What is limiting entrepreneurship education?

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ABSTRACT

This paper employs a framework of eight truisms to analyze how higher education institutions design and deliver entrepreneurship courses and programs. These truisms capture the dominant logic underlying the traditional university approach to curriculum design—an approach that has served the structured disciplines of engineering, finance, and the sciences well. However, when applied to entrepreneurship education (EE), these same assumptions constrain innovation in program design and pedagogical practice. Despite notable progress since the 1970s, EE still faces persistent and unresolved questions: How can programs be structured to enhance both the quantity and quality of successful entrepreneurs? What balance between theory and practice most effectively fosters entrepreneurial capability? Can an iterative, opportunity-driven process be taught through a linear pedagogical model? How do instructors' beliefs and biases shape the entrepreneurial learning experience? Moreover, what are the broader consequences of applying traditional university pedagogy to a domain defined by uncertainty and emergence? The paper concludes by proposing that entrepreneurship education be designed not within the confines of the university's traditional instructional model but as part of an entrepreneurial biosphere—a living, adaptive learning system that mirrors the realities of entrepreneurial practice.

Keywords: Entrepreneurship Education, traditional education, non-traditional education, truisms, biosphere, ecosystem, higher education reform, experiential learning, capability development.

1.0 INTRODUCTION

American universities are currently leading the way in entrepreneurship education, followed closely by nations in all other regions of the world, seeking a consensus about the best design of an entrepreneurship program and how to teach it, seeking the right synergy between theory and practice, and seeking consensus about testing the effectiveness of the idiosyncratic programs offered by each university. Scholars are still searching for an acceptable model of entrepreneurship education for all colleges and universities today. What makes the task difficult is our only generally accepted perspective of entrepreneurship is an entrepreneurship that is viewed as a complex, chaotic, and disruptive activity, requiring a different approach to education than is presently offered by the traditional university model, a model that stresses management competencies, skills of command and control, and the maximization of resources to maximize profits; this traditional approach limits the university's ability to develop students ability to learn the competencies and skills needed to navigate a world of an accelerating rate of technological change, defined

by uncertainty, unstructured pathways, and diminishing resources. Kuratko & Hoskinson (2017) aptly describe the challenges faced by today's nascent entrepreneurs when creating a new venture:

> "Venture creation represents a dynamic, uncontrollable undertaking filled with uncertainty and ambiguity, where things emerge, adaptation is ongoing, reality is being constructed in real time, learning is constant, and what one starts out creating is rarely what actually get created". (Kuratko & Hoskinson, 2017, p. 6).

Entrepreneurship education has experienced significant growth in popularity and legitimacy since the 1970s, but America viewed entrepreneurship differently at that time. A time when the dominant logic of corporate America, during the post-WWII years, was the "organizational man," as portrayed in a classic book by Whyte (1957), ***The Organization Man***. The following three quotes provide insights as to how the entrepreneur is viewed by corporate America immediately following WWII, and prior to entrepreneurship's rise in both legitimacy and popularity starting in the late 1970s and early 1980s.

> "Paradoxically, the old dream of independence through a business of one's own is held almost exclusively by factory workers – the one group, as a number of sociologists have reported, least able to fulfill it". (Whyte, 1957, p. 75).

> "The fact that a majority of seniors headed for business shy from the idea of being entrepreneurs is only in part due to fear of economic risk. . . . The entrepreneur, as many see him, is selfish, motivated by greed, and he is unhappy. The big-time operator as sketched in fiction eventually so loses stomach for enterprise that he finds happiness only when he stops being an entrepreneur, . ." (Whyte, (1957, p. 76).

> "Small business is small because of nepotism and the roll-top desk outlook, the argument goes; big business, by contrast, has borrowed the tools of science and made them pay off. It has great laboratories, market research departments, and the time and patience to use them. The odds, then, favor the man who joins big business". (Whyte, 1957, p. 76-77).

Since the first attempt to present an entrepreneurship course by Shigeru Fuji of Kobe University in Japan in 1938 (Solomon et al., 2002) and at Harvard Business School in 1947 (Katz, 2003), EE programs in higher education have grown rapidly and globally (Kuratko, 2005; Solomon, 2007). Today, we can look back over the past five decades to see how entrepreneurship has become one of the mainstream majors in higher education as highlighted by the following research as reported by the Kaufmann Foundation (2001). According to Vesper and Gartner (1997), in 1995, an estimated 400 colleges and universities offered entrepreneurship courses (Vesper, Gartner 1997), rising from the base of 16 or so offering courses in 1970, and the growth in programs took off in the early 1990s. In 2000, more than 1,500 colleges and universities offer some form of entrepreneurship training (Charney, Libecap, 2000), creating the fastest-growing academic area in the history of business schools, according to Donald Kurako, Midwest Entrepreneurial Education Center (Kauffman, 2001). "Furthermore, Lange, Marram, Jawahar, Yong, and Bygrave (2014) provide a notable example of the long-term positive impact of EE on Babson graduate performance over 25 years, including a significant economic contribution, for example, 1,300 new full-time businesses were started, with average annual revenues of $5.5 million and an average of 27 employees" (Nabi et al., 2017, p. 284).

This growth reflects the heightened expectations of entrepreneurship: "Because being entrepreneurial has been argued to be a key competence for 21st-century society, entrepreneurial education is expected to bring about long-term changes in individual. From the outset, entrepreneurial education was not only about providing knowledge (about entrepreneurship) but also developing entrepreneurial skills and attitudes leading to venture creation. It was aimed at enhancing entrepreneurial thinking" (Hägg & Kurczewska, 2022, pp 10-11).

However, where does EE go from here? The advocacy and development of entrepreneurship began at the university level starting in the early 20th Century with a small cadre of entrepreneurship scholars who risked their academic careers to advance entrepreneurship education. These early university professors believed that entrepreneurship education was essential to a business curriculum and believed that entrepreneurship, not big businesses, was a key driver of economic development and wealth creation for individuals and the communities they serve.

Today, entrepreneurship education is ubiquitous, and there are entrepreneurship professors and programs at nearly every American university in addition to the exponential growth in entrepreneurship programs across the world during the early 21st Century. Entrepreneurship education is provided in nearly every country, and has stimulated a dramatic rise in international entrepreneurship research and an ever increasing array of international EE programs provided by government, non-profits, and for-profits as well as universities. Even though entrepreneurship education is offered by an array of different private and public institutions, the university still retains its dominant position in establishing the depth, breadth, and direction of entrepreneurship education as the other institutions follow the lead of the latest EE developments at the university.

However, entrepreneurship education at universities still faces two challenges according to Brush et al. (2003), ". . . the field of entrepreneurship and the educational institutions that employ entrepreneurship faculty and offer entrepreneurship courses and programs are facing simultaneously two competing demands: (1) the need to support further development of entrepreneurship as a scholarly domain . . ., and (2) the need to meet rapidly increasing demand for highly applied and practice-oriented undergraduate and non-credit educational offering, and for institutional and faculty involvement in variety of community outreach (Brush et al., 2003, p 317). In addition to these two challenges, Hägg & Kurczewska (2022) believe that context is a critical aspect to designing an effective EE program: "Entrepreneurial education appears in very diverse contexts that are impossible to compare as the context determines the outcomes of the educational process and the general judgment of the learning process. Hence, context needs to be acknowledged when making claims on what is learnt, as otherwise it becomes impossible to tease out what could be retained when contextual influences are eliminated." (Hägg & Kurezewska, 2022, pp xii-xiii).

This study of EE is based on the core question asked by Fayolle et al. (2016): ". . . is EE filling a pail or lighting a fire (behaviouristic and constructivist schools of thought in education) or both?" (p 695). The question is whether the traditional university is the best place to merge, assimilate, integrate, coalesce, and interweave the knowledge and competencies provided by an array of related fields, such as, art, engineering, science, and management, into an

entrepreneurship program to educate the next generation of entrepreneurs, because Fayolle & Klandt (2006) observe that ". . . a major problem is that the traditional forms of teaching at universities and business schools have shown themselves to be inappropriate for enhancing the motivation and competencies of students towards innovation and entrepreneurship (Fayolle & Klandt, 2006, p7). Regardless of the challenges and limitations of the university setting for EE, the public sets high expectations for university-based EE programs, according to Hägg & Kurczewska (2022):

> The requirements and expectations imposed by society or rather policy makers on entrepreneurship education were (and still are) enormous when compared to other fields, even those with longer academic traditions and more experience teaching. For example, we seldom question or ask other management disciplines to cater for individual development beyond the discipline (, p 10).

Fayolle et al. (2016) agree that a high bar is placed upon the university, an institution with limited time and budget and these pressures on the institution impose imprudent and shortcut solutions as well as become largely driven by a practitioner-driven perspective that limits the ability of EE programs to build its academic legitimacy. This study examines the context of the university's limitations and constraints imposed upon EE programs; limitations and constraints that are limiting the development of EE programs. This study uses eight truisms that are valid for traditional educational programs offered by universities but will impede the development of EE courses and programs at the same universities.

2.0 DIFFICULT QUESTIONS

Despite the progress, several difficult questions concerning entrepreneurship education (EE) still need to be answered: How can EE programs be designed and delivered to increase the supply of entrepreneurs significantly? What is the right mix of theory and practice to enable more students to create ventures immediately upon graduation? Can an iterative process be taught using a linear pedagogical approach? What are the distinctive, mutually exclusive aspects of an EE program? What distinguishes an EE program from traditional business education? Are nascent entrepreneurs with college entrepreneurship degrees better off than non-degree holders? What is the appropriate role of the professor in delivering entrepreneurship education? How can students master the skill of self-directed learning? These are tough questions that remain unanswered even though scholars are vigilant to the latest research. However, we can summarize all these questions by asking one direct question: What is limiting entrepreneurship education?

The question of what is limiting entrepreneurship education is especially perplexing because scholars have been developing entrepreneurship programs for decades, even though there is no single agreed definition of entrepreneurship, no set approach to EE, and no standard curriculum. However, some scholars see this ambiguity as a strength. In the opinion of Mole and Ram (2012), diversity is the key attribute, "The key to the study of entrepreneurship is to celebrate diversity and enable those of different positions to take cognizance of each other's work and build our knowledge together. Hence, we endorse the project to keep the disciplinary boundaries of

entrepreneurship porous to enable scholars from outside disciplines to contribute to our understanding of the entrepreneur in society . ." (p. 3).

Conversely, after more than thirty years of the growth of EE programs in higher education, we still have scholars who observe the scarcity of entrepreneurial talent and dispute the ability of higher education to develop such talent: ". . . according to Kirby (2004), the focus on developing entrepreneurial skills, attributes, and behavior remains scarce. Blenker et al. (2012) dispute that the present educational system can develop students' motivation, competencies, and skills concerning entrepreneurship. They argue that, at present, universities have not mastered the necessary learning methods, pedagogical process, and frames for EE" (Lautenschläger & Hasse, 2011, p151). Hägg & Kurczewska (2022) also agree that traditional pedagogy is insufficient to stimulate entrepreneurial thinking and that more innovative teaching methods are needed. Similarly, Chia (1996) suggested that universities and business schools must radically change their program's intellectual and educational priorities, and Fayolle et al. (2016) state that EE remains fragmented with a complex and hard-to-define set of pedagogical objectives and expected outcomes.

One fundamental aspect of EE that may inhibit its development is that there is no one set approach to EE. Kauffman Foundation (2001) explicitly identified that there is no set approach to EE. Therefore, we experiment: ". . . because there is no set approach to entrepreneurship education and because entrepreneurship generally is outside traditional discipline boundaries, it has been possible to experiment with pedagogy and curricula. The learning gleaned from these experiments, in turn, has significantly enhanced other business school courses." (Charney &Lebecap 2000, p. 9).

According to Lautenschäger & Hasse (2001), the lack of an agreed definition is inhibiting the advancement of EE: "Notwithstanding, the absence of a single agreed definition of EE implies that even today the concept is often ill-mixed with traditional management education, social competence skills conveyance, or career path building. The wide and undefined nature of EE is misleading and undermines its generally assumed importance." (Lautenschläger et al. 2011, p. 6) Mole & Ram (2012) also recognize there is a lack of agreed definition of EE:

> "When people say they study entrepreneurship, they are making a statement about something that exists and that we might be able to agree on, at least to some extent. In this case, it is a concept that we have used to describe a complex set of behaviors. We might expect that an academic discipline would, at the very least, be able to define what it studies. In this case of entrepreneurship, this is not the case" (p. 7).

Others also agree that despite the proliferation of EE programs there is no standard curriculum according to Mark Rice, a dean at Babson College, who said that there is still no standard curriculum among top business schools for entrepreneurial studies, and Neck & Corbett (2018) also agree, but like Mole & Ram (2012) embrace diversity: "There is no one best way in EE, nor should there be. Variety in programming goals, student populations, university resources, and faculty is cause to embrace EE on a continuum . . . "(p. 31).

The lack of a generally accepted definition of entrepreneurship and a generally agreed-to approach to EE are not the only challenges facing EE, even though Hylton et al. (2019) noted that EE has made significant progress by providing entrepreneurship courses beyond business colleges by spreading entrepreneurship education across college campuses:

> "Entrepreneurship education has undergone a significant maturation over the past 20 years, with few changes so widespread as the move away from exclusive offerings within schools of business to more applied offerings embedded in nonbusiness programs such as engineering, the sciences, and the arts . . ." (p. 88).

However, research still needs to provide essential insights to create effective EE programs on today's college campuses. For example, Nabi et al. (2017) note that there needs to be more research that directly links student/graduate entrepreneurship outcomes to different pedagogical methods based on an extensive review of EE literature performed by Pittaway and Cope (2007).

Most disheartening is the ambiguity that remains around two very popular conceptualizations of entrepreneurship, the notion of the entrepreneurial mindset and competencies, as Neck and Corbitt's (2018) research found that a cohort of top entrepreneurship educators who participated in their Delphi analysis agreed to define the goal of EE as developing the mindset, skill set, and practice necessary for starting new ventures; yet what should be taught and how it should it be taught remains an important and unanswered question according to Morris and Liguori (2016), who concede that "the emergence of entrepreneurship has occurred so rapidly that it has outpaced our understanding of what should be taught by entrepreneurship educators, how it should be taught, and how outcomes should be assessed.''

Interestingly, Neck and Corbitt (2018) also argue with Morris and Liguori (2016) " . . . that EE is not advancing as fast as the field of entrepreneurship . . ." and they specifically question the pertinence of the entrepreneurial mindset and competencies by asking the following questions: "What is an entrepreneurial mindset, how do we teach it, and how do we measure it? Is there, or should there be, a certain skill set that defines EE? Moreover, what specific practices lead to developing entrepreneurial skills or an entrepreneurial mindset in our students?" (Neck and Corbit, 2018, p. 30).

The call for the research of entrepreneurship education parallels the rise in the legitimacy and popularity of entrepreneurship education. As early as 1985, Stevenson & Gumpert (1985) proclaimed that entrepreneurship education needed to be broader than a traditional business curriculum, because EE must impact attitudes and help the nascent entrepreneur recognize opportunities, think creatively, and build leadership skills and personal confidence. In 2010, Martinez et al. (2010) made a similar proclamation:

> . . . the goal of entrepreneurship education should be to promote creativity, innovation and self-employment. Entrepreneurship education and training therefore entails more than the development of particular business skills. It can influence an individual's motivation to strive for

> something that might otherwise seem impossible or too risky. In short, it can create positive perceptions and desire among individuals to start businesses (p11).

There is a need for intensifying the research into EE pedagogy for the reasons stated above along with the need to understand the impact that other factors have on EE; factors that are beyond the direct control of the university, in some cases, yet will impact an entrepreneur's success, such as, factors identified by Béchard & Grégoire (2005) about how EE is embedded in the business sciences, economics, innovation and technology, the legal and public policy context, and the capitalist system of free enterprise; factors identified by Martínez et al. (2010) about how current faculty is locked into narrow disciplinary structures and how funding limits the availability of entrepreneurship education beyond business schools; factors identified by Kashino (2021) about the misalignment between the entrepreneurial and non-entrepreneurial aspects of the university and the university's focus and time constraints that require students to achieve certain standards in a short period, making it difficult for them to engage in entrepreneurial activities; and a key factor about entrepreneurship as an art expressed by Sexton & Smilor (1986), "What emerges from the papers in this volume is that an examination of this process (the fusion of talent, ideas, capital, and know-how) shows entrepreneurship to be both an art and a science" (p xv). If we accept that entrepreneurship is both an art and a science, then EE must be design programs to educate the kind of entrepreneur as portrayed by Kirby (2006), an entrepreneur with the following personality, attributes, characteristics, and traits: innovator, enabler, leader, adventurer, imagination, intuition, sociability, risk-taking ability, need for achievement, locus of control, desire for autonomy, deviancy, creativity, and opportunism.

Béchard & Grégoire (2005) recommend a four axes approach to EE research: "1) inventories of the nature and structure of entrepreneurship programs . . .; 2) exploration of the interactive dynamics between instructors and students . . . ; 3) measures of the relative impact of different programs . . . .; 4) investigations of the learning climate conducive to entrepreneurship and its teaching at the university level . . . (p 3). This study will examine the fourth axis, the university climate for entrepreneurship education explained in terms of truisms.

3.0 METHODOLOGY

The methodological approach used for this paper is based on an extensive literature review by referring to scholarly articles and some of the best available books about entrepreneurship education. The three different methods used to search for literature on entrepreneurship education are (1) the use of the snow-ball technique, where the citations from a leading article or book about entrepreneurship education identify other pertinent articles and books; (2) a keyword search to find material to understand the nuances of higher education and entrepreneurship education; and (3) discussions with colleagues during numerous entrepreneurship conferences, such as USASBE, ICSB, SBI, and ICBM conferences. (USASBE – United States Association for Small Business and Entrepreneurship – www.usasbe.org; ICSB – International Council for Small Business – www.icsb.org; SBI – Small Business Institute - https://smallbusinessinstitute.wildapricot.org/; ICBM – International Conference on Business Management sponsored by the faculty of Management Studies and Commerce, University of Sri Jayewardenepura - https://icbm.sjp.ac.lk/.)

This methodology is based on anecdotal evidence[1]. The evidence is in direct quotes from published works and short narratives; this methodology presumes that telling these anecdotes will provide a depiction of the actual challenges facing entrepreneurship education in its attempt to assimilate into the traditional structure of today's higher educational institutions.

Three additional benefits of anecdotal evidence are:

1. It helps scholars identify new hypotheses and ideas from different perspectives about entrepreneurship education.
2. At the very least, anecdotal evidence can provide a starting point to design new and rigorous studies to investigate the phenomenon of entrepreneurship education further.
3. The anecdotes will help to clarify some of the complex concepts facing entrepreneurship education and help engage scholars in a similar inquiry.

This paper will avoid generalizing from any single anecdote. However, multiple anecdotes will suggest a pattern and provide robust empirical evidence as the basis upon which to recommend an approach to designing EE programs within and beyond the confines of today's university context. Briefly stated anecdotal evidence in this study will be used thoughtfully with the highest consideration for the overall credibility of scholarly work.

4.0 TRADITIONAL/NON-TRADITIONAL APPROACHES TO EDUCATION

The issues discussed above already present an unwieldy burden for entrepreneurship educators in their efforts to obtain support and keep the support of their college deans and faculty for an entrepreneurship curriculum. This burden increased due to the additional challenge caused by using a non-traditional approach to EE that pushes up against the traditional approach commonly applied in higher education. The following three scholars provide insights regarding the applicability of the non-traditional versus traditional approaches.

Neck and Corbitt (2018) recommend a non-traditional approach to EE for educators when they require professors ". . . to facilitate learning versus transmit knowledge ***(teaching)***; use experiential techniques in real-life environments on real problems; connect the subject matter to student needs, goals, and aspirations; and treat courses as learning experiences not learning silos" (Neck and Corbit, 2018, p. 14). Neck and Corbitt highlight five of Knowles et al. (2015) sixteen principles, suggesting the following five are especially relevant for EE: more meaningful and integrated learning; students exposed to new possibilities of self-fulfillment; students to share responsibility in the

[1] **Explicatory note:**Even though anecdotal evidence is considered less reliable, it can still offer compelling, relatable insights that help explain the challenges EE faces in today's university context. Even though anecdotal evidence is not empirical data, it can supplement empirical research by providing rich context for EE and by including actual stories of human experiences, behaviors, and attitudes that are part of the entrepreneurial phenomenon.

process of mutual inquiry; students to exploit their own experiences as resources for learning; and students apply new learning to their experience.

Hylton et al. (2019) recommend similar non-traditional approaches: "Analogies, contrasting cases, just-in-time teaching, and elaboration, for example, are different pedagogical approaches related to connections. Question-driven learning and creating inclusive classrooms (i.e., a sense of belonging) relate to curiosity. Empathy and design thinking are related to creating value" (Hylton et al., 2019, p. 94).

Schramm (2014) questions the effectiveness of the traditional teaching approach:
"At least part of the problem stems from the content of courses, which business-school professors invented. . . . The teaching approach, cobbled together from strategic planning and venture-finance insights, is more prescriptive than objective. . . For instance, there is now a narrative about how a new business should begin. Success, it is taught, hinges on writing a business plan. But most of history's exemplary businesses didn't have a plan when they began" (Schramm, 2014, p. 14).

Why is the development of EE lagging behind other fields of study? So, what is limiting the development of EE within the confines of the traditional university context?

4.1 Traditional Education

This paper adopts a conventional interpretation of traditional education that entails a teacher-centric methodology rooted in rote learning and memorization, aimed at imparting essential skills, factual knowledge, and standards of moral and social behavior. The conventional view of traditional education includes the following attributes:

- High test scores and grades are the critical measure of success.
- Students are matched by age and ability where possible.
- All students in a classroom are taught the same material.
- Instruction is based on textbooks, lectures, and individual written assignments.
- Memorization of facts and objective information is central to the learning process, and correct knowledge is paramount.
- A single, unified curriculum is designed for all students within a major, regardless of ability or interest.
- Achievement is based on performance compared to a reasonably stable and formal standard.

It is beyond the scope of this paper to solidify what "traditional education" means as there is no attempt to change the traditional approach to education, because the approach is effective in achieving many educational objectives. Instead, this paper focuses on how the present traditional approach used by higher education limits the development of a meaningful and effective learning experience for nascent and experienced entrepreneurs.

As suggested in the above paragraph, no criticism of the traditional approach will follow, because today's higher education does a very good job of educating doctors, engineers, lawyers, architects, and business executives, i.e., traditional students. There are critics of today's higher education and its failure to graduate enough students at the level of education needed in a particular field. The validity of such arguments is for others to discussion; this paper concerns the applicability of today's traditional approach, commonly adopted in higher education, for the appropriate approach to educate the next generation of entrepreneurs. The essential argument of this paper is that today's traditional education approach used for doctors, engineers, lawyers, architects, and business executives limits the best approach when one seeks to educate entrepreneurs; the traditional approach will be discussed in terms of "truisms" and will be shown to unintentionally constrain the education of aspiring entrepreneurs; educational truisms are fundamental assumptions of the traditional approach used in the design and delivery of education in higher education.

This paper will discuss the following eight truisms:

Truism #1: Students have a common starting point.
Truism #2: We know the scope of knowledge for programs, measured in credit hours.
Truism #3: We know how to sequence the learning of the required knowledge.
Truism #4: We know when the student has attained mastery.
Truism #5: We can create a test to certify the student's mastery.
Truism #6: Jobs are available for the educated/certified.
Truism #7: Graduates' jobs and income measure a program's success.
Truism #8: Academic silos dominate.

The origins of the eight truisms can be traced back to the early 1900s when scientific thinking started to dominate the university's approach to higher education: "In the early 1900s, the social efficiency movement grew out of the belief that science could be used to solve the problems of industrialization and urbanization. According to social efficiency theory, modern principles of scientific management, intended to maximize the efficiency of factories, could be applied with equal success to schools" (Shepard 2000, p. 4). (See “Appendix 1: Rationale for Using the Eight Truisms” for an extended explanation why truisms provide a framework for today’s traditional university education.) The following scholars articulate their criticism of the traditional educational approach.

Shepard (2000) explains six critical assumptions of the behavioristic model, i.e., the traditional approach to education, upon the ensuing conceptualizations of teaching and testing:
1. Learning occurs by accumulating atomized bits of knowledge;
2. Learning is tightly sequenced and hierarchical;
3. Transfer is limited, so each objective must be explicitly taught;
4. Tests should be used frequently to ensure mastery before proceeding to the next objective;
5. Tests are isomorphic with learning (tests = learning);
6. Motivation is external and based on positive reinforcement of many small steps.

A similar viewpoint is expressed more succinctly by Winslow et al. (1999) encouraging entrepreneurship educator to move towards more unconventional teaching methods:

> Traditional paradigms will not work when the focus of the learning is to broaden horizons and perceptions and, in fact, move individuals to a different plane of thinking and action where the focus is for them to become "Paradigm Pioneers" and to blaze new trails for others to follow (Winslow et al., 1999, p.759).

In spite of the above criticism, this paper recognizes the dominance of the traditional approach in higher education as the norm for teaching students. However, for the aspiring entrepreneur, it is essential to recognize some critical aspects of the differences between the traditional and non-traditional approaches, as there is no standard, generally accepted definition of the non-traditional approach. Instead, we can only depend on the insights from leading scholars who study entrepreneurship education to highlight the differences between the traditional teaching approach and the approach when teaching entrepreneurship students using the best techniques under today's circumstances.

According to Gordon et al. (2013), our greatest challenge is lighting fires:

> Perhaps one of the greatest difficulties our schools face today is the challenge of 'lighting fires' or engaging students and creating excitement about learning. Traditionally, our educational endeavor has been pre-occupied with 'filling buckets,' or teaching students to recall specific content given to them through lecture . . . We are beginning to see a shift from thinking about education as concerned with "filling buckets to lighting fires." Increasingly, the goals of education reflect the growing concern with encouraging and enabling students to learn how to learn, and to continue learning over their entire lifetimes; to become enquiring persons who not only use knowledge, but persons who also produce and interpret knowledge (Gordon et al., 2013, p. 1-2).

According to Egan (2005), the best tool for education is imagination:

> All knowledge is human knowledge, and all knowledge is a product of human hopes, fears, and passions. To bring knowledge to life in students' minds, we must introduce it to students in the context of the human hopes, fears, and passions in which it finds its fullest meaning. The best tool for doing this is the imagination (Egan, 2005, p. 12).

According to Felder (2012), constructivism underlies advanced education based on cognitive science:

> Cognitive science and extensive educational research have repeatedly shown that traditional lecture-based instruction is ineffective at promoting learning and high-level skill development, both in general and specifically in engineering education (Felder, 2012, p. 1).

> The alternative view of knowledge is *constructivism*, which claims that whether or not there is such a thing as objective reality, human beings can never know what it is. People take in information through imperfect sensory organs and either filter it out quickly or incorporate it into their existing mental structures; in effect, they construct their own reality, either individually (*cognitive constructivism*) or collectively with others (*social constructivism*) (Felder, 2012, p. 2).

According to Kashino (2021), "the culture of the university as a whole" impedes the students' ability to "take action on entrepreneurship:"

> . . . the structure of the programme, which demands academic results in a short period, and the culture of the university as a whole, which requires students to focus on academic, made it

> structurally and culturally difficult for students to take action on entrepreneurship. For example, while formal institutions promote networking with entrepreneurs and other interested parties, the university's overall academic structure is enormously intensive. As a result, students could not prioritise their time for entrepreneurial activities, despite having the intention of starting their own business and the beneficial opportunities created in some of the institutions at the university (Kashino, 2021, p 29).

According to Fayolle & Klandt (2006), they see entrepreneurship education occurring at different levels:

> . . . entrepreneurship and entrepreneurship education can be seen . . . at different levels: Entrepreneurship is a matter of *culture* (institutional point of view) or a matter of *state of mind* (individual point of view) . . . Culture and state of mind could be mainly approached in terms of values, beliefs and attitudes. Entrepreneurship is also a matter of behaviours. . . . entrepreneurship is a matter of specific situations . . . including change, uncertainty, complexity and requiring entrepreneurial behaviours . . . (Fayolle & Klandt, 2006, p 2).

According to Brown (2006), the university is constrained in its ability to educate due to compliance with many different accreditation agencies and professional associations. Brown claims that universities must navigate an increasingly complex and siloed environment:

> Colleges and universities are large organizations that must navigate an increasingly complex accountability environment (p. 30). . . . create more complexity for schools as they must comply with the standards of multiple professional associations and accreditation agencies to signify the quality of their education (p. 31).. . . higher education accountability is comprised of seven unique fields – or silos – each with its own logic and approach toward accountability. The seven silos . . . are: assessment, accreditation, institutional research, institutional effectiveness, educational evaluation, educational measurement, and higher education public policy (p. 32).

> In contrast to the traditional approach at the beginning of this section, the following is a summary of several leading principal aspects that distinguish a non-traditional and student-learning approach from traditional education: Learners need to know why they need to learn before engaging; learning requires self-direction and ownership; teachers are the guide-on-the-side; learners engage through experience and analysis of that experience; simulations and problem-based learning are best; new knowledge, understanding, skills, values, and the best way to change attitudes is through applications to real-life; learners are responsive to extrinsic motivators, but internal pressures for increased job satisfaction, self-esteem, and quality of life are most effective.

5.0 EIGHT TRUISMS OF EDUCATION[2]

This section examines the eight truisms of traditional higher education, which define the structural and pedagogical foundations of students' learning experiences on American university campuses. These truisms are long accepted as self-evident principles that underpin the success of conventional professional programs—medicine, law, engineering, and accountancy. However, the central argument of this paper is that the same truisms that support professional education constrain the development of entrepreneurship education (EE) within universities. While these assumptions ensure consistency and quality in established disciplines, they limit innovation and adaptability in emerging fields such as entrepreneurship. The limitations of traditional education are based on three closely related factors:

1. Entrepreneurship education remains a relatively new academic domain, still defining its theoretical boundaries and pedagogical foundations;
2. The nature and requirements of an entrepreneurship degree are not yet precisely defined, leaving institutions uncertain about what constitutes mastery in the field; and
3. Entrepreneurship is inherently interdisciplinary, drawing upon multiple domains—business, technology, psychology, design, and the social sciences—making it difficult to establish a mutually exclusive disciplinary identity.

Consequently, these eight truisms constrain the development and evolutions of entrepreneurship education in higher education as explained below.

Truism #1: Students share a common starting point. Traditional academic programs assume that students enter with comparable levels of prior knowledge, skills, and motivation—an assumption that permits standardized curricula and uniform progression. In addition, professional programs such as medicine, law, and engineering are designed to ensure that each cohort begins from a common baseline. This approach works in structured professions where prerequisite knowledge is clearly defined. However, entrepreneurship education violates this assumption: learners arrive with vastly different experiences—some already managing ventures, others exploring entrepreneurship for the first time. The belief in a common starting point oversimplifies entrepreneurial diversity and limits the design of adaptive, experience-driven learning environments.

Truism #2: The scope of knowledge for each program is clearly defined. Professional education operates on the premise that each discipline possesses a stable and codified body of knowledge that can be systematically transmitted to students. Scholars and professional associations have worked diligently to identify the conceptual foundations, skill sets, and competencies that define success in fields such as architecture, engineering, medicine, and law. Mastery of this knowledge prepares graduates to enter well-established career pathways with predictable expectations of success. This premise, which is valid for professional careers, but it poses problems for entrepreneurship education, where entrepreneurship is characterized by uncertainty, interdisciplinary crossover, and emergent technologies. The belief that entrepreneurship has a fixed body of knowledge ignores its contextual and evolving nature.

Truism #3: In addition to knowing the requisite scope of knowledge, skills, and competencies, each program maintains a structure of knowledge, i.e., the sequence of learning experiences, starting with the prerequisite courses to qualify for the program. However, entrepreneurial learning rarely unfolds in a linear manner, because entrepreneurs learn via experimentation, failure, reflection, and iteration—often revisiting and reframing what they

[2] A cautionary note: None of the truisms are absolutes, i.e., our knowledge of a "common starting point" for a student is certainly less than perfect or complete. However, our traditional approach to education presumes that students must learn the basics of a particular field of study before taking advanced courses. Commonly, the initial courses are introductory or prerequisite courses, as students need some fundamental knowledge of a particular field to build their expertise. Likewise, our ability to define the "scope of knowledge" is certainly less than perfect, yet we do define a body of knowledge a student must master in order to become proficient; the "scope of knowledge" is generally referred to as "best practices" and in nearly all programs, the teaching of "best practices" does directly impact the success of a student in their particular area of study. Similarly, the same rationale is used to explain the sequence of learning and our confidence when the student has taken enough coursework to gain mastery of best practices within a particular area of study.

thought they knew. When entrepreneurship education adopts rigid sequencing, it imposes an artificial order on a process that is, by nature, nonlinear and opportunity-driven.

Truism #4: Mastery is achieved at the point of graduation. Graduation is the focus of every educational program; a program designed with this purpose defines the point at which the student has acquired the knowledge to claim mastery in the field of study; that is, scholars believe they can define the array of courses that a student will need in order to develop mastery in the particular profession. A "mastery" approach works professions where expertise can be developed and verified via independent testing. However, entrepreneurship, however, defies any definition of mastery, because entrepreneurial mastery is never final; it evolves through continuous learning, market feedback, and adaptive decision-making. Equating mastery with program completion fails to capture the enduring and experiential nature of entrepreneurial competence.

Truism #5: We can create a test to certify the student's mastery. Examinations such as the CPA, LSAT, MCAT, or bar exam provide standardized certification of competence for certain business professionals. These instruments are valuable societal safeguards, assuring the public that practitioners meet established professional standards. The ability to test for mastery represents a genuine achievement of 20th-century professional education. However, entrepreneurship eludes this form of verification. No test can predict creativity, resilience, or opportunity recognition—the very capacities that define entrepreneurship. The belief that entrepreneurial mastery can be certified through examination misapplies the logic of technical professions to a domain rooted in uncertainty, imagination, and action.

Truism #6: Jobs exist for the educated and certified. Professional education presumes that there are well-defined job categories within existing industries. Employment data and salary levels thus serve as indicators of educational value and return on investment. This reasoning underlies policymakers' reliance on wage outcomes to assess institutional effectiveness. This logic may be true for certain business and medical professions, but the logic fails to account for the entrepreneurial reality that jobs are *created*, not filled. Entrepreneurs generate new value propositions and economic spaces rather than occupying existing ones. Measuring entrepreneurship education by employability metrics distorts its purpose and undermines its broader contribution to innovation and social renewal.

Truism #7: Program success is measured by graduates' first job. Universities commonly evaluate program effectiveness through graduates' job placements and starting salaries. Such metrics serve professional programs well, where the transition from education to employment is immediate and measurable. In entrepreneurship, however, outcomes unfold over extended time horizons. Many graduates pursue entrepreneurial ventures years after graduation, and their pathways often include multiple experiments, failures, and reinventions. Judging entrepreneurship programs by short-term job metrics thus undervalues delayed, nonlinear, and collective forms of success—such as venture creation, ecosystem impact, and community development.

Truism #8: Siloed structure the university. Today's university is a federation of disciplines, each defined by its own epistemology, faculty culture, and institutional boundaries. This siloed organization advances disciplinary depth and scholarly expertise but now constrains interdisciplinary and experiential learning. Entrepreneurship, by contrast, is inherently transdisciplinary—it integrates insights from economics, psychology, design, technology, and the social sciences. When constrained within academic silos, entrepreneurship education struggles to achieve coherence and collaboration. Overcoming this limitation requires breaking through disciplinary boundaries to create open, cross-functional learning ecosystems aligned with entrepreneurial practice.

Table 1 provides an overview of the constraints of the university framework on entrepreneurship education.

Table 1 - Eight Truisms: Constraints of the University Framework

Truism	University Assumption	Constraint on Entrepreneurship Education
1. Common Starting Point	Homogeneous student readiness	Diversity of experience ignored; learning pace misaligned
2. Known Scope of Knowledge	Defined academic canon	Entrepreneurship's tacit, contextual knowledge excluded
3. Sequenced Learning	Linear curricular design	Redundant courses; lack of cumulative, adaptive learning
4. Mastery Measured by Completion	Diplomas imply readiness	No indicator of entrepreneurial capability or identity
5. Certifiable Test	Standardized assessment	Entrepreneurship resists prediction or classification
6. Jobs for the Educated	Employment-based outcomes	No "job market" for entrepreneurs; creation replaces employment
7. First Job as Metric	Placement equals success	Entrepreneurship's delayed or nonlinear outcomes uncounted
8. Academic Silos	Disciplinary logic dominates	Interdisciplinary, experiential learning suppressed

These eight truisms explain how the structural assumptions of tradition higher education, assumptions that have proven effective in producing competent professionals in well-established fields, impose an inherent rigidity upon the education of entrepreneurs rather than facilitating the emergence of entrepreneurs by providing entrepreneurship education that thrives on ambiguity, iteration, and contextual learning—conditions poorly served by standardized curricula, linear sequencing, and discipline-bound knowledge. The challenge for higher education, therefore, is not to reject these truisms outright but to recognize their limitations when applied to entrepreneurial learning. To cultivate future entrepreneurs, universities must move beyond the efficiency-driven logic of industrial-era education and embrace a biospheric approach—one that values adaptability, cross-disciplinary collaboration, and experiential discovery as the proper measures of learning and mastery.

In addition to the university's institutional constraints explained by the above eight truisms, scholars have identified numerous complementary challenges within the field of education itself. These entrepreneurship scholars recognize that the difficulties facing EE are not confined to the university's traditional approach, but are also a function of the current entrepreneurship pedagogy of from how entrepreneurship is conceptualized, taught, and assessed.

In the following quotes, Lautenschläger and Haase (2011), Brockhaus et al. (2001), Barr and Tagg (1995), and Svinicki (1985) explain several recurring issues that hinder the maturation of EE as a distinct academic and professional domain, e.g., entrepreneurship is often conflated with traditional management education, that instructional paradigms privilege teaching over learning, pedagogical methods inadequately address creativity and failure, and that entrenched academic logics constrain experimentation. Following is a synthesis of these critiques, outlining six persistent issues that continue to shape and, at times, limit the evolution of entrepreneurship education in higher education. Leading entrepreneurship scholars highlight the pertinent of the following issues related to entrepreneurship education:

(1) Entrepreneurship is ill-mixed with traditional management education

(2) Entrepreneurship is just another form of business education

(3) The professor controls the learning experience via atomistical learning

(4) Teaching methods assume student learning styles

(5) Seven persistent myths of university EE programs

(6) University's failure to teach failure

As Lautenschläger and Haase (2011) reported,

> . . . knowledge and research regarding EE contents remain relatively underdeveloped. According to Brockhaus et al. (2001, p. XIV), the field is still in its infancy since "very little is still known about effective teaching techniques for entrepreneurial educators. What seems clear is that the structure of an EE program should be very different from a typical business management program (McMullan & Long, 1987). Notwithstanding, the absence of a single agreed definition of EE implies that even today, the concept is often ill-mixed with traditional management education, social competence skills conveyance, or career path building (Lautenschläger & Haase, 2011, pp. 149-150).

A second limiting aspect of the traditional view of EE is that EE is just another form of business education.

> "We believe that too many programs still conceive EE as an adapted business management education, covering all related functional areas in a quick run, and only a few approaches seem to be suited to transmit entrepreneurial 'know-how'. . . . In our view, for their closeness to business management education, hard facts about business creation such as venture finance, accounting, marketing, management, and business plan development can easily be taught by EE. However, a considerable and essential part of entrepreneurial expertise is tacit and based on know-how; it is the 'ingredient' that distinguishes the entrepreneur from other individuals and should be the focus of EE." (Lautenschläger & Haase, 2011, need page #).

A third limitation constraining the development of EE is the "Instructional Pardigm," According to Barr and Tagg (1995),

> The Instruction Paradigm frames learning atomistically. In it, knowledge, by definition, consists of matter dispensed or delivered by an instructor. The chief agent in the process is the teacher who delivers knowledge; students are viewed as passive vessels, ingesting knowledge for recall on tests. Hence, any expert can teach. Partly because the teacher knows which chunks of knowledge are most important, the teacher controls the learning activities. Learning is presumed to be cumulative because it amounts to ingesting more and more chunks. A degree is awarded when a student has received a specified amount of instruction (Barr and Tagg, 1995, p. 13).

We also know that "The shaping of creativity, opportunity recognition and problem solving capabilities should encompass the whole education system" (Lautenschläger & Haase, 2011, p. 156), and we know that there is a dominant logic for framing the educational experience for students in all areas of study. Entrepreneurship is no exception. Svinicki (1985) provides several important insights regarding the constraints and problems with student learning based on the university's dominant logic:

> . . . each time we choose a particular teaching method, we are making assumptions about the student's learning styles and skills. Sometimes, these assumptions are conscious assumptions, and the decisions based on them are deliberate choices; more often, the assumptions are unconscious ones, and the decisions are made more by default than by design. This is especially true for teaching methods that have been around for a long time. . ." (Svinicki, 1985, p. 32).

Lautenschläger & Haase (2011) provide insights regarding the flaws in EE on university campuses. They identified seven myths that are used for arguments against entrepreneurship education" . . . :

1. Lack of uniformity in objectives, content, and pedagogies
2. The trait approach
3. The "teachability dilemma."
4. Lack of measurement in overall impact
5. Negative relation between entrepreneurial training and activities
6. EE is limited to higher education institutions
7. The "All-rounder paradox."

Lastly, Lautenschläger & Haase go on to identify a flaw in traditional education, because the university's does not teach failure. Instead, the university's bias is teaching about success and what students need to do in order to succeed in a particular profession. Even though universities believe that students can learn about failure elsewhere, this presumption leaves failure as a self-taught skill which can easily be more expensive than the cost of a college education.

So, in order to assess the impact of the truisms on EE, it is best to begin with what we know about EE? What do we know about students of entrepreneurship? What should EE look like on campus? What does the future of EE look like? These are tough questions to answer, but a good beginning is to review what we already know about EE.

6.0 WHAT DO WE KNOW ABOUT EE?

We know entrepreneurs must be all-around performers:

> Entrepreneurs have to be all-rounders, performing various tasks and are far from ordinary or a 'routine.' They must be able to succeed in unknown fields of acting and constantly find new and alternative solutions. Hence, positively thinking, inventively acting, and creative decision-making are the basic components to becoming an entrepreneurial individual (Lautenschläger & Haase,2011, p. 155).

We know that the educational system must nurture creativity:

> The educational system should concentrate on nurturing creativity as well as open and critical thinking. Curricula have to strengthen problem recognition and problem solving activities. . . create spaces for creative thinking and working. . . . dropping out from solidified and retracted thought structures should be particularly practiced. . . This helps to develop qualities such as creativity, confidence and preservice, which are imperative for being an entrepreneur (Lautenschläger & Haase, 2011, 159).

We know that lectures should be the exception:

> The focus should not only lie on the facilitation of knowledge about business creation but rather on approaching the student how to acquire such knowledge and on the training of such abilities. Therefore, lectures related to entrepreneurship should be an exception in university education. As long as every individual has the ability to collect information from the internet or the library, it should no longer be the task of the teacher to give a lecture (Lautenschläger & Haase, 2011, p. 156).

We know that colleges and universities should transform students into active learners:

> University education should transform students into active learners. This comprises an experimental and experiential environment that allows trial and error, and, thus, facilitates students to discover a diversity of entrepreneurial experiences enabling them to grow holistically (Lautenschläger & Haase, 2011, p. 156).

We know that colleges and universities are moving towards experiential learning:

> It's important to note the shift from traditional paradigms to more unconventional, experiential based teaching of entrepreneurship at the university level. . . Experiential learning has risen to the forefront of entrepreneurship education, as colleges and universities respond to research that encourages both real-world projects and extracurricular learning activities to better teach entrepreneurship, such as internships, business plan competition and student clubs (Kauffman, 2001, p. 3).

We know that entrepreneurs are not a homogeneous group:

> . . . let's keep in mind that entrepreneurs are not a homogeneous group. They come in all sizes, each with his or her own characteristics (Kets de Vries, 1985, p. 161).

We know that a liberal education is beneficial:

> Thus, being a successful entrepreneur requires being a generalist with the ability to bring a series of disciplines and talents together in a practical manner (Lautenschläger & Haase, 2011, p. 154).

We know that EE increases success:

> ". . . an entrepreneurship education increases the chances of graduates owning their own business by 11%, relative to those in non-entrepreneurial programs. What's more, the study also offered strong evidence that entrepreneurship education in general fueled risk-taking, innovation and the formation of new ventures, while contributing to the growth of smaller firms and technology transfers" (Loten, 2006, p. 3).

We know that learning is EE's goal:

> Now, however, we are beginning to recognize that our dominant paradigm mistakes a means for an end. It takes the means or method - called "instruction" or "teaching"- and makes it the college's end or purpose. To say that the purpose of colleges is to provide instruction is like saying that General Motors' business is to operate assembly lines or that the purpose of medical care is to fill hospital beds. We now see that our mission is not instruction but rather that of producing learning with every student by whatever means work best (Barr and Tagg, 1995, p. 30).

We know that entrepreneurs succeed without EE:

> "It precludes those who are not able or not willing to attend higher education institutions. Most EE seems to be offered only for individuals who fulfill the requirements to enter a university. . . . The analysis has shown that EE is not a precondition for more entrepreneurs to start and grow new firms. . . The danger lies in wasting a huge amount of public money in trying to encourage start-up via EE" (Lautenschläger & Haase, 2010, 154-155).

We know the purpose and challenges of entrepreneurship education, regardless of the challenges that confront entrepreneurship education, as noted above, the principal purpose of entrepreneurship education is also well known and succinctly stated by the following scholars:

Hägg & Kurczewska (2022) state the dominant motive of EE:

> The dominant motive for the wide implementation of entrepreneurial education was to enable and facilitate social and economic transformation. The responsibility for the transformation was left to scholars, who had to design courses and programmes without being able to support their teaching with sound research. The situation was unique for academics in the sense that the socio-economic objectives were clearer and prioritized at the expense of educative goals (Hägg & Kurczewska, 2022, p. 5).

Blenker et al. (2006) reinforces the importance of the university in entrepreneurship education and the need for the university to have "open doors":

> Still, enterprising behaviour cannot be created in a contextual vacuum. To enhance this behaviour, universities have to open doors – both within the university to create networks between faculties and departments and to the outside in order to create networks with industry and government in the environment. This is not an easy task. Institutional norms, incitement systems and general prejudices hinder fruitful experiments on these matters (Blenker et al., 2006, p. 26).

Fayolle (2013) describes the future direction for entrepreneurship education:

> In my view, the future of EE relates to the relevance, self-consistency, usefulness, effectiveness and efficiency of entrepreneurship courses and programmes at the various levels of education and training. The 'client' of EE is the society in which it is embedded. It means that entrepreneurship learning and entrepreneurship outcomes should adequately meet the social and economic needs of all the stakeholders involved (pupils, students, families, organizations and countries) (Fayolle, 2013, p. 700).

So, there is a tug-and-push relationship between the traditional approach and an EE approach towards education at the university level suggesting that there is a lack of EE's fit within the traditional approach as the source of the problem limiting the design and implementation of more effective EE programs for the nascent and expert entrepreneurs. The following explanation expresses the opinion and presents the argument that the traditional university context, as illustrated by the eight truisms, is the primary source of EE's limitations to education entrepreneurs, nascent or expert.

7.0 THE FUTURE OF EE

Given the impact of the truisms on the development of entrepreneurship education, what should EE look like on college campuses? What does the future of EE look like? We know that the traditional education model limits the development of EE programs, as illustrated above in the discussion of eight truisms. We also know some parts of the EE puzzle, as previously discussed. The remaining question to answer is how should we develop meaningful, relevant, and effective entrepreneurship programs for the nascent entrepreneurs and the expert entrepreneurs? There are two approaches to answering these questions; the two approaches are diametrically opposing views: first approach, EE should create its silo within the university, i.e., establish a college of entrepreneurship, or second approach, EE can continue its effort to create a paradigm shift for the education of future entrepreneurs.This analysis supports acceptance of the second approach following the advice of leading entrepreneurship scholars, as these scholars have already begun to approach EE differently than the approach defined by traditional education.

7.1 Paradigm Shift

There is numerous methods EE educators use today. A detailed list of all the methods being used to shift the paradigm in education is beyond the scope of this paper because the list of methods presently used would be massive, and the list continues to expand, driven by the numerous journals and academic associations that report new techniques and strategies for shifting the paradigm. A more appropriate method, at this time, is to provide an understanding of the fundamental paradigm shift occurring in entrepreneurship education through the eyes of some leading EE scholars who advocate for a paradigm shift in EE:

Jacobs and Farrell (2001) summarize the critical components of the paradigm shift changing entrepreneurship education.

- Focus greater attention on the role of learners rather than the external stimuli they receive from their environment.
- Focus more on the learning process than on the products that learners produce.
- Focus more on the social nature of learning rather than on students as separate, decontextualized individuals.
- Focus greater attention on the views of those internal to the classroom rather than solely valuing those from outside, valuing the subjective and affective views of the participants' insider views and the uniqueness of each context.
- Help students understand the purpose of learning and develop their purposes.
- Teach a whole-to-part orientation instead of a part-to-whole approach.
- Emphasize the importance of meaning rather than drills and other forms of rote learning.
- View learning as a lifelong process rather than something done to prepare for an exam.

Based on the above, Jacobs and Farrell (2001) succinctly identify eight changes of a learner-centric approach that contrast with the traditional educational paradigm: Learner autonomy, cooperative learning, curricular integration, focus on meaning, diversity, thinking skills, alternative assessment, and teachers as co-learners.

As Jacobs and Farrell (2001) conclude by stating, ". . . the old paradigm attempted to fit all students into a one-size-fits-all learning environment, with diversity viewed as an obstacle to be removed. In the current paradigm, diversity among students is not seen as an obstacle but as a strength" (p. 11).

Felder (2012) calls for a learner-centered teaching as the emerging paradigm because modern cognitive science and extensive educational research demonstrate its superiority over traditional teacher-centered instruction for virtually any targeted learning outcome. Felder acknowledges the tension between traditional and emerging approaches to teaching and learning and believes that the tension appears in every aspect of curriculum and course design, delivery, and assessment.

Martínez et al. (2010) suggest that students should be screened to weed out the inexperience, while, at the same time, they question the benefits of turning EE into an exclusive program:

> . . . Ibrahim and Soufani (2002) suggest, perhaps training can weed out inexperienced entrepreneurs or those with an infeasible opportunity. This, however, places the burden on sound screening and training practices in the early stages, when uncertainty is highest. Even then, concepts that are screened out of programs may result in missed opportunities, because capable entrepreneurs may shape poor-quality ideas into more viable ones. In addition, entrepreneurs gain experience that creates new learning and builds skills. This in turn raises a question about the exclusiveness of programs: Should they be selective or encourage broad participation? It also casts doubt on the effect of training: Are higher success rates among selective programs due to the pre-screening or the training itself? (Martinez et al., 2010, p. 15).

Fayolle (2013) believes that EE must develop competent, knowledgeable, and reflective entrepreneurship educators:

> EE lacks qualified and experienced scholars. As previously mentioned, research on who entrepreneurship educators are and what they really do remains scarce. There is a strong need to develop the competences, knowledge and reflexivity of entrepreneurship educators. In my view, they should behave as both educators and researcher, deeply rooted in the field, because teaching/educating people in entrepreneurship requires a wide-ranging set of skills (Fayolle, 2013, p. 699).

> Entrepreneurship educators need to be experts in many different areas and notably in the fields of entrepreneurship and education. They need to understand the key concepts and theories from both entrepreneurship and education. They need to incorporate in their educational practice 'softer' entrepreneurial topics such as the entrepreneurial mindset, opportunity construction, work-life balance, managing emotions and learning from failure. They also need to demonstrate the usefulness of entrepreneurship theories and to regularly update their knowledge using entrepreneurship research (Fayolle, 2013, p. 699).

Hägg & Gabrielsson (2020) agree with Fayolle's focus on the entrepreneurship instructor and laments that there are few theoretical insights about the role of the instructor:

> . . . entrepreneurial education have mainly focused on curriculum design and teaching content (what), learning processes of student entrepreneurs (for whom) and the implementation and use of various teaching methods (how). On the other hand, attention to the instructor has been scarce and the few contributions that exist are largely descriptive. As a result, there are few theoretical insights about the role of the instructor in the context of entrepreneurial education . . . for example, instructors' perceptions and teaching philosophies . . . (Hägg & Gabrielsson, 2020, p. 843).

Other scholars (Crookes & Lehner, 1998; Vandrick, 1999) also agree that a one-size-fits-all approach needs to be replaced by stating that this is in line with ideas from the area of critical pedagogy, which seeks to encourage a view of learning as a process in which students actively take part in the transformation of themselves and their world, not as a process in which students passively take part in the transmission of information from their teachers and textbooks to themselves.

8.0 ENTREPRENEURIAL BIOSPHERE - RETHINKING ENTREPRENEURSHIP EDUCATION

A fresh approach to entrepreneurship education is needed to address the eight truisms of the university's EE model, and the concept of an "entrepreneurial biosphere" explains how to address the structural misalignment between the university's EE model and the entrepreneur's learning mode. This concept explains how EE will transcend the institutional boundaries of the university so that the student's learning experience will become integrated with the

broader entrepreneurial biosphere, the living integration of education, policy, business, and societal norms, making universities the nodes that facilitate the students' learning experiences, rather than be the centers of control; a biosphere that nurtures imagination, creativity, and opportunities during every life stage and generational cohort.

Entrepreneurship education became established in higher education during the late 20th Century, within the institutional structure defined by the traditional university assumptions developed during the late 19th Century. These assumptions, explained as truisms, explain the persistent structural misalignment between the university's learning context and the way entrepreneurially-inclined students actually learn, act, and evolve. In order to re-align the student's educational experience, this paper recommends a biosphere approach that shifts the focus of EE from education as a curriculum to entrepreneurial learning as a biosphere experience. Within the biosphere experience, the student's educational experience becomes an adaptive and lifelong learning experience; an experience that transcends the university's silos and boundaries to cultivate the student's imagination, creativity, and innovation aspirations, in alignment with the realities of entrepreneurial practice.

An entrepreneurial biosphere is a learning ecology rather than a curriculum; the biosphere is an evolving ecosystem that situates the student within overlapping personal, institutional, societal, and global environments, providing an endless array of individualized paths to entrepreneurial opportunities, discoveries, and adaptations. Key features of the biosphere include (1) learning networks where the university becomes the node within the global community to connect students with mentors, ventures, and other entrepreneurial biospheres; (2) digital spaces such as studios, accelerators, incubators, online platforms, that enable continuous and real-time creation, feedback, and collaboration; (3) seamless participation among nascent and expert entrepreneurs, alums, practitioners, and policy actors via shared challenges; (4) evolving educational experiences shaped by the seamless participation, changing context, and shifting societal needs, modifying the student's experience in real-time. The key features shift the focus of entrepreneurship education from what students should know to who they are to become as autonomous learners, navigating uncertainty, and creating value within dynamic biosphere systems. Table 2 contrasts the traditional educational objectives with the biosphere objectives.

Table 2 - Traditional Objectives versus Biosphere Objectives

Traditional Objective	Biosphere Objective
Transmit knowledge about entrepreneurship	Cultivate *entrepreneurial identity and agency*
Teach venture planning and management	Foster *opportunity discovery and system adaptation*
Prepare for employment or startup success	Develop *lifelong learning capability and ecosystem literacy*
Achieve measurable outcomes (GPA, degrees)	Demonstrate *impact, reflection, and adaptive capacity*

The future of entrepreneurship education will not be found by revising the university's entrepreneurship education curriculum. Instead, the future of entrepreneurship education will be found by reimaging entrepreneurship education

as a biosphere of adaptive, interconnected, and generative learning experiences where the educational approach aligns with the form of education that supports the entrepreneurial function as a living system of possibilities, cultivating the student's capacity to not only start ventures but to imagine and sustain a humane societal community. In order to make this shift, the university must design its entrepreneurship programs as biosphere gateways that link students to external entrepreneurial networks; de-emphasize credit for course completions making entrepreneurial competences its principal metric; create the context for problem-based learning, rather than expecting significant and immediate solutions; develop longitudinal alum networks to track and support student life-long learning; and re-align academic performance to reward experimentation, collaboration, and real-world impact rather than course enrollments. Table 3 summarizes the university's transformation from truisms to biosphere principles. (Select between the two Table 3.)

Table 3 presents the pedagogical transitions required to facilitate the university's transformation from entrenched institutional truisms to biosphere principles of entrepreneurship education.

Table 3 - Pedagogical Shift from Truisms to Biosphere Principles		
Truism	Current Limitation	Transformative Alternative to Biosphere Principles
1. All students have a common starting point	Courses assume homogeneity of background.	Begin with a personal entrepreneurial baseline—each learner maps prior experience, networks, and goals. Create *customized learning pathways* using modular, competency-based systems rather than fixed syllabi.
2. We know the scope of knowledge for every program	Undefined or fragmented entrepreneurial "canon."	Replace prescriptive knowledge lists with a "living curriculum" that evolves through projects. Knowledge becomes contextual—students learn what they need as they create ventures.
3. We know how to sequence the learning	Linear courses and redundancies dominate.	Replace sequencing with cyclical learning loops—imagine–create–reflect–adapt—mirroring real venture processes. Use spiral design where each cycle deepens prior understanding.
4. We know when mastery is attained	No reliable metric for "entrepreneurial readiness."	Measure entrepreneurial capability via authentic assessments: venture prototypes, stakeholder engagement, reflection portfolios, and narrative self-assessment.
5. We can create a test to certify mastery	No predictive test for entrepreneurship.	Abandon testing in favor of evidence-based storytelling (learning portfolios, peer validation, venture impact). Certification reflects demonstrated behavior, not exam performance.
6. Jobs are available for the educated/certified	No defined "entrepreneur job market."	Shift from "employment outcomes" to venture outcomes—students learn to *create* economic roles for themselves and others. Support through university–ecosystem partnerships and post-graduation venture fellowships.
7. The graduate's first job measures program success	Misaligned metrics.	Track longitudinal impact: venture formation, social contribution, entrepreneurial mindset, and ecosystem engagement over 5–10 years. Create alumni communities of practice.
8. Academic silos and dominant logic	Siloed, discipline-bound teaching.	Build transdisciplinary studios that merge design, technology, policy, and art. Faculty become *facilitators* and *connectors* across silos. Partner with external mentors to expand beyond academic logic.

9.0 CONCLUSION

The fundamental question is whether we should let entrepreneurship naturally occur wherever it appears at any particular moment or to curate entrepreneurship, seeking control of its occurrence. If we select the second alternative, then education provides the indispensable foundation for advancing entrepreneurship beyond that which may occur naturally. Regardless of its source, entrepreneurship is a multifaceted and interdisciplinary phenomenon, growing in importance and driven by the dramatic societal and technological shifts after WWII: The rise of consumerism, industrialization, globalization, the 4th Industrial Revolution, computerization, the Internet, communication services, and a massive host of supporting infrastructure changes that support these shifts. The impact of these shifts has created severe challenges that confront today's entrepreneurship educators who are sprinting to keep up with the demand for entrepreneurship education, outdistancing their supply line of experienced instructors and supportive pedagogy.

In particular, the concern is whether the traditional university framework can accommodate, facilitate, and be the impetus to build an effective entrepreneurship education program. What changes to the higher educational model must occur to nurture the development of an entrepreneurial education program that meets all the highest-of-order expectations? The eight truisms point to critical aspects of traditional education that must be re-conceptualized in order for the university institution to nurture the development of entrepreneurs under today's uncertainty and complexity, as pointed out by Fayolle & Klandt (2006): "As the complexity of the world increases, the complexity of the entrepreneurship education model has to increase too though the inclusion of new variables and new levels of conception" (Fayolle & Klandt, 2006, p. 3). However, Fayolle & Klandt are not the only scholars to express serious concern about the ability of today's university to educate the next generation of entrepreneurs. Zorychta (2017) has summarized the findings of eleven additional scholars whose empirical research found weaknesses in traditional education:

> There are numerous empirical findings of classroom-based entrepreneurship education programs failing to translate into entrepreneurial activity (Kirby, 2004). In a highly ranked entrepreneurship program for university students, there was no significant positive effect on entrepreneurial skills, entrepreneurial traits, or entrepreneurial intentions (Oosterbeek, Praag, Mirjam, & IJsselstein, 2008). Another study found that "classroom-based programs were found to be insignificant" and actually reduced the prevalence of founding intention (Ho et al., 2014). A third study as demonstrated that, while mandatory entrepreneurship courses increase entrepreneurial skills and self-confidence, the percentage of students who wanted to found a company decreased over the term, meaning that this entrepreneurship course actually had a negative effect on promoting new ventures (von Graevenitz, Harhoff, & Weber, 2010). This data indicates that these traits are not being taught effectively, and may even be having an adverse effect (Zorychta, 2017, p. 66).

Regardless of its weaknesses, universities must focus all their resources on fostering entrepreneurship because entrepreneurship remains our shining star; entrepreneurship is the process of how we can mediate, resolve, and benefit from technological change, organizational change, structural change, and societal change, and entrepreneurship is the only phenomenon capable of capturing our imaginative, creative, and innovative spirit giving us the ideas, the inspiration, and the process to find practical and affordable ways to impact the United Nations' Sustainable Development Goals (SDGs), breaking us free from what has been and what is, to improve the quality of life for all. Zorychta (2017) also agrees with the importance of the university, despite its weaknesses, believing that the university is a great place to develop entrepreneurs:

> The true value of colleges and universities rests in their ability to develop an individual through the culture that is created when a group of talented and driven individuals collaborate for the purposes of becoming better individuals and seeking truth. Rather than entrepreneurship being a degree program, it should be a concentration and a staple of the culture that binds together all of the disciplines (Zorychta, 2017, p. 69).

Without question, EE scholars continue their search to develop optimal educational programs that will shape the skills, attitudes, and competencies of their students from youth to adulthood, seeking program designs that will increase the student's propensity for entrepreneurship, encourage them to create a venture from practically nothing, and to do the building of an enterprise rather than watching someone else build it.

It is essential to recognize that entrepreneurship education is the sole academic field dedicated to instigating fundamental shifts in students' attitudes, perceptions, and behaviors. While traditional university education may naturally lead to personal growth and development in students, such changes are typically incidental, stemming from their coursework and campus life. In contrast, entrepreneurship education seeks the deliberate transformations in how students approach challenges, view opportunities, and engage with the world. Unlike in traditional education, where proficiency in a chosen profession can be attained without necessarily altering one's attitudes or behaviors, entrepreneurship education deliberately emphasizes fostering adaptive mindsets and behaviors essential for entrepreneurial success.

As Papanek wrote in 1962, these individuals will be entrepreneurs ". . . in the Schumpeterian sense, innovators who set up industries not previously in existence, with factors not previously in industry, to enter markets not previously supplied from domestic production – all under rapidly changing circumstances (Papanek, 1962, p. 48).

In closing, Béchard & Grégoire (2005) suggest six notable research questions that reflect the need to understand the learners and the learning experience rather than simply using the traditional approach to educate nascent and expert entrepreneurs:

- What are the main parameters and mechanisms underpinning entrepreneurship students' cognitive processes?
- How do prior knowledge, experience, motivation, and cognitive abilities impact entrepreneurship learning?
- What is the impact of students' collaboration on their respective learning?
- How can "realistic" and "authentic" learning situations be developed and implemented?
- How can entrepreneurship programs and courses be constructed, implemented, and evaluated?
- How can multimedia environments conducive to entrepreneurship learning be designed, implemented, and evaluated.

Answers to these research questions will go a long way in helping universities design and deliver better entrepreneurship education in the future.

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Appendix 1: Rationale for Using the Eight Truisms

The eight truisms provide a diagnostic framework for examining the misalignment between the traditional university model of education and the dynamic, emergent nature of entrepreneurship learning. The truisms describe assumptions embedded in today's university structure, a structure that originated in the early twentieth century, when scientific management and social efficiency became dominant paradigms of educational reform. As Shepard (2000) explains, "In the early 1900s, the social efficiency movement grew out of the belief that science could be used to solve the problems of industrialization and urbanization. According to social efficiency theory, modern principles of scientific management, intended to maximize the efficiency of factories,could be applied with equal success to schools" (p. 4). This logic shaped the standardized, efficiency-oriented structures still present in higher education today.

Under this paradigm, universities evolved into highly structured institutions designed to standardize learning, measure mastery, and produce certified specialists—an approach well suited to the professions of medicine, engineering, law, and business administration. However, these assumptions—efficient sequencing, measurable mastery, standardized testing, and job placement—are poorly aligned with the unpredictable, opportunity-driven, and self-directed learning processes that characterize entrepreneurship. The eight truisms, therefore, provide a critical lens through which to understand how the very logic that produced excellence in professional education now inhibits entrepreneurship education.

Provenance of the Eight Truisms

Truism	Conceptual Foundation	Key Sources (APA)
1. Students have a common starting point	Social efficiency and standardized curricula assume uniform readiness across students	Shepard (2000); Tyler (1949)
2. Scope of knowledge measured in credit hours	Carnegie Unit institutionalizes time-based, measurable learning	National Education Association (1906); Laitsch (2016)
3. Sequencing of learning is known	Tyler’s rationale defines curriculum as organized, sequential learning experiences	Tyler (1949); Bloom (1968)
4. Mastery is achieved at graduation	Mastery-learning model equates completion with competence	Bloom (1968); Guskey (2010)
5. Testing certifies mastery	Licensure and standardized assessments as measures of competence	Kane (2013); Brennan et al. (2001)
6. Jobs exist for the educated	Labor-market alignment and occupational classification frameworks	International Labour Organization (ISCO, 2012); Bureau of Labor Statistics (2023)
7. Program success measured by first job	Employment outcomes and ROI as dominant higher-education metrics	NACE (2023); U.S. Department of Education College Scorecard (2022)
8. Academic silos dominate	Disciplinary organization of universities; knowledge fragmentation	Becher & Trowler (2001); Abbott (2001)

Taken together, these truisms reveal the industrial-era design logic underpinning modern universities: efficiency, control, predictability, and credentialing. Entrepreneurship, however, thrives under opposite conditions—uncertainty, iteration, and emergent learning. Using the eight truisms as a critical framework highlights how higher education's legacy of scientific management must evolve into a biospheric model of adaptive learning, where knowledge is cultivated rather than transmitted; mastery is demonstrated rather than certified; and success is measured by creation rather than placement.

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