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Enhancing Higher Education Students' Entrepreneurship in Emerging Economies: An Actionable Process

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Abstract

In principle, emerging countries such as many in Africa offer great opportunities for innovation, growth, and entrepreneurship to serve the growing middle class both locally and in neighbouring countries. Unfortunately, few young graduates from Higher Education Institutions (HEI) engage in entrepreneurship, even many may remain unemployed at the start of their careers or take jobs for which they are overqualified. Preparing the young generation of HEI graduates and encouraging them to choose entrepreneurship as a career option is key to sustaining economic growth and raising qualified job opportunities. This may require a paradigm shift in higher education to go beyond the development of technical and managerial competencies of students, train them in entrepreneurship, and connect them to entrepreneurs, resources, and business ecosystems. This paper aims to contribute to answering the question: What should HEIs' educational and support conditions be to enhance students' engagement in entrepreneurship and have entrepreneurship as an institutionalized career path? This paper provides a conceptual design of a three-stage entrepreneurship development process, namely intention development, opportunity recognition, and opportunity transformation and and related 5S activities, namely, Starting the process, Sensing, Selecting, Shaping, and Seizing entrepreneurial opportunities, to help students progress successfully through the process. The Design Science Research (DSR) paradigm, based on the concept of 'knowing through making', is used for the development of the process and the related 5S activities, and for the pragmatic validity of the process. The paper illustrates the relevance of the proposed process by using the Academy of Traditional Arts (ATA) in Casablanca as a case study and draws first conclusions on the process and its practice. For the rigor phase of the DSR paradigm and to further validate the findings, more applied research is needed, both for the review of the proposed design and the evaluation of the impact of the process and the related 5S activities on the rate of generation of graduate entrepreneurs. This will also be done to ensure the adoption and replicability of the process in different contexts.

Introduction

Successful entrepreneurs are key to the creation of employment opportunities, the increase of job qualification levels, and the enhancement of welfare in the scale of the economy and society in any country (Hosseini et al. 2020a). The employment of the growing number of graduates from Higher Education Institutions (HEIs) in emerging markets presents a challenge for graduates themselves, their

families, and their governments (Iwara, 2025; Okolie et al., 2019). HEIs' graduates do not always find job opportunities at their level, and if any, it is difficult to get them. However, they often have an environment that needs innovative entrepreneurs in sectors critical to meet the needs of the growing middle class in these countries, such as energy, water, food, healthcare, law, education, and services.

Given the fact that innovation and the tendency to grow are the characteristics of entrepreneurship, HEI graduates should, in theory, be the most suited for entrepreneurship development. Unfortunately, Many HEIs may fall short when it comes to revealing or developing entrepreneurial attitudes and behavior among their students or stimulating them to choose entrepreneurship as a career path. Worse, Arranz et al. (Arranz et al., 2019) report that formal standard "instructing " education reduces the individuals' desire for entrepreneurship or even has a 'demotivating' effect on the incentive to create a business. Not only the teaching method, but also the conventional assessment method is not entrepreneurial proof. While, for example, making mistakes is part of the learning process and of speeding up an entrepreneurial process, conventional assessment in education may make students focus on regurgitating teachers' instructions to achieve high grades, which leads to high stigmatization of mistakes and /or of failure (Mwenda Ntarangwi, 2021).

Preparing the young generation of HEIs graduates and encouraging them to choose entrepreneurship as a career option is key to sustaining economic growth and raising qualified job opportunities. HEIs in emerging markets have to be entreprenrial and go beyond producing graduates. They need to develop students with the willingness to see entrepreneurial possibilities and to have the attitudes and competencies to act to develop solutions for the market or society beyond the existing ones. These are triggers that can spark entrepreneurship intention in students (Mwenda Ntarangwi, 2021). To transform itself into an entrepreneurial institution meeting the needs of its students, business, and social environments, a HEI in an emerging market has to find and adopt an entrepreneurship model for itself. Examples of such models are given by Gibb (2010).

This paper aims to propose a relevant, rigorously evaluable, adoptable, and implementable entrepreneurship process or model for helping HEIs in emerging markets to supply communities with game changers, sustainably successful entrepreneurs. The proposed process or model takes into account the required entrepreneur's personality and entrepreneurial competencies on one side and the education and entrepreneurship environments on the other side, and how to develop them. The desired practical outcome of the integration of the process in the curriculum is to enhance formal engagement of HEI students and graduates in entrepreneurship in a context where the creation of jobs at the academic level is low and the "competition" of the informal market on formal enterprises is high. To study the relevance of designing and integrating the proposed process in a curriculum, we propose to iteratively use case studies (Hak & Dul, 2008) in the framework of Design Science Research (DSR) paradigm (Hevner, 2007). The Academy of Traditional Arts in Casablanca, operating in the Handicraft sector, one of the important industrial sectors in developing and emerging markets, will be used here as a case to show the pragmatic validity and usability of the proposed process.

Statement of the problem

The Academy of Traditional Arts (ATA) in Casablanca is a HEI that was established on October 31, 2012, by His Majesty Mohammed VI to promote and regenerate the Moroccan traditional art forms and cultural heritage. It was created with a mission to produce graduates who sustain and develop, at national and international levels, the rich Moroccan handicraft culture. Moroccan handicraft is an internationally renowned industry that employs 331.500 workers (2015 data) in mainly informal microenterprises with low capital, managed by low-educated but highly skilled craftsmen. While internationally praised, the Moroccan handicraft sector faces fierce international competition mainly in terms of product quality, innovative design, and access to some raw materials. To contribute to filling in this gap and go beyond, ATA strives to build capabilities that manage existing traditional knowledge, develop new scientific, design, and management knowledge for the Arts, save existing jobs, and create new technology-based jobs in the sector. ATA produces each year around 100 graduates at the Master's

level in ten technology and design-based disciplines. Next to the newness liability, ATA's graduates face two national challenges in the job market:

1) High unemployment levels among young higher education graduates in Morocco in general. This reached 25.9% among university degree holders in 2023 (HCP, 2023).
2) The handicraft sector is one of the sectors dominated by informal business. The informal handicraft business keeps jobs precarious, unstable, and keeps salaries very low, often lower than what the law allows.

To overcome employment challenges, ATA's objective is to generate 50% of graduates as entrepreneurs in the first year after their graduation. To grow and reach the desired impact, the handicraft sector needs innovation and creativity in products and processes, and marketing. This offers entrepreneurship opportunities for ATA graduates with the required competencies. This will make them job creators for themselves and for other graduates and for low-educated handicraftsmen, but highly skilled handicraft workers in traditional art. A survey we conducted in 2019 on the 92 ATA graduates from 2017 and the 81 graduates from the 2018 cohort showed that, 18 months after graduation, the employment rates for 50 respondents of the 2017 graduates (50/92) were 48%. It was 25% for 68 respondents from 2018 graduates (68/81), six months after their graduation (cf. Figure 1). Less than 50% of the surveyed 2017 and 2018 ATA graduates have jobs at their level or in their education area (see Figure 2). The level of entrepreneurship among these graduates is low (around 10-12%, cf. Figure 1).

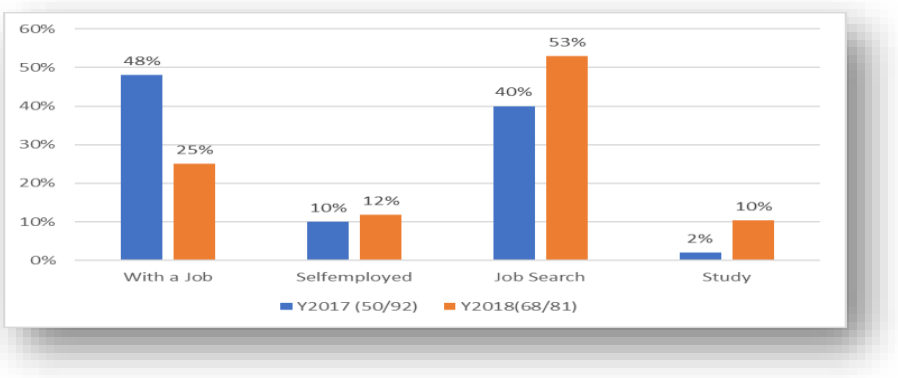

Figure 1. Employment and Entrepreneurship status of responding from 2017 (50/92) and 2018 (68/81) graduates of ATA

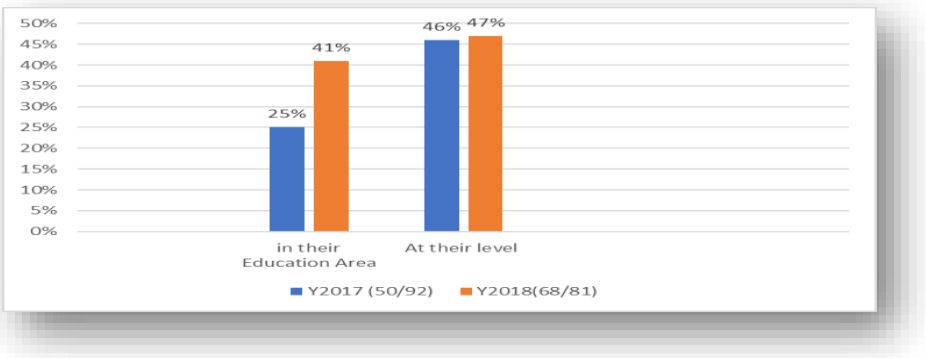

Figure 2. Jobs levels of responding employed graduates from 2017 (24/50) and 2018 (17/68) cohorts of ATA graduates.

This is a trigger for ATA management to rethink their approach to employability and entrepreneurship education. The ATA management formulated the following question:

What does ATA have to do in its education process to enhance the entrepreneurship engagement of its students and have 50% of graduates choose an entrepreneurship career?

To solve this specific contextual problem, we could not find a quick fix through creating an in-house incubator or engaging some motivated students in an external entrepreneurship development structure. Becoming an entrepreneur can be as "simple as" "Find a need in any context, business, social, or environment and fill it in". It is here about seeking, recognizing economic, social value in it, and acting to grasp it. Entrepreneurial learning can be acquired culturally and experimentally on a "need to know" and "how to" basis. Many self-employed persons are highly entrepreneurial without having a formal education. These entrepreneurs are often acting local for local, in retail or charity, some are value-added retailers, and very few are in innovation. They often face fierce competition and can survive due to their ability to change and adapt to keep moving. They often have most of the personality, entrepreneurial behaviors, or attitudes listed in the literature. They have motivation for goals, generate business options, have vision, tolerance for uncertainty, risk, and failure. They may be missing project management, capabilities for solving complex problems, critical thinking, design thinking, and advanced budgetary skills to grow, but they are often good at interpersonal skills, intuitive persuasion, and human resource management. But is it possible to transform students into entrepreneurs in a pressure cooker way?
As several HEIs in similar contexts face similar issues, we found it worthwhile to address the following broader research question:
What should HEIs' educational and support conditions be to enhance students' engagement in entrepreneurship and have entrepreneurship as an institutionalized career path?

In the following section, a general overview of relevant literature on entrepreneurship competencies and environment as key elements of entrepreneurship development is given. Later, we describe the proposed conceptual model for entrepreneurship development at HEIs. A case study is used in the framework of the Design Science Research approach to show the relevance of the proposed model and the rigor in its development. Finally, a discussion of and implications of the obtained results on the HEIs to be engaged in the creation of entrepreneurs using the proposed model is given.

Literature Review

Shane and Venkataraman (2000) defined entrepreneurship as the search for, discovery, evaluation, and exploitation of an opportunity. To go successfully through these three phases, a favorable environment, entrepreneurial personality, and entrepreneurial competencies are required (Wei et al., 2012)

Entrepreneurial environment

In Wu and Mao (2020), Wu reports that individuals' perceptions of their entrepreneurial environment exert an important influence on their entrepreneurial behaviors. Arranz et al (Arranz et al., 2019) stated that the decision to become an entrepreneur is not only determined by personal factors but also by environmental factors such as rules, government regulations, the financial and economic infrastructure of the country or a region, market opportunities, and various socio-cultural elements as well. Gnyawali and Fogel (Gnyawali & Fogel, 1994) refer to an "entrepreneurial environment" as a combination of internal and external factors that play a role in the development of entrepreneurship. For entrepreneurial HEIs, these factors could be:

1) **Factors internal to HEIs**: these are factors that facilitate the engagement of students in entrepreneurial activities, such as the availability of educational programs, assistance and support services to students towards entrepreneurship, and collaboration with multiple public/private agents (networking), incubators/accelerators, and support of professional mentors. Guerrero et al (Guerrero et al., 2020)

2) **Factors external to HEIs:** these are factors that influence students' willingness and ability to undertake entrepreneurial activities, such as private/public funding sources, labour market conditions, social norms, and political factors. HEIs can help to understand and evaluate these factors.

Entrepreneurial personality

In the study done by Reyes et al. (2018), it was revealed that the development of entrepreneurial intention and beyond is significantly correlated to several personal attributes. Unlike skills and competences, attributes are not visible and are very difficult to measure, assess, or test. They can be revealed only in situations where skills cannot be applied. This emphasizes the importance of the practical training and of the environment. **Venesaar** (Venesaar et al., 2022) mentions the following attributes:

- Enterprising **attitudes and behavior,** such as decisiveness, resilience, perseverance, creation of an environment where people consider the entrepreneur as a leader.
- **Mental toughness or the ability to** cope with change, to perform under stressful, uncertain, and unknown situations.
- **Creativity**: delivering ideas and implementing them in the business process. This attribute is important in using information collected about business opportunities and in problem-solving.
- **Value creation** in entrepreneurship and everyday life.

Entrepreneurial competencies

Next to the environment and personality, different competencies are necessary for venture success across the different stages of the entrepreneurial process. The literature mentions several sets of competencies required for entrepreneurship: a) entrepreneurial competencies, b)functional business competencies, c) general management competencies, and d) social competencies (Mitchelmore & Rowley, 2010). Entrepreneurial competencies are different from the managerial competencies (Man et al., 2002). Entrepreneurial competencies are required for the initiation, the creation, and survival of a new venture. Managerial competencies are those required for the development and exploitation of opportunities, i.e., capturing and utilizing essential resources to pursue business interests and related deeds. Cooney gives a review of several research works done on competencies needed for entrepreneurship (Cooney, 2012)**.** Table 1 gives some competencies for each of the four sets above. Some authors argue that teaching entrepreneurship competencies increases students' intention to create their own business (Arranz et al., 2019; Draksler & Širec, 2018; Draksler & Sirec, 2021). Unfortunately, the conventional approach of entrepreneurship education has a tendency to overemphasize the development of management competencies. Stemming from the disciplinary background of many entrepreneurship educators, HEIs' "entrepreneurship" curriculum is devoted to providing students with functional business competencies or general managerial competencies (Cooney, 2012; Gibb, 2010; Tolbert et al., 2011). For the entrepreneurship side, the courses are often heavily focused on writing a Business Plan, by the way, not invented by entrepreneurs but by banks and accountants to evaluate business projects for financing.

The results of the study from Glackin and Phelan (Glackin & Phelan, 2020) on several entrepreneurial competencies, like entrepreneurial competencies and social skills (cf. Table 1), basically indicated that they were unable to reliably increase any of the entrepreneurial competencies in the classroom. They gave two explanations for this result:

a) that these competencies cannot be developed in the classroom,

b) the wrong pedagogical techniques were used.

Table 1 Competencies for entrepreneurship (Mitchelmore & Rowley, 2010)			
Entrepreneurial competencies	**Functional business competencies**	**General managerial competencies**	**Social skills**
1. Opportunity recognition 2. Opportunity exploitation	1. Marketing and sales 2. Finance and cash management 3. Strategic planning 4. Accounting	1. Goal setting 2. Planning 3. Organizing and motivating people 4. Coordination of work 5. Allocation of resources 6. Leadership and delegation	1. Interpersonal relations 2. Communication 3. Social adaptability

New ventures are often confronted with liabilities of newness and smallness that can negatively impact their performance. This liability of newness stems from the new organizations' general lack of resources and legitimacy that leave them with reduced ability to compete"(Srinivasan & Venkatraman, 2018) (Srinivasan and Venkatraman 2018). Because of both their inability to compete effectively with established organizations and their low levels of legitimacy, new organizations are subject to stronger selection pressures and hence have a higher threat of early failure.(Singh et al., 1986). Stinchcombe(Stinchcombe, 1965) introduced the "liability of newness" construct in 1965.
In summary, to enhance the engagement of their students and graduates in entrepreneurial activities, HEIs' contribution should be (La Guardia et al., 2014)

1) Creating situations where entrepreneurship personality attributes can be revealed, as through maximizing opportunities for learning by doing.
2) Equipping students with the necessary skills, competencies, knowledge, and attitudes to discover opportunities and with the ability to further refine and develop the opportunities, and hence innovate through research.
3) Promoting awareness of and alertness to the outside world, environment: the economy, institutions, entrepreneurial culture, and opportunities in general
4) Encouraging and supporting opportunity exploitation behavior, and mitigating liabilities of newness and smallness that can negatively impact their performance

How do HEIs affect the entrepreneurial engagement of their students?

Drucker (1985) said that entrepreneurship is a discipline, and like any discipline, it can be learned. But learning, acquiring knowledge, does not always mean applying it in the field. Entrepreneurial education and training should be entrepreneurial in itself; each student entrepreneur needs to develop his or her own "game plan" for developing his or her skills. This means learning by doing, being opportunistic, and being optimal in using resources. It demands considerable changes in pedagogy, modes of assessment and accreditation, and an appropriate recruitment or training of the teaching staff for moving from traditional "instruction" towards experiential learning.

How to put this into practice and generate entrepreneurs?. The target of this study is to develop a process that helps to fill in this gap. To have an entrepreneurial process that is adoptable and implementable in the curriculum of a given HEI, it must be designed considering the personality of students, the environment, what competencies are required, when to develop or acquire them in the entrepreneurial process, and who provides them (Rasmussen et al., 2011).

Methodology

To expand their supply of entrepreneurs, HEIs should adopt a mindset and organizational models that awaken students 'entrepreneurial potential and awareness through a greater diversity of entrepreneurship education and training (Wu & Mao, 2020). Gibb (2010) proposed three organization models for the entrepreneurial university, but none of them is, in our opinion, adapted as is to emerging markets. These models are:

- Model 1: The fully integrated and embedded model
- Model 2: Intermediate: more adjacent to the university but still led by it (ex., A specialist center)
- Model 3: The eternal support model: Stakeholder-owned but with University participation

The ambition of this paper is to propose a conceptual model, an entrepreneur development process that is an actionable playbook for HEIs in emerging markets, eventually leading to the creation of more graduate entrepreneurs. Building on Guerrero et all and Reynolds et all (Guerrero et al., 2020; Reynolds et al., 1997), the term "entrepreneurial process" describes several stages, ranging from intention development, going through the exploration of a potential entrepreneurial initiative, to the consolidation of a venture.

To ensure that the process created here is valid, replicable in similar institutional and economic contexts, we propose here to use the Design Science Research approach (DSR). DSR is a strategy for applied research, i.e., research driven by field problems and aiming at developing generic actionable knowledge. The DSR paradigm is one of the suitable approaches, especially where it is desirable to focus on practice-related problems and the development of tailor-made solutions.

DSR generates generic knowledge, but typically not universal knowledge. It is rather mid-range theory, only valid for a specific application domain. To generate generic knowledge, Hevner (2007) developed an approach based on a complementary three-cycle model (Figure 3):

1) **Design cycle**. This cycle iterates between the activities of developing the design proposition and evaluating it, i.e., evaluating its relevance and rigor.
2) **Relevance cycle**, to bridge the contextual environment with the design activities;
3) **Rigor cycle,** to connect the design activities with the knowledge base.

Field testing is used in DSR to provide insight into and evidence for the pragmatic validity ('does it work?') of the design proposition in its application domain. Many DSR works point out case studies as one possible approach for the ex-post evaluation of the artifact (Peffers et al., 2007; Prat et al., 2014). Case studies can also be used before the design to evaluate some preliminary building blocks of the artifacts (Vahidov, 2012), here the stages of the entrepreneurial process.

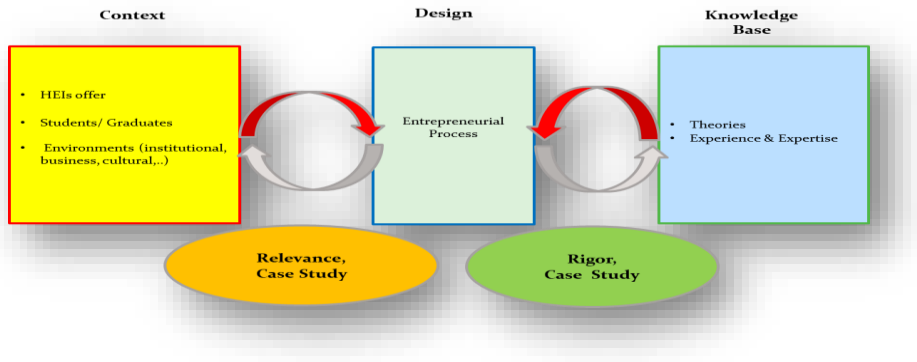

Figure 3. DSR three-cycles model (Hevner, 2007)

To study the relevance of the components of the proposed entrepreneurship development process, we will use a single case as did Barrat and Barrat (Barratt & Barratt, 2011) . While it may offer only a limited

generalizability, it allows for a more in-depth exploration and understanding of the entrepreneurship development of students and for the iterative refinement of the components of the design of the process. The case chosen here for the relevance study is again the case of the Academy of Traditional Arts (ATA) in Casablanca mentioned above. This case is appropriate in terms of interest and value for both research and practice. The trigger is the slow employment and low level of entrepreneurship among ATA graduates (around 10% vs 50% set as a target). The management of ATA sees that there is a clear need for change. But what to change and how to change it?

To have insights into the entrepreneurial intentions of students and the entrepreneurial and employment situation of graduates of the ATA, and to have insights into their perceived incentives and barriers to go beyond intentions, two surveys, one focus group, and a think tank were conducted:

1) The first survey was conducted in December 2018. 279 graduates from the first three ATA cohorts, namely those of the years 2015, 2016, and 2017, were targeted. This first survey was done by phone, calling each graduate and asking a single question:
- Are you employed, have your own business, studying, or doing something else?
2) The second survey had as its scope the analysis of entrepreneurship intentions of fresh graduates (2018) and of finishing students (2019). It was also done to have their perception on incentives and potential barriers for entrepreneurship, and compare this to the reality for previous cohorts (cf. focus group below). This second survey was developed online using Google Forms. Google Forms was also used to analyze the responses. 59 students in their last study year in 2019, and the 81 fresh graduates from the 2018 cohort were surveyed. 79 out of 140 (56%) responded to the survey. 32% (25) of the respondents were finishing students, and 68% (54) were fresh graduates.
3) The focus group was carried out to learn about the motives of ATA students or graduates to engage in an entrepreneurial path and to transform their entrepreneurial intention into an actual venture. It was conducted with four students and graduates who effectively started their enterprise during their studies. Participants are given in Table 2.
4) The think tank was conducted with several teaching and management staff members to analyze the content of the curriculum and teaching methods from an entrepreneurial point of view.

Table 2. Participants in the focus group

Start-up	# of Representatives	Legal form	Current business area
1	1	Self employed	Jewelry, Design, Products,
2	1	Self employed	Embroidery, Textile, Design, Products,
3	1	Self employed	Leather goods, Design, Products,
4	1	Self employed	Ceramics, Design, Products,

Results

The results of the two surveys, one focus group, and a think tank conducted at the ATA area are as follows. The two surveys led to the following results: 46% of surveyed finishing students (2019) and fresh graduates (2018) intend to set up their own business (Figure 4). From the respondents (195 out of 279 graduates from the years 2015, 2016, and 2017) of the first survey, 10-12% have started their own business (Figure 4). This shows a large discrepancy between the target of the ATA management given above, namely, 50% of graduates as self-employed, and those who are actually self-employed (10-12%). It also shows a discrepancy between the intention of students to be self-employed or entrepreneurs (46%) and the actual realization of intention in an enterprise (10-12%).

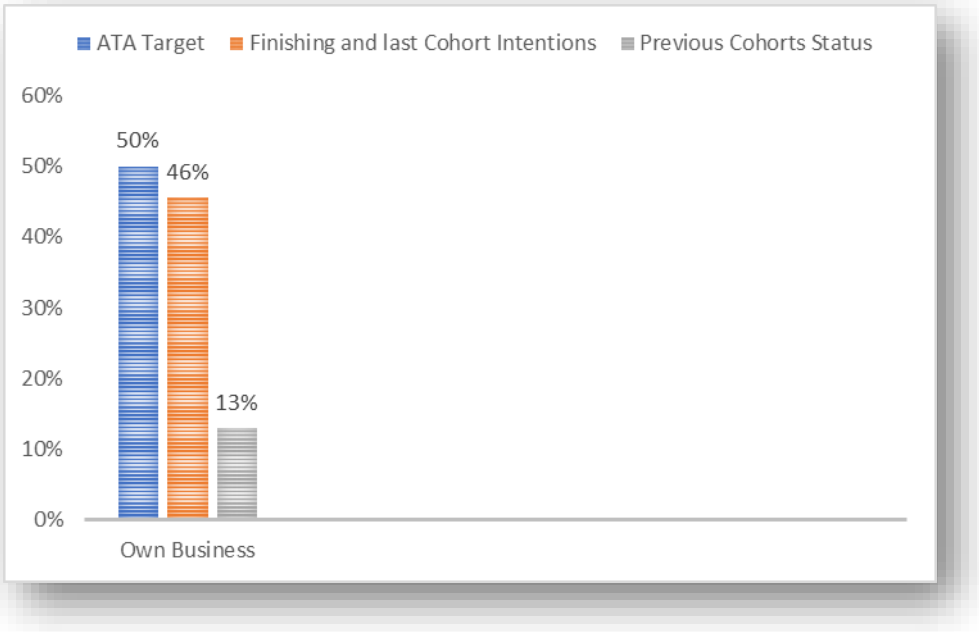

Figure 4 . Intention vs transformation of intention to be an entrepreneur

The following three elements are perceived by surveyed students and graduates as the main barriers to starting and running a business:

1. Access to infrastructure**:** Difficult access to and to office and workshop spaces (31%)
2. Access to funds**:** Insufficient own financial resources or, more broadly, difficult access to financial resources such as seed money, loans, grants to finance equipment, office or workshop spaces, and develop marketing (26%)
3. Access to customers or projects: Difficult access to customers and to governmental tenders and private projects related to Traditional Arts (19%)

While for 52% of the respondents, the traditional art economic environment is perceived as a barrier to getting a job, only 11% see it as a barrier to starting and running a business. Surprisingly, only 5% of fresh graduates and finishing students consider a lack of entrepreneurial competencies as a possible barrier to starting and running a business.

As for perceived incentives to transform intentions for starting own business into actions, 51% point out access to workshop space and to an office space as a major incentive to setting up and running a business. 26% point at having mentors (experienced entrepreneurs) for business development and business management tasks and go-to-market, 12% point at developing entrepreneurship projects during studies, and 11% only to entrepreneurship education integrated in the curriculum.

The results of the focus group show three drivers to go beyond intention and develop a business.

a) *Recognition of entrepreneurship opportunities*. The focus group shows that, despite the referred difficult business context of traditional art in Morocco for finding jobs suited to the level of education of ATA graduates, there are hidden and underserved local and international business niches that need to be discovered and developed using new technologies such as e-commerce and digital marketing. Next to artistic design and technical competencies development that dominate the curriculum, entrepreneurial and management competencies for innovative product and service development are required for discovering or revealing entrepreneurship opportunities. It is important to define and include the required entrepreneurial and management competencies in the curriculum.

b) The *development of entrepreneurial and managerial competencies.* The focus group emphasizes the importance of having proper entrepreneurship education embedded in the curriculum, mainly teaching commercial skills, digital marketing, and innovation management. For developing students as entrepreneurs, the focus group stresses the importance of joining organizations, such as incubators and Enactus. Next to giving access to office space, these organizations give milestones and the structure for reaching them, coaches for motivation, and mitigation of avoidable risks in the early stages of start-ups. Incubators help test teams and business plans.

c) *Resources and market legitimacy*. Focus group stresses the importance of keeping a link to the ATA even after graduation, as this is important for getting market legitimacy, access to the ATA's workshops, handicraft knowledge, handicraft community, and institutions in AAT's network. Due to smallness and newness liabilities, more than access to financial resources, difficulties in attracting and hiring skilled human resources for product and process development in order to serve and develop new hidden handicraft customers are expected to be a growth-limiting factor.

From the think tank brainstorming, we found that:

- While the craft teaching is implicitly entrepreneurial as it is hands-on and requires patience, persistence, and willingness to make mistakes, the one-way classroom method often used for teaching technical or managerial courses may overlook or even undermine the development of the entrepreneurial skills and mindset of students.
- The classroom courses that could be related to entrepreneurship are dominated by management courses..
- There is an urgency to design, test, and implement an education process to enhance the entrepreneurship mindset and competencies of ATA students. Skills students learn through entrepreneurship education will benefit them as employees if they choose not to follow the entrepreneurship path. They will understand better how a business operates, and they will be more confident to move from intention to creating a business at a later moment.

It is clear from the surveys, the focus group, and the think-tank that having a process for stimulating students' entrepreneurial intentions and acquiring skills for recognizing entrepreneurial opportunities and grasping and transforming them into business is very relevant for the ATA objectives. The entrepreneurship development process should take into account the educational environment, the barriers, and the incentives to take an entrepreneurship path as a student or graduate. This is what we endeavor to do here.

Entrepreneurship process design

From the literature study and the results from the ATA case above, one sees that developing entrepreneurial intentions, recognizing opportunities, and exploiting them are key components of an entrepreneurship process. The educational, business, social, and cultural environments play a role in shaping entrepreneurs. In any environment, there are always entrepreneurs capable of discovering or revealing opportunities and exploiting them. Some of these entrepreneurs are retailers, some are value-added resellers, and a few are innovators bringing new products or services to the market.

Intuitively, and before any business idea, the entrepreneurial process should start by intention, defined as a self-acknowledged conviction by a person to set up a new business venture and consciously plan to do so at some point in the future (Reyes et al., 2018a). But an entrepreneurial intention, even for a potentially entrepreneurially competent person, may not be sufficient to start an enterprise. Napoleon said, "Ability is of little account without opportunity". Conversely, the availability of relevant entrepreneurial opportunities and the ability to recognize them may trigger entrepreneurship intentions. Given the need to generate student entrepreneurs, it is logical to look into developing an entrepreneurial process that can effectively trigger or develop latent entrepreneurship intentions of students and develop their competencies and conditions for opportunity recognition and transformation or exploitation. We propose here a process with three sequential but interrelated stages:

intention development, opportunity recognition, and opportunity transformation (Fig. 5). The intention and opportunity recognition stages are iteratively linked, meaning that one can go back and forth between these two stages. The opportunity recognition and opportunity transformation stages are also iteratively linked.

Figure 5. Entrepreneurship process and its three stages

Entrepreneurship intention development stage

Decisions to engage in entrepreneurship are enhanced by contexts where the appropriateness of entrepreneurship is culturally embedded. Students are more inclined to pursue entrepreneurship as a career path when there is strong environmental support for entrepreneurial behaviors(Liñán & Santos, 2007). An internal entrepreneurial and entrepreneurship education system, incubators, and regional clusters, for example, enhance the rates of founding of start-ups. Arranz et al (Arranz et al., 2019) report that entrepreneurial intention is greater in students whose parents already own a business and in students who have had a certain amount of work experience as compared to those who have none. But the environment alone is not enough. It is hypothesized here that having the right personal traits and being in a favorable entrepreneurial environment can trigger entrepreneurship intention. This is probably a reason why some see opportunities while others do not, even in the same environment. On the other hand, having entrepreneurial intention can reveal personal traits and stimulate the search for and the integration of a favorable entrepreneurial environment. The concurrency of entrepreneurial personal traits and a favorable entrepreneurial environment is crucial to developing entrepreneurial intention. *The intention development stage is needed to start the entrepreneurship process.*

Opportunity Recognition Stage

While entrepreneurship intention is necessary to go into entrepreneurship, intention alone is not sufficient for venture creation. Paraphrasing Napoleon, one can say: "*Entrepreneurship intention is of little account without opportunity*". Opportunities with potential financial and/or social entrepreneurial profit are required for venture creation. Dempster (2020) defines an opportunity for entrepreneurial profit as the existence of latent market needs often created by the temporary absence of full adjustment between offer and demand. Temporality stresses here the importance of timing in recognition of opportunities. *The opportunity recognition stage is about timely sensing and selecting the latent market or social need.* Recognition of opportunities requires that the entrepreneur interact with the right market environment and with players in that market. This requires the availability of specific competencies such as the ability to connect, collaborate, create, communicate, search for, locate, extract, organize, evaluate, and use information efficiently and effectively for the enterprise. These competencies are quite similar to research skills, with the difference that in entrepreneurship, the target is not only the solution, but also the solution delivered.

Opportunity Transformation or Exploitation Stage

What makes an entrepreneur an entrepreneur is turning opportunities from the state of possibility to the state of beneficial delivery of products or services. i.e., transforming opportunities or exploiting them. *The opportunity transformation stage is where shaping it into a viable organization and seizing value in it takes place.* It is about making decisions about what to buy, what to sell, what suppliers to use, how to build and maintain a customer base, what partnerships to form, where to obtain funding for ongoing operations, etc. It is about making decisions about appropriate structures, practices, and behaviors of entrepreneurial ventures (Shape). It is also where the liability of newness, smallness, legitimacy, i.e.,

having specific knowledge, resources, networks, customer relationships, and financing, play a role in the survival process. Going from opportunity recognition to opportunity transformation is often the death valley. Next to entrepreneurial personality, going through it requires a set of entrepreneurial, managerial, and human relations competencies (We, 2017). The environment, and for students, the educational environment, has an essential role to play in protecting the young entrepreneur through this phase by allowing access to needed resources (Guerrero, 2020).

Competencies development

The proposed three-stage process for the development of graduate entrepreneurs is conceptualized here as a function of the availability of a favorable, supportive environment with opportunities, entrepreneurial intention, and entrepreneurial and managerial competencies to recognize and transform opportunities into successful, sustainable ventures. But what are the required competencies and the required support to go through the three stages of the entrepreneurship process, and how to get them? The literature gives a multitude of competencies required for entrepreneurship (Cooney, 2012; Gibb, 2010; Mitchelmore & Rowley, 2010; Rasmussen et al., 2011; We, 2017). It is impossible to acquire all these competencies in a short period of time, and in classrooms(Glackin & Phelan, 2020). As each entrepreneur requires a different set of competences and conditions at different stages of the entrepreneurship process, there is probably no one-size-fits-all entrepreneurship education and training system. Entrepreneurial education and training should be entrepreneurial in itself, i.e., "à la carte" and using learning by doing. But what to choose, when, and where? To identify some key competencies and conditions required to trigger intention, recognize and transform opportunities, we use three theories from the entrepreneurship knowledge base, namely Network theory, Institutional theory, and Resource-Based Theory. These three theories are considered because the ability to design, develop, and manage an organization, to access resources, suppliers, and customers, and optimally use institutions are key to going through the three stages of the entrepreneurship process. This is also part of the rigor phase of the DSR approach.

Network theory (Aldrich & Zimmer, 1986; Birley, 1985; Tolbert et al., 2011) highlights the crucial role of networks in accessing resources like capital, knowledge, information, talent, customers, and suppliers, which are often scarce for new entrepreneurs. Networking is necessary for sensing, selecting, shaping, and seizing opportunities. By understanding network structures and dynamics in their environment, student entrepreneurs can leverage their connections to access resources, use the experiences of others to overcome challenges, and achieve their business goals. Often unaware of the formal network resources that are available, student entrepreneurs may heavily rely on informal networks, such as family and friends, to have access to resources. This gap in a network can be bridged using formal ties by their HEIs to institutions such as banks, tax administrations, etc.. Networking requires knowing what resources are needed, when they are needed in the process of entrepreneurship, and where to find them, as well as managerial and social competencies such as communication and collaboration.

Resource-based theory (RBT) (Alvarez & Barney, 1993) in entrepreneurship suggests that a firm achieves a competitive advantage through its capabilities and valuable, rare, inimitable internal resources, and an organization to fully utilize and capture the value of these resources (VRIO). Understandably, it is difficult to have all VRIO resources from the start. It is, however, important to identify which ones are required, when, where, and how to acquire them. Focusing on building and leveraging unique resources for shaping and seizing opportunities is key to creating sustainable competitive advantages. As an example, social capital (network) is an internal resource that can make a difference in accessing funds, obtaining valuable information or knowledge, or having legitimacy more easily than someone without such a network. Acquiring resources requires technical, managerial, and social competencies such as research and development, problem-solving, communication, interpersonal skills, etc.

Entrepreneurs often seek to gain acceptance and support from key stakeholders by aligning their actions with prevailing norms and values (Bruton et al., 2010). Achieving legitimacy within a

particular institutional context is crucial for entrepreneurial survival and success. The institutional context, i.e., formal laws and regulations, as well as informal norms and cultural beliefs, can create or constrain formal entrepreneurial opportunities. For example, a strong, transparent, clear property-based legal system can encourage entrepreneurship, while corruption can hinder it. To align with local norms or regulations, strategic choices made when selecting, shaping, and seizing identified opportunities are influenced by prevailing institutions in the entrepreneurial environment. Institutional theory (Bruton et al., 2010) in entrepreneurship examines how institutions influence entrepreneurial activity behavior and vice versa. By understanding institutions and institutional dynamics in their environment, student entrepreneurs can leverage their resources to overcome challenges and achieve their business goals.

To go through the three stages of the proposed entrepreneurship process, students need to be able to network and use their network, to understand institutions and manage them, and to acquire resources and also manage them. The three stages of the proposed entrepreneurship process are not Mutually Exclusive as they overlap and are interdependent, but are Collectively Exhaustive as one needs all three stages to set up a successful enterprise. For HEIs to structure and manage the progress of students through the entrepreneurship process, we propose five activities named here the 5S activities: Starting, Sharing and Selecting for intention development and opportunity recognition stages, and Shaping and Seizing for opportunity transformation or exploitation stage. Figure 5 gives the link between the 5S activities and the three stages of the process. To be accomplished, each activity requires a set of competencies to be acquired and conditions to be fulfilled. Table 3 gives some needed competencies and support required to accomplish a given activity, and where or how they could be offered.

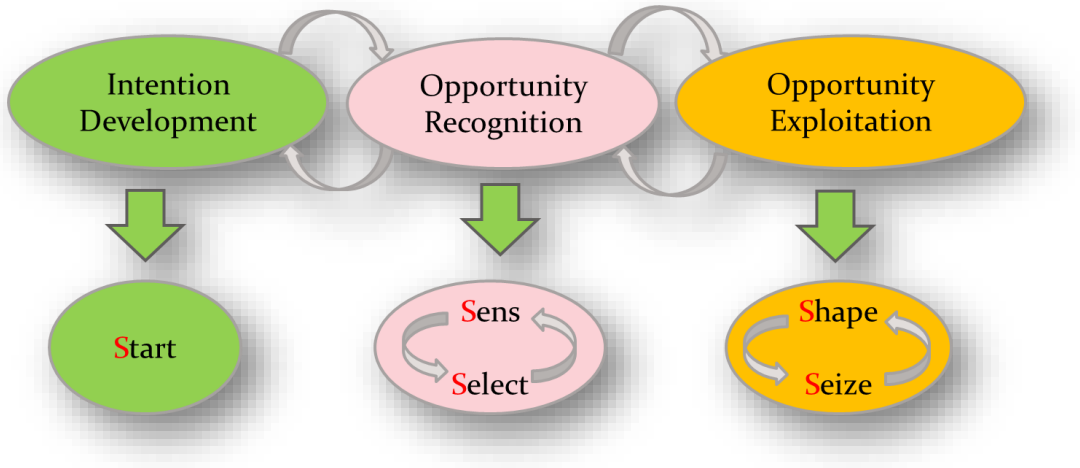

Figure 5. Three-stage process and 5S activities

It is key for HEIs to decide what to teach in classrooms and what to teach through experiential learning. Serious gaming, mentoring, and incubators are examples of experiential learning. Teaching and assessing methods and environments have to be adapted accordingly. La Guardia (La Guardia et al., 2014) describes how serious gaming, where students are guided in the management of their virtual companies, builds a learning space that fosters students' entrepreneurial mindset through experiential learning, developing teamwork and leadership skills, taking risks and decisions to improve competitiveness and results. Entrepreneurial mentoring, done through a formalized program, brings a mentor's business experience, technical expertise, and support networks(Choo, 2007). It is important to help students define what must have and nice to have, when and where to learn them. It is here that the coaching role of a teacher plays a role. This may mean a paradigm shift for many HEIs. They have to choose and develop an appropriate model for the generation of entrepreneurs. Gibb (Gibb, 2010)

proposes three examples of organizational models for the entrepreneurial university. The choice of the model has to be adapted to the business, institutional, and cultural environments.

Table 3. 5S activities and (examples) of needed competencies and support to carry them out				
Approach	**Intention development/ Opportunity Recognition**		**Opportunity Exploitation**	
	Starting/Sensing activities: Competencies and support	**Selecting activities: Competencies and support**	**Shaping activities: Competencies and support**	**Seizing activities: competencies and support**
Supportive Environment	• Entrepreneurial culture • Adapted teaching and assessing methods • Infrastructure • Useful Network	• Entrepreneurial culture • Mentoring • Business and institutions • Useful Network	• Institutions • Formal mentoring • Funding network	• Formal mentoring • Access to funding
In Classroom	• **R&D skills, problem-solving skills** • **Project management** • Culture, Policy • Fit for use technologies	• Marketing, Supply Chain • Financial Literacy (**Business Case**) • **Value Proposition House** • **Buying/ Selling**	• Design and development of organisations • Product, Process Development • Project management • Buying/Selling	• Advanced budgetary skills • Organising and motivating people
Serious Gaming/ Simulation Revealing Personal Traits	• Autonomy • Communication • Decisiveness • Mental toughness • Continuous learning	• Risk taking • Strategy Gaming • Buying/Selling	• Goal setting • Flexibility • Networking • Getting finances • Building a team	• Growth mindset • Mental toughness • Flexibility • Perseverance
Experiential Active Participation (Ex.: Incubator)	• Creative thinking • Opportunities recognition • Communication • Project creation	• **Business Modelling** • Evaluation of risks and rewards	• Business modelling • Problem solving • Building a team • Product, Process Development	• Networking • Financial literacy • Planning, organising

Discussion

This work started with a request from ATA management to solve a specific, contextual, and urgent problem, namely: how to have 50% of graduates of ATA in Casablanca engage in entrepreneurship as a career path. This was triggered by the slowness faced by ATA first graduates in getting jobs at their level in the handicraft sector. A year after graduation, 25% of graduates of the 2018 cohort had a job. Only 10% (resp. 13%) of the surveyed graduates from the 2017 cohort (resp. 2018 cohort) started a venture. A positive sign is that 46% of finishing students from the 2019 cohort and fresh graduates from the 2018 cohort have both shown intentions to become entrepreneurs. Because graduates from HEIs in emerging markets are also facing similar employment challenges, we carried out this broader research to develop a process for HEIs to help them supply more graduate entrepreneurs to these markets with growing, valuable, innovative entrepreneurship opportunities.

Much prior research has been done on academic entrepreneurship and entrepreneurship education. However, we find that a pragmatic process that eases adoption and implementation in the field, mainly in emerging markets, is missing. With this work, we try to fill in this gap through the creation of a three-stage entrepreneurship development process, namely, intention development, opportunity recognition, and opportunity transformation or exploitation, and related 5S activities, namely, Starting the process, Sensing, Selecting, Shaping, and Seizing entrepreneurial opportunities. Both the process and the content for the 5S activities should be relevant, rigorously validated, and integrable in a curriculum. Design Science Research (DSR) approach, entrepreneurship knowledge base, and our experience are used here to design and check the relevance of the three stages of the entrepreneurs' development process. The proposed 5S activities are linked to different stages of the process and require a supportive environment and the acquisition of competencies through teaching, training, coaching, and mentoring to lead to successful process completion.

Teaching or training for practical entrepreneurship and management competencies required for the execution of the 5S activities needs entrepreneurial teaching and assessment methods. Having, for example, a student-led learning approach with teachers as facilitators using lecture, gaming, simulation when needed, and having internal incubators or partnering with external incubators is expected to be far effective than teaching confined to a teacher's lecture alone. To have students more eager to develop entrepreneurial intentions and turn them into new ventures, it is key to create a supportive environment that mitigates the feared possible impact of newness and smallness liabilities. Examples are offering formal mentoring, workshops, office space, and access to a valuable network. The required change to have the provided education and training more adapted to practical entrepreneurship learning may not be straightforward to adopt and implement at a HEI level. As literature, practice, and a reliable entrepreneurship knowledge base are used here for the design of the proposed entrepreneurship development process, the identification of required competencies, activities, and supportive environment to go through it successfully, the three-stage process, and the 5S activities can be considered as a generative process that can be reused in different contexts.

Conclusion

The proposed three-stage entrepreneurship development process and related 5S activities and competencies to carry them out are shown to be relevant to effectively bridge academic entrepreneurship and entrepreneurship education theories and their practical application. To achieve this in the field, next to adopting and implementing the proposed process, HEIs need

1) To create an internal entrepreneurship-favoring environment, adapt curriculum content where necessary, and adapt teaching and assessment processes for developing tacitly or explicitly the needed entrepreneurial competencies.
2) To develop their network of formal external institutions to overcome hurdles faced by students or graduates in accessing resources, and give market legitimacy to new and often very small ventures created by students or graduates.

Building a HEI as an entrepreneurs' supplier organization can be done gradually, for example, by proposing an entrepreneurship elective to selected students. This elective can focus on intention triggering and the development of opportunity recognition competencies (Starting and Sensing activities of the stages of intention development and opportunity recognition). This could be a first step in the rigor phase of the DSR approach, to show the pragmatic validity of the proposed three-stage process and the related 5S activities.

Restriction of the process

The relevance of the design of the entrepreneurship process, as required by the relevance phase of the DSR approach, is shown and is supported by a case study. However, to test the adoption and implementation of the process and of the content of the 5S activities in the field, the rigor phase needs to be carried out further. This is needed to practically prove that the proposed process effectively works and supplies successful graduate entrepreneurs.

Future research

Integrating into the curriculum of HEIs the proposed three-stage process, together with the development of competencies required for carrying out the 5S activities (Cf. Table 3), is expected to boost the development of entrepreneurship intentions of students and their development into viable ventures. To evaluate and validate this statement, more applied research has to be done to find out what is needed for the adoption and implementation of the proposed process and what its impact is on the generation of entrepreneurs. In other words, future research should pay attention to finding effective ways of embedding the three-stage process and fit for use competencies and environment for carrying out 5S activities into study programs. This will accomplish the rigor phase of the DSR approach.

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