreneurship education [4].

Several innovative pedagogical strategies have gained prominence in art entrepreneurship education. Studio-based learning applies design thinking principles to entrepreneurial challenges, encouraging iteration, prototyping, and user testing [15]. For instance, the "Creative Startups" program at the Queensland University of Technology (QUT) in Australia offers a 12-week accelerator program for creative entrepreneurs, providing mentoring, networking, and funding support to help them launch and scale their ventures [27]. Project-based learning involves students in complex, authentic entrepreneurial projects that require problem-solving, collaboration, and creative thinking [4]. Pop-up exhibitions and temporary retail spaces allow students to experiment with commercializing their creative work in low-risk environments, gaining experience in marketing, sales, and customer interaction [20].

5.3. Interdisciplinary Collaborative Models

Interdisciplinary models integrate art, business, and technology perspectives to provide students with a holistic understanding of the creative economy and the skills needed to navigate it. These approaches often involve collaboration across different faculties and institutions, as well as partnerships with industry and community stakeholders [6]. The interdisciplinary approach recognizes that creative entrepreneurship requires the integration of diverse knowledge domains and perspectives [2].

Several distinct interdisciplinary approaches have been documented in the literature. Cross-faculty collaborations bring together students from different disciplines to work on entrepreneurial projects, fostering mutual learning and the exchange of complementary skills and perspectives [5]. For example, the "Design Factory" at Aalto University in Finland brings together students from art, design, engineering, and business to work on real-world innovation challenges, fostering a culture of creativity, experimentation, and entrepreneurship [28]. Industry partnerships involve collaboration between universities and creative businesses, providing students with authentic learning experiences and access to professional networks [2]. Community-engaged learning connects students with community organizations and social enterprises, allowing them to develop entrepreneurial skills while addressing real social and cultural needs [26].

5.4. Technology-Enhanced Learning Approaches

Emerging technological advancements have created new possibilities for entrepreneurship education in art and design. Technology-enhanced learning approaches leverage digital tools and platforms to extend the reach and impact of entrepreneurship education [13].

Online learning platforms provide flexible access to entrepreneurship education for art and design students, overcoming geographical and temporal barriers [18]. Virtual incubators offer mentoring, networking, and resources to student entrepreneurs in digital environments, supporting the development of digital creative ventures [9]. Simulation games and virtual reality experiences enable students to practice entrepreneurial decision-making in safe, immersive environments that mimic real-world challenges [7]. Social media integration helps students develop digital marketing and branding skills while building online communities around their creative work [23].

The Digital Arts Incubator at Arizona State University exemplifies this approach, providing a hybrid physical-digital environment where art students can develop technology-enhanced creative ventures with support from mentors, technical experts, and entrepreneurs-in-residence [6]. Similarly, the Creative Enterprise Online program at the University of the Arts London uses a blend of online learning, virtual mentoring, and digital showcasing to support students in developing entrepreneurial capabilities [9].

6. Effectiveness of Different Pedagogical Approaches

6.1. Comparative Effectiveness Studies

Analysis of the literature reveals several studies that examined the effectiveness of different pedagogical approaches in enhancing students' entrepreneurial intentions and skills. Overall, the evidence suggests that experiential and interdisciplinary approaches are more effective than traditional lectures and business plan courses in fostering entrepreneurial mindsets and behaviors.

For example, a study by Duval-Couetil and Long [24] compared the impact of a traditional entrepreneurship course and an experiential learning program on art and design students' entrepreneurial self-efficacy and intentions. The results showed that students who participated in the experiential program reported significantly higher levels of self-efficacy and intention to pursue entrepreneurial careers compared to those who took the traditional course.

6.2. Impact on Entrepreneurial Intentions and Mindset

Research indicates that entrepreneurship education can significantly influence students' entrepreneurial intentions and mindset, but the extent and nature of this impact varies depending on the pedagogical approach used [8]. A longitudinal study by Bonin-Rodriguez [29] tracked art students' entrepreneurial intentions before and after participating in different types of entrepreneurship education programs. The findings revealed that experiential and practice-based approaches led to more sustainable changes in entrepreneurial intentions compared to traditional lecture-based courses.

The development of an entrepreneurial mindset—characterized by opportunity recognition, resourcefulness, resilience, and creative problem-solving—appears to be facilitated by pedagogical approaches that emphasize active learning and real-world application [14]. A qualitative study by [5] found that art students developed stronger entrepreneurial mindsets when exposed to learning experiences that encouraged experimentation, risk-taking, and reflection on failures.

6.3. Skill Development and Knowledge Acquisition

Different pedagogical approaches vary in their effectiveness for developing specific entrepreneurial skills and knowledge [1]. Traditional knowledge-based approaches appear more effective for developing business literacy and understanding of entrepreneurial concepts [24]. A study by Pollard and Wilson [4] found that art students who completed a structured business planning course demonstrated significantly improved knowledge of financial management, market analysis, and legal considerations compared to a control group.

However, for developing practical entrepreneurial skills such as opportunity recognition, networking, resource acquisition, and adaptive learning, experiential and interdisciplinary approaches show greater effectiveness [4]. Research by Caves [15] demonstrated that art students who participated in practical entrepreneurship projects developed stronger capabilities in customer engagement, value proposition development, and resource management compared to those who only received theoretical instruction.

6.4. Long-term Career Outcomes

Limited longitudinal research exists on the long-term career outcomes of different entrepreneurship education approaches for art and design students [2]. However, available evidence suggests that programs that combine theoretical knowledge with practical experience and industry connections yield the most favorable long-term results [3].

A five-year follow-up study by Essig [30] tracked the career paths of art students who had participated in different types of entrepreneurship education. The findings indicated that graduates of programs that integrated experiential learning with industry partnerships were more likely to establish sustainable creative ventures or build successful freelance careers. These graduates also reported higher levels of career satisfaction and financial stability compared to those who had experienced only traditional business education or no entrepreneurship education at all.

Research by Kuratko [14] further suggests that entrepreneurship education that incorporates social entrepreneurship and community engagement produces graduates who are more resilient in navigating the challenges of creative careers and more capable of creating innovative business models that align with their artistic values and goals.

7. Theoretical and Practical Implications

7.1. Expanding Theoretical Frameworks

The findings of this review have several implications for the theoretical understanding of entrepreneurship education in the context of art and design. First, they highlight the need to expand and adapt existing entrepreneurship theories and models to better capture the specificities of the creative industries [30]. Theories such as effectuation [9] bricolage [19].

8. Practical Recommendations

This review offers several practical recommendations for enhancing art entrepreneurship education in universities:

- Curriculum design: Art and design schools should develop entrepreneurship curricula that are tailored to the specific needs and contexts of the creative industries, incorporating industry-relevant case studies, practical skills, and mentoring from experienced creative professionals. The curricula should balance theory and practice, providing students with opportunities to experiment, prototype, and test their ideas in real-world settings. Interdisciplinary collaboration should be encouraged, bringing together students from different fields to work on innovation challenges and develop a holistic understanding of the creative economy.
- Industry partnerships: Universities should actively cultivate relationships with industry partners, alumni networks, and professional associations to provide students with access to mentors, internships, and job opportunities in the creative sectors [7]. These partnerships can also facilitate knowledge exchange, research collaborations, and joint innovation projects, keeping the curricula up-to-date with the latest industry trends and practices. Universities can also work with creative hubs, co-working spaces, and cultural institutions to provide students with access to resources, networks, and inspiring environments for creative work.
- Support structures: Art and design schools should develop dedicated support structures for creative entrepreneurship, such as incubators, accelerators, and funding programs that cater to the

specific needs of creative startups. These support structures should provide flexible and personalized mentoring, coaching, and technical assistance to help students develop their ideas, build their teams, and access markets and resources. Universities can also leverage their intellectual property and research capabilities to support creative entrepreneurship, for example by providing access to specialized equipment, software, and datasets.

- Policy engagement: Universities should engage with policymakers and advocate for policies and initiatives that support creative entrepreneurship and the creative economy more broadly [3]. This can include advocating for funding and tax incentives for creative startups, promoting intellectual property protection and fair remuneration for creative work, and supporting the development of creative clusters and networks. Universities can also contribute to the evidence base for policy development by conducting research on the creative economy and evaluating the impact of entrepreneurship education and support programs.

9. Future Research Directions

This review highlights several promising avenues for future research in art entrepreneurship education. Researchers could explore emerging trends and challenges, such as the impact of digital technologies and platforms on the creative economy [20] the role of social entrepreneurship and sustainability in the creative sectors [25] and the potential of art entrepreneurship education to foster inclusive innovation and social justice.

Future studies could also examine how cultural and institutional contexts shape the design and outcomes of entrepreneurship education in creative disciplines. Comparative studies across different countries and regions could provide valuable insights into the role of cultural values, educational traditions, and policy frameworks in supporting or hindering creative entrepreneurship.

Additionally, more rigorous and longitudinal research is needed to assess the effectiveness of different pedagogical approaches and support structures in enhancing students' entrepreneurial skills and outcomes. Future studies could employ mixed-methods designs, combining quantitative measures of entrepreneurial intentions and behaviors with qualitative insights into students' experiences and perceptions.

Finally, researchers could explore the potential of emerging educational technologies and pedagogical innovations, such as online learning platforms, virtual reality simulations, and artificial intelligence tools, to enhance art entrepreneurship education and make it more accessible, engaging, and effective.

10. Conclusion

This review has provided a comprehensive overview of the current state, effectiveness, and challenges of entrepreneurship education in art and design universities worldwide. The review has identified three main categories of pedagogical approaches - traditional, innovative, and interdisciplinary - and assessed their impact on students' entrepreneurial intentions and skills. While experiential and interdisciplinary approaches show promise in fostering entrepreneurial mindsets and behaviors, the review has also highlighted significant challenges and limitations in the current approaches to art entrepreneurship education.

To address these challenges, the review has offered several recommendations for enhancing art entrepreneurship education in universities, including developing industry-specific curricula, cultivating partnerships with creative businesses and institutions, providing dedicated support structures for creative startups, and engaging with policymakers to create an enabling environment for creative entrepreneurship. The review has also identified avenues for future research, such as examining the impact of digital technologies on the creative economy, exploring the role of social entrepreneurship and sustainability in the creative sectors, and assessing the long-term outcomes and impact of art entrepreneurship education.

Ultimately, the review underscores the importance of recognizing and nurturing the entrepreneurial potential of art and design students, not only for their individual economic success but also for the broader cultural, social, and economic development of society. By providing students with the skills, knowledge, and opportunities to turn their creative ideas into viable ventures and meaningful careers, art entrepreneurship education can contribute to the resilience, innovation, and diversity of the creative economy. Universities have a crucial role to play in this process, by adapting their curricula, practices, and support structures to the changing needs and realities of the creative industries, and by collaborating with other stakeholders to create a vibrant and inclusive ecosystem for creative entrepreneurship.

Transparency:
The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

Copyright:

References
[1]   H. M. Neck and A. C. Corbett, "The scholarship of teaching and learning entrepreneurship," *Entrepreneurship Education and Pedagogy*, vol. 1, no. 1, pp. 8-41, 2018. https://doi.org/10.1177/2515127417737286

[2]   R. Bridgstock, "Not a dirty word: Arts entrepreneurship and higher education," *Arts and humanities in higher education*, vol. 12, no. 2-3, pp. 122-137, 2013. https://doi.org/10.1177/1474022212465725

[3]   R. Comunian and A. Gilmore, *Higher education and the creative economy: Beyond the campus*. New York: Routledge, 2016.

[4]   V. Pollard and E. Wilson, "The" entrepreneurial mindset" in creative and performing arts higher education in Australia," *Artivate*, vol. 3, no. 1, pp. 3-22, 2014. https://doi.org/10.1111/j.1540-627x.2010.00314.x

[5]   M. Thom, "Arts entrepreneurship education in the UK and Germany: An empirical survey among lecturers in fine art," *Education+ Training*, vol. 59, no. 4, pp. 406-426, 2017. https://doi.org/10.1108/et-05-2016-0089

[6]   L. Essig, "Frameworks for educating the artist of the future: Teaching habits of mind for arts entrepreneurship," *Artivate*, vol. 1, no. 2, pp. 65-77, 2012. https://doi.org/10.1353/artv.2012.0006

[7]   C. G. Brush, "Exploring the concept of an entrepreneurship education ecosystem," in Innovative pathways for university entrepreneurship in the 21st century, vol. 24, 2014, pp. 25-39.

[8]   G. Nabi, F. Liñán, A. Fayolle, N. Krueger, and A. Walmsley, "The impact of entrepreneurship education in higher education: A systematic review and research agenda," *Academy of management learning & education*, vol. 16, no. 2, pp. 277-299, 2017. https://doi.org/10.5465/amle.2015.0026

[9]   S. D. Sarasvathy, "Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency," *Academy of management Review*, vol. 26, no. 2, pp. 243-263, 2001. https://doi.org/10.1142/s0218495802000049

[10]   F. Günzel-Jensen and S. Robinson, "Effectuation in the undergraduate classroom: Three barriers to entrepreneurial learning," *Education+ Training*, vol. 59, no. 7/8, pp. 780-796, 2017. https://doi.org/10.1108/et-03-2016-0049

[11]   S. Shane and S. Venkataraman, "The promise of entrepreneurship as a field of research," *Academy of management review*, vol. 25, no. 1, pp. 217-226, 2000. https://doi.org/10.5465/amr.2000.2791611

[12]   N. T. Saks and C. M. Gaglio, "Can opportunity identification be taught?," *Journal of Enterprising Culture*, vol. 10, no. 04, pp. 313-347, 2002. https://doi.org/10.1142/s0218495802000049

[13]   R. G. McGrath and I. C. MacMillan, *The entrepreneurial mindset: Strategies for continuously creating opportunity in an age of uncertainty* Harvard Business Press, 2000.

[14]   D. F. Kuratko, "The emergence of entrepreneurship education: Development, trends, and challenges," *Entrepreneurship theory and practice*, vol. 29, no. 5, pp. 577-597, 2005. https://doi.org/10.1111/j.1540-6520.2005.00099.x

[15]   R. E. Caves, *Creative industries: Contracts between art and commerce (No. 20)*. Cambridge, MA: Harvard University Press, 2000.

[16]   G. D. Beckman, "" Adventuring" arts entrepreneurship curricula in higher education: An examination of present efforts, obstacles, and best practices," *The Journal of Arts Management, Law, and Society*, vol. 37, no. 2, pp. 87-112, 2007. https://doi.org/10.3200/jaml.37.2.87-112

[17]   H. M. Neck and P. G. Greene, "Entrepreneurship education: known worlds and new frontiers," *Journal of small business management*, vol. 49, no. 1, pp. 55-70, 2011. https://doi.org/10.1111/j.1540-627x.2010.00314.x

[18]   Royal College of Art, "Innovation design engineering," Retrieved: https://www.rca.ac.uk/study/programme-finder/innovation-design-engineering-ma-msc/, 2021.

[19]   T. Baker and R. E. Nelson, "Creating something from nothing: Resource construction through entrepreneurial bricolage," *Administrative science quarterly*, vol. 50, no. 3, pp. 329-366, 2005. https://doi.org/10.2189/asqu.2005.50.3.329

[20]   H. Landström, G. Harirchi, and F. Åström, "Entrepreneurship: Exploring the knowledge base," *Research policy*, vol. 41, no. 7, pp. 1154-1181, 2012. https://doi.org/10.1016/j.respol.2012.03.009

[21]   G. D. Beckman and L. Essig, "Arts entrepreneurship: A conversation," *Artivate*, vol. 1, no. 1, pp. 1-8, 2012. https://doi.org/10.1353/artv.2012.0000

[22]   European Commission, "Creative Europe," Retrieved: https://ec.europa.eu/programmes/creative-europe/node_en, 2021.

[23]   NESTA, "Creative nation: How the creative industries are powering the UK's nations and regions," Retrieved: https://www.nesta.org.uk/report/creative-nation/, 2018.

[24]   N. Duval-Couetil and Z. Long, "Career impacts of entrepreneurship education: How and when students intend to utilize entrepreneurship in their professional lives," *Journal of Business and Entrepreneurship*, vol. 26, no. 1, p. 63, 2014. https://doi.org/10.4337/9781783471454.00020

[25]   J. G. Dees, "Social ventures as learning laboratories," *Tennessee's Business*, vol. 20, no. 1, pp. 3-5, 2011. https://doi.org/10.14512/9783865813596

[26]   Korea Creative Content Agency, "Creative venture program," Retrieved: https://www.kocca.kr/en/main.do. [Accessed 2021.

[27]   Queensland University of Technology, "Creative startups," Retrieved: https://research.qut.edu.au/best/programs/creative-enterprise-australia/startup/, 2021.

[28]   Aalto University, "Design factory," Retrieved: https://designfactory.aalto.fi/, 2021.

[29]   P. Bonin-Rodriguez, "What's in a name? Typifying artist entrepreneurship in community based training," *Artivate*, vol. 1, no. 1, pp. 9-24, 2012. https://doi.org/10.34053/artivate.11.1.176

[30]   L. Essig, "Means and ends: A theory framework for understanding entrepreneurship in the US arts and culture sector," *The Journal of Arts Management, Law, and Society*, vol. 45, no. 4, pp. 227-246, 2015. https://doi.org/10.1080/10632921.2015.1103673