

“Best practice in entrepreneurship education”

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Best practice in entrepreneurship education

Abstract

This study identifies and discovers best practices in entrepreneurship education from highly-ranked universities and business schools globally. The study has been qualitative in nature, utilizing semi-structured interviews with 23 respondents at 12 higher education institutions. The study has made use of non-probability sampling by means of a convenience sampling approach. Data have been analyzed by means of thematic analysis. Results indicate that best practices in entrepreneurship education include little to no specialization at undergraduate level, with a strong preference for generic and widely applicable entrepreneurship modules. Individual entrepreneurship-related modules contain distinct individual themes. These modules are most commonly structured as electives, thereby allowing students to structure their courses according to areas of personal preference. At postgraduate level, it has been discovered that programs are often specialized in entrepreneurship and highly interdisciplinary in nature, most commonly with areas of specialization such as engineering and other sciences. Practical assignment and teaching tend to be favored in entrepreneurial teaching, rather than traditional classroom-based approaches. Entrepreneurship hubs and centers are mainly independent units loosely linked to a prominent university, with independent mandates and processes. The best practices identified in this study will assist universities and business schools to effectively structure entrepreneurship curriculums in line with global best practices.

Keywords: entrepreneurship, entrepreneurship education, higher education.

JEL Classification: A23, I23.

Introduction

Entrepreneurship is perhaps the most important factor of production that enables many economies to grow and thrive, as entrepreneurs enable all other factors of production to be engaged and productively applied within business and the economy. For this reason, entrepreneurial activity is important in any economy to be successful and stable. The ability of increasing entrepreneurial activity within a country would contribute to the standard of living of such a country. One such way is by means of entrepreneurship education.

The Global Entrepreneurship Monitor (GEM) report concluded that entrepreneurship supported infrastructure, including coaching and training programs, and several policy interventions would improve entrepreneurial activity within a country (Herrington, Kew & Kew, 2015). From this, entrepreneurial activity would result in job creation, one of the secondary benefits of entrepreneurial activity that improves the standard of living of society (Herrington, Kew & Kew, 2015). Researchers supported that the development of entrepreneurship education within the higher education sector could have a positive impact on economical outcomes (Galloway & Brown, 2002;

Hegarty & Jones, 2008); however, only after a number of years as the entrepreneur had gained further experience (Matlay, 2008).

Governments increasingly promoted entrepreneurship for its economic benefit and, therefore, promoted entrepreneurship education within their policies (O'Connor, 2013). Neck and Greene (2011) identified several approaches to entrepreneurial education, which may have a relationship with entrepreneurial activity. This paper reports on a research project where a sample of 12 highly-ranked universities known for their global entrepreneurship stature have been visited and interviewed with the main purpose of determining best practices in entrepreneurship education.

The paper is organized as follows: first, the problem statement with the research question and research objectives are stated; second, a brief literature review on entrepreneurial education, model and framework for designing entrepreneurial programs is discussed; third, the research methodology is explained; fourth, the results are given; fifth, the conclusion to the research is provided, followed by recommendations for further research and finally, the managerial implications.

1. Problem statement

Entrepreneurship education commenced in the 1970s in American business schools. The Purdue University hosted the first American entrepreneurship conference in 1970 where 42 delegates deliberated the success rates of representative cases and the role of the university in

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entrepreneurship development. In 1973, the first International Conference on Entrepreneurship Research was held in Toronto, Canada, where academics engaged around the interaction between case studies of entrepreneurship and entrepreneurship education at their campuses. Since these developments, entrepreneurship education and research made huge strides (Guirong, Jinquan & Lei, 2011) – it even expanded to fields such as engineering (Streeter & Jacquette, 2004).

Entrepreneurship education is offered in different ways in universities all over the world – some more successful than others; yet, no comprehensive global study has been conducted with the aim of identifying global best practices. Antal, Kingma, Moore and Streeter (2014) state that several research articles focus on the creation of entrepreneurship programs offered at universities. It is, therefore, valuable to perform a qualitative perspective on the educational practices of highly-ranked entrepreneurial programs, and to develop a best practice approach to entrepreneurship education within tertiary education.

The aim of this paper is to identify best practices in entrepreneurship education amongst highly-ranked tertiary educational institutions globally. The paper provides an overview of common practices, formats and approaches in structuring entrepreneurship education at highly-ranked universities and business schools.

2. Literature review

As prelude to a discussion on entrepreneurship education (EE), it is important to firstly reflect on the role of the university in society. Many universities are rethinking their roles, while others are reinventing themselves amidst the challenging socio-economic environments within which they function. In response to these challenges, Goldstein (2008, p. 84) states that some universities have adopted an entrepreneurial approach, which, in essence, means the commercialization of research outputs and reorganization of architecture to enhance commercialization efforts, generally known as the ‘entrepreneurial turn’. Nelles and Volley (2009, p. 162) refer to this approach as adopting a “Third Mission”.

For a perspective on the role of the modern university in society, Goldstein (2008, p. 86) explains that the first mission of the university revolves around the Humboldtian or Ivory Tower model of the university, the second around the Engaged University or Land-grant model and lastly around the Triple Helix or Entrepreneurial University model. Concise descriptions of the three models are presented in Table 1.

Table 1. Models of the university

Model	Description
Ivory Tower	The only missions of the university are to teach and do research.
Engaged University	The university provides education, does research, and serves the public and private sector.
Triple Helix	The university contributes to economic development in an academic-industry-government relationship through a strategy of technological innovation.

Source: Goldstein (2008, p. 86).

Arguably, and for the purpose of this research, the assumption is made that not all universities, especially ones offering entrepreneurship education (EE), have necessarily adopted the Triple Helix model. Thus, if a university offers EE programs, it does not imply the institution is an entrepreneurial university.

Against the backdrop of the role of the modern university, Jones (2011, p. 28) provides a contemporary definition of EE as “a process of transformational education through which students are encouraged to better understand their capacity to create future opportunities for satisfaction through exposure to different learning experiences crafted from a learner-centered approach”. Jones (2011, p. 28) suggests that there is no universal definition of EE, and that a more appropriate approach is to define EE contextually while remaining in step with generally accepted definitions.

Higher education institutions (HEIs) organize EE programs in different ways. In order to be successful, these initiatives must be sustainable, academically credible, have respected leadership and good governance, and are appropriately structured, as indicated in Table 2 (Morris & Kuratko, 2014, p. 5).

Table 2. Prevalent entrepreneurship program structural forms

Structural form	Description
General entrepreneurship programs	Informal. No real academic home. Subfield or speciality in existing department. Coordination may be informal.
Entrepreneurship centre (or institute)	Common vehicle for providing a range of programs and services, usually based in a business school. Created through different procedures. Suitable for campus outreach and community engagement. Has greater autonomy.
Department of Management and Entrepreneurship	“Entrepreneurship” included in title of existing department. Allows the Entrepreneurship curriculum to develop along an evolutionary path while leveraging existing resources.
Department of Entrepreneurship	Dedicated to innovation and entrepreneurship. Significant resources are committed. Home for academics and students in this field. Justified through large student enrolments.
School of Entrepreneurship	Requires greatest commitment. Home for entrepreneurship with which academics and students from across fields can identify. Represents a dedicated and comprehensive approach. Is quite rare due to the required investment.

Source: adapted from Morris & Kuratko (2014, p. 9).

Morris and Kuratko (2014, p. 11) recommend that HEIs should formulate a vision and goals for the EE initiative, develop a strategic plan and choose the most suitable structure to execute the plan. Key factors that will play a role include resources, politics, student demand, administrative support, and external stakeholders, while trade-offs are made around autonomy, flexibility, control,

potential for generating resources, the ability to innovate, and expected growth.

Curriculum development is central to EE initiatives. A useful model for program design highlights the context in which entrepreneurship takes place and the factors that facilitate entrepreneurial behavior (Morris & Kuratko, 2014, p. 11). Refer to Figure 1 for an illustration of the model.

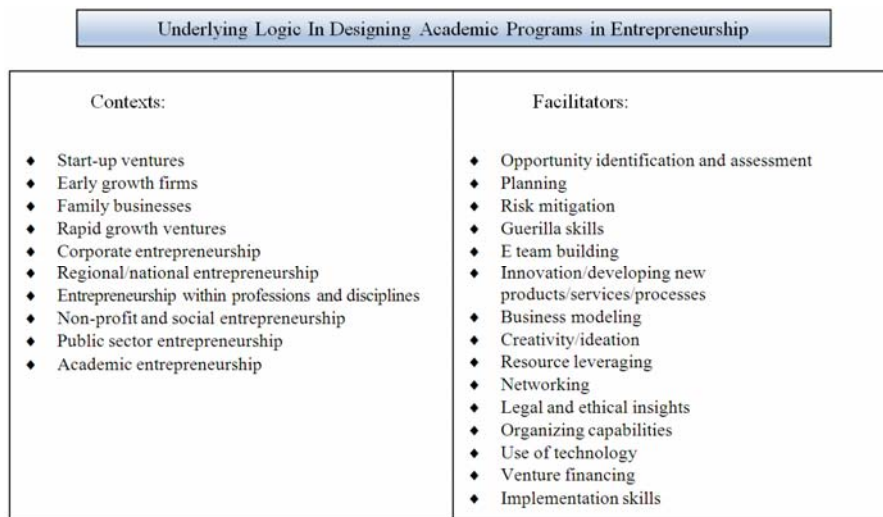


Fig. 1. A model to guide program design in entrepreneurship

Source: Morris, Kuratko & Cornwall (2013, p. 78) in Morris & Kuratko (2014, p. 12).

Flowing from the discussion on the design model, Jones (2011, p. 22) presents the following range of common learning outcomes aimed at developing an entrepreneurial mindset: entrepreneurial behaviors, skills and characteristics; groomed for the entrepreneur’s “way of life”; entrepreneurial values and experiential learning; entrepreneurial behavior; opportunity identification and realization; entrepreneurial management; and learning from relationships.

Morris and Kuratko (2014, p. 11) identified various permutations of EE programs. At undergraduate level, the Minor and Major in Entrepreneurship; at postgraduate levels, the Master’s Program in Entrepreneurship, Master of Science in Entrepreneurship, MBA Concentration and Doctoral Programs in Entrepreneurship. Highly successful programs emphasize experiential activities or learning by observing and doing. Students in these programs are actively involved in practicing entrepreneurship (Morris & Kuratko, 2014, p. 18; Winkel, Vanevenhoven, Drago & Clements, 2013, p. 26).

The introduction of broad and effective EE initiatives should be to (1) empower students and (2) transform the institution and community they serve. These ideals can be achieved by using the 5C’s framework to design, grow and sustain entrepreneurship programs (Morris & Kuratko, 2014, p. 19). Refer to Table 3 for a summary of the 5C’s framework.

Table 3. 5C’s framework for 21st century entrepreneurship program design

Element	Description
Concept of the program	Content of the program / level at which delivered / major outcomes / prerequisites / what it tries to achieve
Convictions about the program purpose	Student convictions are measured / assumption of student convictions in terms of entrepreneurship / entrepreneurial learning outside of classroom
Competencies around which the program is designed	Main competencies and values developed / how these competencies are developed / how the business creation process is covered
Connections for extending the program	Main internal and external connections / contribution and value of connections / plans to expand on connections / integration of connections into programs (e.g. industry experts lecturing)
Character of those involved in the program	Profile of leadership / reporting structure / is orientation tested / responsibilities of leadership (in terms of budgeting, marketing of program, etc.)

Source: adapted from Morris & Kuratko (2014, p. 19).

3. Research methodology

This research used an exploratory research design through a qualitative research approach. The research approach was followed by the detailed investigation and analysis of ten universities and two business schools that offer undergraduate and postgraduate entrepreneurship programs in six countries on four continents (Africa, North America, Europe and Asia).

The target population of the study included all registered universities and business schools offering entrepreneurship programs at undergraduate or

postgraduate level. In the 12 institutions sampled, 23 semi-structured interviews were conducted with prominent academics and administrators involved in the entrepreneurship programs. The sampling approach was done through non-probability sampling in the form of a convenience sample. A convenience sampling approach was necessary due to study mandate, budget and time constraints.

Inclusion and exclusion criteria were utilized to select study participants. Inclusion criteria included: Registered university or business school; Included in *Quacquarelli Symonds (QS)* ranking; In top 5% of QS ranking; Entrepreneurship program offered at undergraduate or postgraduate level; Programs offered in English; and Program advertised publicly.

Exclusion criteria included: Programs offered in any language other than English; Non-QS ranked universities; and No entrepreneurship program offered.

As semi-structured interviews were used in this research, an interview guide was developed based on Morris and Kuratko's (2014) 5C's Framework for 21st century entrepreneurship program design (referred to in Table 3). The framework consists of five elements and related questions of entrepreneurship programs to be investigated: Concept; Convictions; Competencies; Connections; Character (5C's). The combined elements and questions loosely formed the basis of the interview schedule for investigation of entrepreneurship programs at the identified universities/business schools.

The study was conducted by a team of five researchers, each focusing on one major geographic area. A summary of the interview schedules was completed by the respective researchers for each of the institutions visited, with information available from a combination of the internet, interviews with academic members of staff, brochures and articles. The information of all universities and business schools was, then, summarized in table format by the respective researchers. Thematic analysis was used to analyze the collected data. Best practices were, then, identified based on the results of the investigations.

Participation in the research was voluntary and individuals who participated were not subject to any benefit. Prior to the commencement of each interview, a brief explanation of the study was provided to the participant/s to improve their understanding of the study and its background.

4. Results

To determine global best practices in entrepreneurship education, the following regions were investigated: USA, Canada, Europe and UK, East Asia, Asia Pacific and Singapore, and Africa.

4.1. Entrepreneurship education in the United States of America (USA). Entrepreneurs in the USA are well-known to be great cultivators of entrepreneurial spirit, and have greatly contributed to the American economy by creating countless well-known ventures (Lee, Chang & Lim, 2005). Streeter, Kher and Jaquette (2011) observed more than 2 000 entrepreneurship programs in American universities, many of which are at top-ranked universities. These programs are offered by more than 1 500 colleges and universities and more than 100 active university-based entrepreneurship centres (Charney & Libecap, 2000). Babson College is well-known for its international stature in entrepreneurship education including being a founding member of the well-known Global Entrepreneurship Monitor Report, and has strong links with several international universities.

This perception is confirmed through the interviews at three universities in New York and Jersey. Of particular note was that all the universities in the sample had incorporated effectuation theory one way or another, as articulated by Sarasvathy (2001), within their curricula, as it is a hands-on approach to teach students to create new ventures. Of note at this stage is the analysis done by Arend, Sarooghi and Burkemper (2015) using theory-building criteria. They found that effectuation theory satisfies the basic criteria for theory building, but the criteria theorizing about entrepreneurship were not met.

Generally, the interviewed universities in the sample noted that entrepreneurship was not a separate degree or qualification, but almost in all cases included in the formal programs as a module or at least an elective, either as part of some of the courses or all of the courses offered at the institution. USA university students are free to select their own electives that accompany their majors and are, therefore, not limited by fixed modules within their chosen programs. It is less onerous to introduce alternative modules within such universities. Entrepreneurship-focused programs are offered through centres for professional development or executive education. These are focused on stand-alone, workshop-based programs to train entrepreneurs in creating new ventures and growing these ventures. The targeted audience for such workshops are international and local entrepreneurs, as well as educators and academics. Interestingly programs, especially grounded on effectuation theory, were found to develop educators and academics to teach in Entrepreneurship. The existence of these programs could explain the stature and reputation in Entrepreneurship of the universities that were visited.

4.2. Entrepreneurship education in Canada. Interview findings concur with those by Parsley and Weerasinghe (2010), who conducted a study into the teaching of entrepreneurship at Canadian higher education institutions. It was determined that 40% of

sampled institutions did not have a strategy for delivering Entrepreneurship as part of their curriculum, while 28% did have a strategy in place. It was further determined that Entrepreneurship courses were primarily offered in conjunction with business and engineering courses. It is, however, noteworthy that 98% of surveyed institutions offer a module in Entrepreneurship, while 23% offer full degrees specializing in Entrepreneurship. This could indicate that, while the vast majority of institutions offer an Entrepreneurship module, there exists minimal effort in teaching entrepreneurship comprehensively (Parsley & Weerasinghe, 2010). Scepticism exists in academic circles around the idea of 'teaching' entrepreneurship, rather than practicing it hands-on. As a result, the field of entrepreneurship has not attracted a great number of Canadian academics, thereby creating a shortage in employees qualified and knowledgeable in entrepreneurship teaching (ASHE Higher Education Report, 2009).

Interview findings further revealed that entrepreneurship is mainly planned and taught in conjunction with other areas of specialization at both undergraduate and postgraduate level, most prominently with engineering and other sciences. Practical assignments are mainly utilized in order to teach entrepreneurship, rather than traditional classroom teaching. External organizations are also heavily involved in program development, financing and provision of practical training opportunities. Program leaders originate from both academia and industry, with the aim of blending both theoretical and practical knowledge. Incubators and entrepreneurship hubs are given institutional freedom to operate independently in order to spur creativity.

4.3. Europe and the United Kingdom (UK). An in-depth evaluation of the top 50 in Economy (including Management) QS-ranked universities in Europe and the UK revealed that Entrepreneurship is taught primarily as elective modules in undergraduate qualifications. Many of these top-rated universities do not offer Entrepreneurship, but if they do it is usually across faculties, available to all as an elective option. Entrepreneurship is seldom, if ever, available as a major in undergraduate qualifications. Not one university in the top 50 that offer full Entrepreneurship programs at undergraduate level in Europe or the UK could be identified. Even at lower (than 50) ranked universities, Entrepreneurship is offered as a full program in extremely exceptional instances. However, at many European and UK universities, various minor and major modules in Entrepreneurship are presented at undergraduate level (i.e., at Erasmus University and Tilburg University). In other instances, such as EM Lyon Business School (EMLYON), Entrepreneurship modules are compulsory in all undergraduate bachelor programs.

At post-graduate level, top-rated universities do offer full master's programs in Entrepreneurship, as well as Entrepreneurship as modules in postgraduate qualifications, more specifically, in MBA programs at business schools, i.e., London Business School and EMLYON in France. EMLYON is currently recognized as the leader in entrepreneurship education and research in France and Europe. The focus of the entire business school is entrepreneurship education at undergraduate and postgraduate level combined with international exposure.

Short courses, continuing education programs and incubator programs in Entrepreneurship are often available at universities and business schools through entrepreneurship centers that are part of or linked to these institutions.

Although Entrepreneurship is often not taught at top-rated universities, it is a specialization area for research and teaching at executive level, i.e., Oxford University's SAID Business School that offers entrepreneurial leadership programs for senior university leaders (Gibb, Haskins & Robertson, 2013). Rae, Matley, McGowan and Penaluna (2014) also indicate that in Europe the emphasis is more on institutional frameworks that focus on the entrepreneurial university.

4.4. Singapore and China. Universities are integral to Singapore's efforts to stimulate industrial development in this island city state through innovation (Goh, 2005, p. 236). To this end, the Ministry of Education in Singapore granted the two state universities, NUS and Nanyang Technological University (NTU), more operational freedom by incorporating the institutions as not-for-profit organizations with the purpose of becoming more entrepreneurship-oriented (Mok, 2008, p. 534).

NUS offers entrepreneurship education since the late 1980's which has evolved over time and increased in quantity and quality. As in 2015, a wide variety of programs (traditional lectures, seminars and business plan competitions) are offered to students from all faculties. NUS, in recent years, introduced innovative entrepreneurship experiential learning through its overseas internship programs where students complete an internship with high-tech start-ups while attending Entrepreneurship programs at partner universities abroad. A study conducted in 2014 among more than 800 students at NUS investigated the link between entrepreneurship education programs and students' entrepreneurial behavior (Ho, Low & Wong, 2014, p. 67). Ho et al. (2014, p. 84) found that entrepreneurship education encouraged entrepreneurial behavior in students, and more profoundly, that experiential learning had a significantly higher impact on entrepreneurial engagement than classroom-based programs.

In 1981, the Nanyang Technological Institute (NTI) was formed on the premises of NUS to educate engineers. In 1991, the NTI amalgamated with the National Institute of Education to create the Nanyang Technological University (NTU). The Nanyang Technopreneurship Centre (NTC) was established in 2001. As an autonomous centre of excellence within the NTU it offers undergraduate programs in entrepreneurship, the Master of Science in Technopreneurship and Innovation Program (MSc TIP) for full-time or part-time postgraduates and the Entrepreneurship Development Program for executives (Tay, 2015).

Entrepreneurship education in China is in an experimental stage (Li, Zhang & Matlay, 2003, p. 502) and is characterized by the introduction of various entrepreneurial programs and activities at certain universities. In 1998, the first "Business Plan Competition" was launched at the Tsinghua University, followed by the first "Challenge Champion" Business Plan Competition at the same university in 1999. In 2002, the Ministry of Education in China introduced the Pilot Entrepreneurship Education Program in eight HEIs with the aim of testing different EE models at undergraduate level. These pilot programs are ongoing and regarded as successful. In 2005, the International Labor Organisation (ILO), in conjunction with the All-China Students Federation (ACSF), piloted the "Know your business" program at six universities in northern China. An assessment of this program at the Youth University for Political Science in China highlights difficulties associated with the introduction and evaluation of EE interventions in a fast growing economy with great socio-economic challenges (Millman, Matlay & Liu, 2008, pp. 807-809).

4.5. African Context. South African universities appear to perform the largest number of education and research activities in Entrepreneurship in comparison with the remainder of Africa. Botswana, for example, does not have any university training and research being conducted in Entrepreneurship. Bawuah, Buame and Hinson (2006) highlight a fundamental difference between USA universities and those in Africa. This fundamental difference is inherited by Africa's ex-colonial nations and their higher educational systems, and these authors claim that this is delaying entrepreneurial development progress in Africa. One such case is that the higher educational structure generally prevents students majoring in other non-business degree programs such as engineering, economics and medical sciences to select additional modules such as Entrepreneurship (Bawuah et al., 2006).

A study done by Stanford University (Adly & Khatib, 2014) in Africa also shows evidence that entrepreneurship education in Northern Africa

lags behind the remainder of the continent, with the exception of the University of Sfax in Tunisia, which has established a role model in the region. The university has established an Entrepreneurship program, as well as created a centre for entrepreneurship promotion. It has also launched about 100 enterprises, which are still in operation. Institutions known for good practices in entrepreneurship include the University of Dar es Salaam's Entrepreneurship Centre, the University of Nairobi's School of Business, the Institute of Management and Entrepreneurship Development, Tanzania, and the Entrepreneurship and Leadership Foundation in Kenya (Kaijage & Wheeler, 2013). It is evident that EE is primarily offered through centers and institutes, and often does not form part of undergraduate and postgraduate qualifications in Africa.

A brief analysis of the entrepreneurial context in South Africa revealed that most public universities include some form of entrepreneurial module in undergraduate programs, which is mostly offered as an elective. Of interest are the programs offered by the University of Pretoria (UP) in terms of its BCom in Entrepreneurship that has a direct articulation in Entrepreneurship through to a PhD in Entrepreneurship. Additionally, its MBA offered at the Gordon Institute of Business Science (GIBS) contains two major tracks, one of which is Entrepreneurship and the other General Management. The University of Johannesburg (UJ) offers a National Diploma in Small Business Management and a BCom Entrepreneurial Management, as well as Entrepreneurship modules to a large number of undergraduate and postgraduate degrees and diplomas. It was also found that, generally, universities of technology offer national diplomas either in Small Business Management or Entrepreneurship to address the need for such education. In the postgraduate research space, the Nelson Mandela Metropolitan University (NMMU) has focused specialization in Family Business research and business schools. Master programs often include modules on Entrepreneurship and related topics.

Most South African universities have centers with a focus on short courses in Entrepreneurship rather than undergraduate or postgraduate degrees that focus on Entrepreneurship.

4.6. Global context (overview). In summary, many universities in all the regions have centers in various formats, including institutes and incubators that offer short courses, services, guidance and assistance to students, staff, local communities and educators. The level and extent of these short courses and services vary from very basic grassroots small businesses in the African context to established small and medium-sized enterprises. However, its primary focus is assistance in

establishing and guiding high-growth businesses and executive level entrepreneurship programs. Examples of incubators and centers include EMLYON where the primary services provided are teaching, coaching and mentoring, networking and infrastructure aid (Fayolle & Byrne, 2010), including the incubator program that is not only aimed at students, but also the local community. After a business has been established, the institution remains involved in the incubator for up to 24 months. Most are fast-growing businesses with 20-30 employees after two to three years. In some institutions, for instance, the Erasmus University, New York University and NUS, enterprise centers for entrepreneurship are autonomously operated off-campus and academics are not really involved. Assistance is given not only to students who want to start and run their own businesses, but also to the community at large. The objectives of these centers vary but include the development of an entrepreneurial and global mindset, providing experiential entrepreneurial education, active industry partnerships, comprehensive entrepreneurship support and serving as the bridge to industry. Some specialist centers are focused on training entrepreneurship educators and academics, and some are research-focused.

Very few universities offer Entrepreneurship in undergraduate qualifications. In general, Entrepreneurship modules are available as modules and often to all undergraduate students throughout the institution. The modules range from an introduction to entrepreneurship, venture start-up, innovation, creativity and entrepreneurship, entrepreneurial team-building, bio-entrepreneurship to e-start-ups.

At postgraduate level, dedicated Entrepreneurship qualifications are widespread at universities and business schools, ranging from specialist entrepreneurship MBAs, Master of Science in Technopreneurship and Innovation, MSc Global Entrepreneurship, Master in Strategic Entrepreneurship, MBA in Engineering and Entrepreneurship to many other. Specialist PhDs in Entrepreneurship are also presented at these institutions. In addition, Entrepreneurship, Corporate Entrepreneurship and related modules are also offered in many MBAs and other postgraduate qualifications that do not specialize in Entrepreneurship.

Conclusion

The purpose of this study was to investigate and discover best practices in entrepreneurial education by examining Entrepreneurship programs offered by highly QS-ranked universities and business schools globally. The study was qualitative in nature, utilizing semi-structured interviews. Results show that, globally, universities and other higher education institutions tend to stretch the reach of Entrepreneurship programs by means of incubators

and centers. Further, results show that, at undergraduate level, a generic module in Entrepreneurship is preferred to a specialized qualification. At postgraduate level, however, there seems to be a greater degree of specialization by means of Entrepreneurship-focused qualifications. Lastly, it has been discovered that Entrepreneurship qualifications are often interdisciplinary in nature with other specialist areas such as science or engineering.

The study highlights global best practices in entrepreneurship education, thereby highlighting best practices to be utilized when designing Entrepreneurship programs. The study draws on successful Entrepreneurship programs from prominent global universities, thereby providing insights from different educational and cultural contexts. A review of the local South African and continental contexts provides the study with a backdrop, which informs the future design of Entrepreneurship programs, both targeting commerce students, as well as students from other disciplines.

Recommendations for further research

While this study investigates best practices in undergraduate and postgraduate Entrepreneurship programs, the study does not statistically test the proposed design elements. Statistical testing and verification would be beneficial in confirming the identified program design elements. Further, while geography-specific research exists in the area of designing higher education entrepreneurial programs, limited research has been performed spanning different countries and continents.

Also, a broad quantitative study investigating the statistical impact of certain design elements of entrepreneurial programs on entrepreneurial intent and orientation could indicate which program design elements hold the biggest influence on potential entrepreneurship, specifically when students from different disciplines are considered.

Further, while this study focused on highly QS-ranked universities with full entrepreneurship qualifications only, a broader study could be performed by investigating a wider range of universities, which might only offer modules in entrepreneurship, or which might not be QS-ranked.

Managerial implications

Due to the severe socio-economic challenges that South Africa faces, it is imperative that entrepreneurship programs in the higher education sphere are designed to build the next cohort of future Entrepreneurs. Universities, thus, play the role of incubators for the next generation of entrepreneurs by inspiring and educating the youth in entrepreneurship and new venture creation. Furthermore, students need

to be equipped with the necessary skills to start their own ventures. By providing these skills at university level, it enables students to utilize the knowledge gained in other modules and combine it with the practical skills acquired in Entrepreneurship programs.

A well-designed Entrepreneurship program results in defined reporting structures and clear delineation of responsibilities. In addition, an effectively designed Entrepreneurship program, using the 5C's

framework, allows faculty members to gauge how well current programs are designed and allows for external partner development. A well-designed Entrepreneurship program allows for building of multi-disciplinary collaboration. Lastly, effective Entrepreneurship program design culminates in an in-depth understanding of the needs of the student body and, consequently, allows for a tailored competency development.

References

1. Adly, A. and Khatib, L. (2014). Reforming the Entrepreneurship Ecosystem in Post-Revolutionary Egypt and Tunisia. Available at: http://iis-db.stanford.edu/pubs/24614/Reforming_the_Entrepreneurship_Ecosystem_in_Post-Revolutionary_Egypt_and_Tunisia_-_Amr_Adly.pdf. Accessed on 5 June 2015.
2. Antal, N., Kingma, B., Moore, D. and Streeter, D. (2014). University-wide Entrepreneurship Education, *Advances in the Study of Entrepreneurship, Innovation and Economic Growth*, 24, pp. 227-254.
3. Arend, R.J., Sarooghi, H. and Burkemper, A. (2015). Effectuation as Ineffectual? Applying the 3E Theory Assessment Framework to a Proposed New Theory of Entrepreneurship, *Academy of Management Review*, 40 (4), pp. 630-651.
4. ASHE. (2009). ASHE Higher Education Report, *Entrepreneurial Domains*, 34 (5), pp. 63-73.
5. Bawuah, K., Buame, S. and Hinson, R. (2006). Reflections on Entrepreneurship Education in African Tertiary Institutions, *Acta Commercii*. Available at: <http://actacommercii.co.za/index.php/acta/article/viewFile/78/78>. Accessed on 26 May 2015.
6. Charney, A. and Libecap, G. (2000). Impact of Entrepreneurship Education, Insight, *A Kauffman Research Series*, pp. 1-8.
7. Duval-Couetil, N. (2013). Assessing the Impact of Entrepreneurship Education Programs: Challenges and Approaches, *Journal of Small Business Management*, 51 (3).
8. Fayolle, A. and Byrne, J. (2010). EM Lyon Business School. In *The Development of University-based Entrepreneurship Ecosystems*. Cheltenham: Edward Elgar Publishing, pp. 45-75.
9. Galloway, L. and Brown, W. (2002). Entrepreneurship Education at University: A Driver in the Creation of High Growth Firms? *Education and Training*, 44 (8/9), p. 398.
10. Gibb, A., Haskins, G. and Robertson, I. (2013). Leading the Entrepreneurial University: Meeting the Entrepreneurial Development Needs of Higher Education Institutions. In *Universities in Change. Managing Higher Education Institutions in the Age of Globalisation*. New York: Springer.
11. Goh, A.L.S. (2005). Promoting Innovation in Aid of Industrial Development: The Singaporean Experience, *International Journal of Public Sector Management*, 18 (3), pp. 216-240.
12. Goldstein, H.A. (2008). The "Entrepreneurial Turn" and Regional Economic Development Mission of Universities, *The Annals of Regional Science*, 44 (1), pp. 83-109.
13. Guirong, D., Jinquan, Y. and Lei, X. (2011). Chinese Entrepreneurship Education. In *Entrepreneurship Education in Asia*, pp. 96-107. Cheltenham: Edward Elgar Publishing Limited.
14. Hegarty, C. and Jones, C. (2008). Graduate Entrepreneurship: More Than Child's Play, *Education and Training*, 7, pp. 626-637.
15. Herrington, M., Kew, J. and Kew, P. (2015). 2014 GEM South Africa Report. Available at: <http://www.gemconsortium.org/country-profile/108>. Accessed on 20 March 2016.
16. Ho, Y., Low, P. and Wong, P. (2014). Do University Entrepreneurship Programmes Influence Students' Entrepreneurial Behaviour? An Empirical Analysis of University Students in Singapore, *Innovative Pathways for University Entrepreneurship in the 21st Century Advances in the Study of Entrepreneurship, Innovation and Economic Growth*, 24, pp. 65-87.
17. Holmes, R. (2013). Can We Do a Better Job Teaching Entrepreneurship in Canada? *The Financial Post*. Available at: http://business.financialpost.com/entrepreneur/fp-startups/can-we-do-a-better-job-teaching-entrepreneurship-in-canada?_isa=4dd5-bb3d. Accessed on 24 May 2015.
18. Jones, C. (2011). *Teaching Entrepreneurship to Undergraduates*. Cheltenham: Edward Elgar Publishing Limited.
19. Kajjage, E. and Wheeler, D. (2013). Supporting Entrepreneurship Education in East Africa. Available at: http://r4d.dfid.gov.uk/pdf/outputs/Misc_Education/Entrepreneurship-Education-East-Africa-2013%20.pdf. Accessed on 5 June 2015.
20. Kuratko, D.F. (2005). The Emergence of Entrepreneurship Education: Development, Trends and Challenges, *Entrepreneurship Theory and Practice*, 29 (5), pp. 577-598.
21. Lee, S.M., Chang, D. and Seong-Bae, L. (2005). Impact of Entrepreneurship Education: A Comparative Study of the U.S. and Korea, *International Entrepreneurship and Management Journal*, 1, pp. 27-43.
22. Li, J., Zhang, Y. and Matlay, H. (2003). Entrepreneurship Education in China, *Education + Training*, 45 (8/9), pp. 495-505.

23. Matlay, H. (2008). The impact of entrepreneurship education on entrepreneurial outcomes, *Journal of Small Business and Enterprise Development*, 15 (2), pp. 382-396.
24. McKenna, B. (2013). Canadian Entrepreneurs: Born or Made? *The Globe and Mail*. Available at: <http://www.theglobeandmail.com/report-on-business/careers/business-education/canadian-entrepreneurs-born-or-made/article11722657/>. Accessed on 24 May 2015.
25. Millman, C., Matlay, H. and Liu, F. (2008). Entrepreneurship Education in China: A Case Study Approach, *Journal of Small Business and Enterprise Development*, 15, pp. 802-815.
26. Mok, K.H. (2008). Singapore's Global Education Hub Ambitions: University Governance Change and Transnational Higher Education, *International Journal of Educational Management*, 22 (6), pp. 527-546.
27. Morris, M.H. and Kuratko, D.F. (2014). Building University 21st Century Entrepreneurship Programmes That Empower and Transform, *Innovative Pathways for University Entrepreneurship in the 21st Century Advances in the Study of Entrepreneurship, Innovation and Economic Growth*, 24, pp. 1-24.
28. Morris, M.H., Kuratko, D.F. and Cornwall, J.R. (2013). *Entrepreneurship Programmes and the Modern University*. United Kingdom: Edward Elgar Publishing Limited.
29. Neck, H.M. and Greene, P.G. (2011). Known Worlds and New Frontiers, *Journal of Small Business Management*, 49 (1), pp. 55-70.
30. Nelles, J. and Vorley, T. (2009). Constructing an Entrepreneurial Architecture: An Emergent Framework for Studying the Contemporary University Beyond the Entrepreneurial Turn, *Innovative Higher Education*, 35 (3), pp. 161-176.
31. O'Connor, A. (2013). A Conceptual Framework for Entrepreneurship Education Policy: Meeting Government and Economic Purposes, *Journal of Business Venturing*, 28, pp. 246-563.
32. Parsley, C. and Weerasinghe, M. (2010). The Teaching and Practice of Entrepreneurship Within Canadian Higher Education Institutions. *Industry Canada*. Available at: [https://www.ic.gc.ca/eic/site/061.nsf/vwapj/entrepreneurship-entreprenariat_dec2010_eng.pdf/\\$file/entrepreneurship-entreprenariat_dec2010_eng.pdf](https://www.ic.gc.ca/eic/site/061.nsf/vwapj/entrepreneurship-entreprenariat_dec2010_eng.pdf/$file/entrepreneurship-entreprenariat_dec2010_eng.pdf). Accessed on 25 May 2015.
33. Rae, D., Matley, H., McGowan, P. and Penaluna, A. (2014). Freedom or Prescription: The Case for Curriculum Guidance in Enterprise and Entrepreneurship Education, *Industry and Higher Education*, 28 (6), pp. 387-398.
34. Sarasvathy, S.D. (2001). Causation and Effectuation: Toward a Theoretical Shift From Economic Inevitability to Entrepreneurial Contingency, *Academy of Management Review*, 26, pp. 243-263.
35. Streeter, D.H. and Jaquette, J. (2004). University-wide Entrepreneurship Education: Alternative Models and Current Trends, *Southern Rural Sociology*, 20 (2), p. 27.
36. Streeter, D.H., Kher, R. and Jaquette, J.P. (2011). University-wide Trends in Entrepreneurship Education and the Rankings: A Dilemma, *Journal of Entrepreneurship Education*, 14, pp. 75-90.
37. Tay, R. (10 March 2015). *Entrepreneurship Education at NTU*. Interview with Davids, J.
38. Winkel, D., Vanevenhoven, J., Drago, W.A. and Clements, C. (2013). The Structure and Scope of Entrepreneurship Programmes in Higher Education Around the World, *Journal of Entrepreneurship Education*, 16, pp. 15-29.
39. Zhang, Y., Duysters, G. and Cloudt, M. (2013). The Role of Entrepreneurship Education as a Predictor of University Students' Entrepreneurial Intention, *International Entrepreneurship and Management Journal*, 10 (3), pp. 623-641.