

The Environment of the University and the Student

Entrepreneurial Inclination

John Amolo, Steven O. Migiro (Graduate School of Business and Leadership, University of KwaZulu Natal, South Africa)

Abstract: Academic organizations play an important role in developing an entrepreneurial inclination in their learners. The dynamic environments that universities find themselves in has so been noted in literature. A university has also been considered as a natural incubator that adopts a coordinated approach across critical activities. The activities referred to here are research, teaching and entrepreneurship. The transformation of ideas into an economically and entrepreneurially beneficial aspect to the community can be achieved through exploration, exploitation and evaluation. Through the university's appropriate ecosystem, the learners are influenced to become entrepreneurial — or not so. In order for a university to contribute to the nation's social and economic growth, it must transition from modern to post-modern levels. It is therefore paramount that an environment is created, which prepares learners with the social and economic fabric in context. The aim of this study was to explore an academic organization's environment in relation to the entrepreneurial inclination of its students. Using a quantitative study a sample of undergraduate students from the College of Law and Management Studies at the University of KwaZulu-Natal participated in this study. The sample was surveyed with regard to the impact the university environment had on their entrepreneurial inclination. Using a quantitative study, it was found that the university had a positive impact on student entrepreneurial inclination; however, the respondents felt that the university should increase entrepreneurial and business programs relating to starting a business. There is also a need to understand the impact of the various components of the entrepreneurial inclination of learners. The role of policy-makers in dealing with this aspiration is very important.

Key words: organizational environment; stakeholders; academic organization; inclination

JEL codes: M2

1. Introduction

The need for universities to innovate and adapt to a changing environment necessitates changes in their operations. This dynamism is reflected in the social, economic, legal-political, demographic, environmental and technological spheres — which are pressuring these institutions' governance, leadership and management structures towards increased effectiveness, efficiency and flexibility (Carbone, 1994; Conceincao & Heitor, 1999; Etzkowitz, Webster, Gebhardt & Terra, 2000; Clark, 2001; Sporn, 2001; Axley & McMahon, 2006). Innovation

John Amolo, Ph.D., Post-Doctoral Fellow at Graduate School of Business and Leadership, University of KwaZulu Natal. E-mail: apostlejhn@gmail.com.

Steven O Migiro, Ph.D., Professor, Graduate School of Business and Leadership, University of KwaZulu Natal. E-mail: Migiro@ukzn.ac.za.

and restructuring at universities have been associated with being entrepreneurial — in an effort to encourage entrepreneurship and innovation in both industry and society (Aranha & Garcia, 2014). For the university to effectively contribute to the nation's social and economic growth, it is mandatory that it transitions from modern to post-modern levels. This can be achieved through investigating and understanding the new organisational forms — as well as by engaging its stakeholders in their roles and propositions (Clark, 1983; Etzkowitz, Ranga & Dzisah, 2012; Martin, 2012; Goddard, Robertson & Vallance, 2012; O'shea et al., 2007; Bathelt, Kogla & Monro, 2010). In realizing such an endeavour, it is paramount that an environment is created that impacts on the learners to a certain degree, and which also prepares them in terms of relating to the social and economic fabrics of their context. Therefore, the roles of a university environment and learning become important in the discourse of their duties and other obligations to their stakeholders. Among the closest stakeholders are the learners, who will likely replicate the efforts of the universities — even when they are no longer learners at the university concerned.

2. University Environment and Entrepreneurship

According to Co and Mitchell (2006), societal and regional economies can be greatly influenced by universities through entrepreneurship education. Because universities are seedbeds for entrepreneurship, Roffe (1999) and Autio, Keeley, Klofsten and Ulfstedt (1997) concluded that — after a study on technology and science students in four countries — student entrepreneurial convictions can be deeply impacted by the university teaching environment. Student decisions are expected to be shaped in a culture of entrepreneurship created by the university. In the Ethiopian study by Buzeye (2013), it was revealed that the university had a positive impact in terms of promoting the entrepreneurial inclination of learners. This supports hypothesis 1 of this study — which asserts that the University Of KwaZulu-Natal (UKZN) plays a role in stimulating the entrepreneurial intents of learners.

3. Impact of the University Entrepreneurial Ecosystem

Engel and Sharon (2006) point out the need for an ecosystem for entrepreneurship, in as far as the facilities, people, networks and pedagogy are concerned in the nurturing of entrepreneurial intents in institutions. An institution cannot plan entrepreneurship — but by providing a supportive pedagogy it facilitates its development and inclination. Skills development and good relationships are therefore necessary in the areas of its ecosystem. The relevant processes, facilities and processes help in the formulation of a good entrepreneurial ecosystem (Engel & Sharon, 2006).

The role that an ecosystem plays in the university can be very significant relative to the economy of the nation and the whole region. Entrepreneurship is notably not necessarily limited to a business department of a university. This is very much evidenced by Massachusetts Institute of Technology (MIT) alumni. A study found that 30% of MIT alumni are in the manufacturing sector — exceeding the overall US manufacturing sector (11%). The 6,900 active alumni of MIT have created an estimated one million jobs globally. In California alone, the 4,100 firms founded by MIT alumni have created 526,000 jobs, in New York 231,000 jobs, in Texas 184,000, and in Virginia 136,000 jobs have been created by MIT alumni. This excludes 15 states with an average job count of 10,000 and a further 11 states with 1,000 jobs from the MIT entrepreneurial alumni.

In terms of revenue collected in the 6,900 alumni firms, \$164 billion was generated. Furthermore, 30% of the foreign students form companies after studying at MIT — sharply contrasting with the US-born students at 20%.

Because most of the companies are knowledge-based — essentially comprising biotech, manufacturing, software and consultancies — their access to global markets is easily realized, as is a high revenue in dollars. The income generated per employee exceeds the normal amount generated by an average American company.

This explosive performance of the entrepreneurial mindset has been attributed to the ecosystem of MIT. The ecosystem — comprising research, education and social networks — has helped achieve this significant entrepreneurial output. The MIT ecosystem is based on its logo "Mens et Manus", meaning "mind and hand". The ever-increasing entrepreneurial efforts among students and staff are benchmarked on the strong ties MIT has developed with industry. Besides the more than 30 courses on entrepreneurship that have been developed, there have been over 700 young companies nurtured, besides several student clubs. Their ecosystem has also been strengthened by the surrounding entrepreneurship community, and also the venture capital involved. The cross-disciplinary teams and projects since the 1990s, consisting of management students, engineers and scientists, have enhanced students' ability to comprehend entrepreneurial processes — and the initiation and engagement with real-world enterprises has further enriched their understanding of the entrepreneurial process. The formalization of MIT institutions in fostering entrepreneurial endeavours led to the licensing of 210 companies over the last 10 years. By the year 2000, the Venture Mentoring Service helped any MIT-related individual/s faculty, student or alumni — who were considering starting a business. After such consultations, 152 companies were created (Roberts & Eesley, 2011). Of further note is that the ecosystem in this case includes the alumni who are kept in the loop through the university communication system. It also indicates the university's continued ties with whomever has passed through their educational system. This could be the driving force for the university's influence being felt with a sustained impact.

The need for the university or institution of higher learning to develop and sustain ties related to its traditional activities is vital — but it certainly depends on the vision of the university or institution, besides the training and research. The ecosystem is thus broad-based at MIT — as evidenced by the networks linking it to industry, alumni, staff, venture capitalists and resources at the university.

Wilson (2013) — in describing the university beyond the "ivy towers" — emphasizes the need for the university to facilitate entrepreneurial activity by creating strong networks. It is in this discourse that they ought to be the community's intellectual hub, so attracting talent. Using the same understanding, the university would then be developing materials, projects and case studies that are practical and relevant. The university also progresses if it aims to provide connections between researchers, students, innovators, entrepreneurs, companies and venture capitalists. In its efforts, it becomes prudent that the university also attracts funding and that it continues to build on innovation and entrepreneurship as a critical mass needed for its own progress.

Further to the above, the university needs to appreciate and recognize the need to connect with the local and global ecosystems that are already in place. In the local domain, the actors involved may include large and small firms, entrepreneurs, alumni, government, and the financing community. However, on the global side there is a need to appreciate and recognize other entrepreneurial ecosystems in other universities.

The need to create or trigger entrepreneurial potential can be considered to be vital, and some of the critical success factors would include exposure to all learners or students of entrepreneurship at the lower and higher levels of education — as well as integrating with the extracurricular activities of the university.

The need to essentially develop the faculty and curriculum by learning about best international practices needs to be done in connection with the engagement of entrepreneurs and practitioners in the classroom. The adaptation of the local context with relevant local content is significant.

The teaching methods need to be action-orientated, and there is a need to, *inter alia*, test ideas and take risks (Wilson, 2013).

There is some similarity in the aspects that help the ecosystems of universities raise the level of entrepreneurial activity and flair among participants. Cambridge University offered entrepreneurship across several programs, as part of an ecosystem depending on an entrepreneurial mindset. There was also a set of five initiatives that the university broadly adopted:

- *The Ignite*: This was a summer school which conducted an intensive course for the solo entrepreneurs and corporate innovators who had technology knowledge ideas. There was venture capital of over #35 mn and over 200 entrepreneurs were trained.
- *Enterprise Tuesdays*: This initiative addressed the need to turn ideas into reality. In offering these evening courses there was an attendance of 1,500 from the 50 departments of the university, 108 private businesses, and 10 other universities for the calendar period 2005/6.
- *Enterprisers* was another initiative which drew in the different talents and diverse cultures of youth globally for a one-week residential retreat in 2002, due to the collaborative effort of the Cambridge MIT institute. During this initiative 65 universities participated, while 900 students and over 100 faculty members were trained.
- *The Cambridge Enterprise*. This initiative was started to support knowledge commercialization from all parts of the university. The following services were rendered to the academics: licensing of IP, advice and support for the creation of new companies, support with the seed funds, and leads for further funding in companies. Other services included: costing, contract negotiation, insurance and VAT, and invoicing. Further support was given to consulting in respect of external organizations, networking events, industry leads through showcasing, and identification and protection of ideas.
- *The Cambridge Entrepreneurship Educators Program initiative*. This initiative involved knowledge sharing from 6 countries in a two-day program, with 15 delegates. It addressed the practical aspects of aiding nascent entrepreneurs and the cultural effects of entrepreneurship programs.
- The undergraduate programs of Cambridge University had the following offerings associated with entrepreneurship:
- Entrepreneurship was taken as a foundation program by running as a minor topic in 16 lectures for the Physics Department.
- Eight lecture periods were offered for writing a business plan or interviewing entrepreneurs in the Chemical Engineering and Material Science Department. Twelve Business Studies lecture courses were offered to students of the Biochemistry Department, with two lectures on IP the starting of a biotechnology business.
- Other similar programs were run with the Computer Science and Architecture undergraduate departments.

At graduate level, a one-day session was run for Chemistry and Earth Science students. For the MBA students, a one-day boot camp and the various electives were conducted — whereas the Graduate School of Biology, Clinical, Veterinary and Medical Sciences, had four sessions of one and half hours each (Wilson, 2013).

Stanford University is one of the universities that has been deeply entrenched in entrepreneurship and innovation — and has had a significant impact on the economic progress of the globe. Global companies like Google, Nike, and Hewlett Packard are among the many companies which have been started by graduates of

Stanford. These companies have created 5.4 million jobs, with average world revenues of \$ 2.7 trillion according to a 2011 survey report. The university's entrepreneurial ecosystem encourages collaboration and networking among students, alumni, and industry. Some members of industry are alumni of the university. The reputed Silicon Valley development has been led by Stanford graduates. Stanford encourages students to be more involved in research and the testing of ideas as prototypes. Both the Graduate School of Business and the Engineering School offer entrepreneurship in their curricula. The approach used by Stanford has included theory teaching and real expertise in the classroom setting. There has also been a comprehensive approach to creating entrepreneurial flair in Cambridge — just like MIT. Furthermore, since learning and its facilities are an important aspect of an entrepreneurial ecosystem, Stanford can, without doubt, be considered to be a fundamental setting that was well integrated with the academic setting of the Institute. The organizational set-up of activities in creating the entrepreneurial flair in this setting, can also be attributed to the cohesion exercised by the higher learning institutions — with the support of the business sector in gaining an advantage leading to creating a strong ecosystem that is not limited to one university setting. MIT and Cambridge have also put much effort into their entrepreneurial ecosystem. However, it is not yet understood how much this has impacted on the intention of learners to become entrepreneurial.

The founding of a firm and deciding whether the firm can be considered to be a product of university-based knowledge can be connected to the four aspects pointed out by Roberts and Eesley (2011) — in that the new firm's technology was directly licensed from the university. It can also be considered university-based knowledge if a faculty member was involved as a co-founder of the company or had been an advisor — formally or informally — during the startup phase of the organization. Alternatively, if the firm originated from research work or a thesis done at the university, this would also include the coursework. Finally, if the founding team met at a lab or university facility — then it can be considered to be a university-based founding technology (Roberts & Eesley, 2011). The above four categorizations decide whether a firm can be deemed to be university-based and are necessary for quantifying the university's impact on entrepreneurial activity. However, at the same time, it may not be solidly confirmed whether other factors were directly involved in motivating the foundation of the enterprise.

The approaches that have been considered useful for the realization of an effective entrepreneurial ecosystem were stipulated by Wilson (2011) as follows:

- Development of leadership and life skills in learners. This is an important component of effective entrepreneurship as pointed out in chapter two, on the success factors of entrepreneurs. This is also pointed out in entrepreneurial leadership learning as being an important element in entrepreneurship education.
- Need to embed entrepreneurship in education. This is necessary for the foundation of an entrepreneurial intent to be enhanced. If it is confined to business schools as is the case in a number of universities then the entrepreneurial will not be fully achieved.
- Use of a cross-disciplinary approach is necessary for entrepreneurship to be incorporated into all areas of learning. This would allow the understanding of enculturalizing entrepreneurship to be realized across the various departments of the university.
- Use of an interactive pedagogue is necessary as a useful tool for realizing an entrepreneurial leadership *learning principle*. This allows output from the student to be realized and creativity to be spurred in classroom settings.

• The need to leverage technology is an effective tool in developing an effective ecosystem in a university *setting*. Technology has had a rapid advance, and, as discussed in previous sections of chapter two, it has been responsible for entrepreneurial globalization efforts. It has also cut costs which were a burden for entrepreneurs starting a business.

4. Methodology

The study was conducted in the College of Law and Management Studies at the University of KwaZulu-Natal in South Africa. This is one of the five Colleges of the university and has about 5000 students. There are about 3,000 undergraduates and 2,000 postgraduates.

Random sampling was used, as respondents were asked to respond to an online questionnaire, which was arranged using a 5-point Likert scale method. There were 8 statements that reviewed the respondents' understanding of the university environment — as indicated in Tables 1 and 2. The respondents agreed strongly, agreed, were neutral, disagreed, or strongly disagreed to any given statement. The questionnaire's main biographical component related to whether the respondents had business or non-business parents. Eighty percent of respondents were from non-business parents and 89 respondents participated in the online study. Initially, 501 viewed the survey, and 159 started the survey — representing 19.5% of the actual response rate, which was realised after three reminders were sent to respondents. The response rate is reasonable for an online study; other surveys normally receive lower responses. In one survey, out of a sample of 386 respondents only 64 completed after several reminders (Naidoo, 2011). In another survey, only 17% completed it after four reminders (Sarfaty et al., 2015).

The results are presented in the following sections.

5. Results and Discussion

Most respondents came from families where both parents are non-business owners — 80% and above, as indicated in Figure 1. Parents who were business owners comprised less than 10%. This may explain the curiosity of learners wanting to have more business support from the university.



Figure 1 Respondents Parental Occupation (Business or Non-Business Owner)

5.1 Institutional Environment and Entrepreneurship

The one-sample statistics in Table 1 indicate that the means of the respondents towards the variables — It is my experience that at university you get to meet people with new ideas of venturing into business (mean 3.80); being at university has provided me the opportunity to reflect on developing business ideas (mean 4.06); and the university needs to establish more entrepreneurial and business programmes to help students start their own businesses (mean 4.31) — were generally higher. This can be construed to mean that the agreement level in these variables was high. The one-sample test below examines the significance test (two tailed), and therefore complements this finding.

	N	Mean	Std. deviation	Std. error mean
B4a. It is my experience that at university you get to meet people with new ideas of venturing into business.	82	3.80	1.071	.118
B4b. Being at university has provided me the opportunity to reflect on developing business ideas.	81	4.06	.953	.106
B4c. There is no better place to learn about starting your own business than at university.	81	3.15	1.216	.135
B4d. There are more business or entrepreneurial examples in classroom teaching at the university.	82	3.02	1.018	.112
B4e. The university needs to establish more entrepreneurial and business programmes to help students start their own businesses.	81	4.31	.831	.092
B4f. I have been inspired by the university environment — to start my own business.	82	3.07	1.097	.121
B4g. Entrepreneurial activities are mainly limited to business students.	82	2.68	1.175	.130
B4h. Students are normally encouraged to pursue their entrepreneurial ideas at university.	82	2.98	1.133	.125

Table 1 Institutional Agreement Levels

The means of 3.0 and above in the table indicate that the level of agreement is significant to a given statement. Any figure below that indicates disagreement with the statement. Table 2 indicates the significance test (two tailed). If the significance test is below .0005, it is considered significant, but other than that it is not significant.

In Table 2 there is significant agreement with the following statements in this finding.

	Test Value = 3			95% confidence interval of the difference		
	Т	Df	Sig. (2-tailed)	Mean difference	Lower	Upper
B4a. It is my experience that at university you get to meet people with new ideas of venturing into business.	6.806	81	.000	.805	.57	1.04
B4b. Being at university has provided me the opportunity to reflect on developing business ideas.	10.024	80	.000	1.062	.85	1.27
B4c. There is no better place to learn about starting your own business than at university.	1.097	80	.276	.148	12	.42
B4d. There are more business or entrepreneurial examples in classroom teaching at the university.	.217	81	.829	.024	20	.25
B4e. The university needs to establish more entrepreneurial and business programmes to help students start their own businesses.	14.168	80	.000	1.309	1.12	1.49
B4f. I have been inspired by the university environment to start my own business.	.604	81	.548	.073	17	.31
B4g. Entrepreneurial activities are mainly limited to business students.	-2.444	81	.017	317	58	06
B4h. Students are normally encouraged to pursue their entrepreneurial ideas at university.	195	81	.846	024	27	.22

Table 2	Institutional	Significance
---------	---------------	--------------

It is my experience that at university you get to meet people with new ideas of venturing into business [t(81) = 6.806, p < 0005]; being at university has provided me the opportunity to reflect on developing business ideas [t(80) = 10.804, p < 0005]; the university needs to establish more entrepreneurial and business programmes to help students start their own businesses [t(80) = 14.680, p < 0005]. There is, however, a significant disagreement with 'Entrepreneurial activities are mainly limited to business students' [t (81) = - 2.444, p > 0005]. The means of the three variables are above average (3.80, 4.06 and 4.31) respectively. This therefore implies agreement with the statements portrayed.

6. Study Limitations and Future Research

The study has been able to underscore the role of an ecosystem in the entrepreneurial inclination of learners. Nevertheless, the study has not dealt with the various universities in the public and private sector. This is a limitation of the study, in that comparative research between private and public universities was not undertaken. The results, however, reflect on the public university under study. Future research should examine both private and public universities and investigate how the Colleges' environment of learning and the ecosystem inclines learners towards an entrepreneurial mind-set.

7. Conclusion

The results indicate that the institutional environment of the university is supportive of the entrepreneurial intent of the learners. Nonetheless, the respondents expressed the need to see the university establish more entrepreneurial and business programmes to help students start their own businesses. The need — as pointed out by the respondents — suggests that action is required by policy-makers in terms of enriching the institutional environment. The respondents also noted that entrepreneurial understanding among the students as a whole. This indicates that the university is promoting an entrepreneurial understanding among the students as a whole. The literature has so far indicated that the university environment is necessary for promoting the entrepreneurial inclination of learners in other contexts, and it is therefore important that the environment is activated through an ecosystem that resonates with the aspirations that encourage entrepreneurial start-ups.

References

- Aranha E. A. and Garcia N. A. P. (2014). "Dimensions of a metamodel of an entrepreneurial university", African Journal of Business Management, Vol. 8, No. 10, pp. 336-349.
- Autio E., Keeley R. H., Klofsten M. and Ulfdtedt T. (1997). "Entrepreneurial intent among students: Testing an intent model in Asia, Scandinavia and USA", Frontiers of Entrepreneurship Research, pp. 133-147.
- Axley S. R. and McMahon T. R. (2006). "Complexity: A frontier for management education", *Journal of Management Education*, Vol. 30, No. 2, pp. 295-315.
- Bathelt H., Kogla D. F. and Monro A. K. (2010). "A knowledge typology of university spin offs in the context of regional economic development tech", available online at: http://www.science direct.com/science/article/pii/SO166497210000519.

Bernasconi R. (2005). "Locke and the event of appropriation: A Heideggerian reading of property", in: Daniel S., *Current Continental Theory and Modern Philosophy*, Evanston, North Western University Press, pp. 162-168.

Bratianu C. and Stanciu H. (2010). "An overview of present research related to the entrepreneurial university", *Manage. Mark*, Vol. 5, No. 2, pp. 117-134.

Buzeye Z. (2013). "Factors explaining students' inclination towards entrepreneurship: Empirical study of Ethiopian university students", *Journal of Emerging Issues in Economics, Finance and Banking (JEIEFB)*, Vol. 1, No. 4, pp. 302-320.

- Carbone C. (1994). "The university and the management of organizational change: Starting from the analysis of the content of interactive patterns", *Public Admin. Journal*, Vol. 29, No. 1, pp. 34-37.
- Clark B. R. (1983). The Higher Education System, Berkeley, University of California Press.
- Clark B. R. (1998). Creating Entrepreneurial Universities: Organizational Pathways of Transformation, New York, Elsevier.
- Clark B. R. (2001). "The entrepreneurial university: New foundations for collegiality, autonomy and achievement", *Higher Education Management*, Vol. 12, No. 2, pp. 9-24.
- Clark B. R. (2004). Sustaining Change in Universities: Continuities in Case Studies and Concepts, England, Open University Press.
- Clegg S. R. and Hardy C. (1999). "Introduction: Organization and organizational studies", in: Clegg S. R., Hardy C. and Nord W. R. (Eds.), *Organizational Studies Handbook: Actions And Organizational Analysis*, Sao Paulo, Atlas.
- Co. M. J. and Mitchell B. (2006). "Entrepreneurship education in South Africa: A nationwide survey", *Education + Training*, Vol. 48, No. 5, pp. 348-359.
- Conceincao P. and Heitor M. (1999). "University role: On the role of the university in the knowledge economy", *Science Public Policy*, Vol. 26, No. 1, pp. 37-51.
- Dutta D. K. and Crossan M. M. (2005). The Nature of Entrepreneurial Opportunities: Understanding the Process Using the 41 Organizational Framework, Baylor, Pp. 425-449.
- Engel J. and Sharon D. (2006). Entrepreneurship Theory to Practice Seminars, Dublin, Intel Technology Entrepreneurship Program.
- Eztkowitz H. (1998). "The norms of entrepreneurial science: Cognitive effects of the new university-industry linkages", *Resolution Policy*, Vol. 27, No. 8, pp. 823-833.
- Eztkowitz H. (2001). "The second academic revolution and the rise of entrepreneurial science", *IEEE Technological Social Magazine*, pp. 19-29.
- Eztkowitz H. (2004). "The evolution of the entrepreneurial university", *International Journal of Global Globalisation*, Vol. 1, No. 1, pp. 64-67.
- Etzkowitz H., Ranga M. and Dzisah J. (2012). "Whither the university? The novum trivium and the transition from industrial to knowledge society", *Social Sciences Information*, Vol. 51, No. 2, pp. 143-164.
- Etzkowitz H., Webster A., Gebhardt C. and Terra B. R. C. (2000). "The future of the university and the university of the future: Evolution of the ivory tower to entrepreneurial paradigm", *Res. Pol.*, Vol. 29, pp. 313-330.
- Gibbs A. (2002). "Creating conducive environments for learning and entrepreneurship; living with, dealing with, creating and enjoying uncertainty and complexity", *Industry and Higher Education*, Vol. 16, No. 3, pp. 135-148
- Goddard J., Robertson D. and Vallance P. (2012). "Universities, technology and innovation centers and regional development: The case of the Northeast of England", *Cambridge Journal of Economics*, Vol. 36, pp. 609-627.
- Grandi A. and Grimaldi R. (2005). "Academics organizational characteristics and the generation of successful business ideas", *Journal of Business Venturing*, Vol. 20, No. 6, pp. 821-845.
- Guerrero M., Urbano D., Cunningham J. and Organ D. (2012). "Entrepreneurial universities in two European regions: A case study comparison", *The Journal of Technology Transfer*, doi: 10.1007/10961-012-9287-2.
- Guerrero M., Rialp J. and Urbano D. (2008). "The impact of desirability and feasibility on entrepreneurial intentions: A structural equation model", *International Entrepreneurship and Management Journal*, Vol. 4, pp. 35-50.
- Inzelt A. (2004). "The evolution of university-industry-government relationships during transition", *Research Policy*, Vol. 33, pp. 975-995.
- Kirby D. A., Guerrero M. and Urbano D. (2011). "The theoretical and empirical side of entrepreneurial universities: An institutional approach", *Canadian Journal of Administrative Sciences*, Vol. 28, No. 3, pp. 302-316.
- Landry B. J. L., Rodger G. and Hartman S. (2006). "Measuring student perceptions of blackboard using the technology acceptance model", *Decision Sciences Journal of Innovative Education*, Vol. 4, No. 1, pp. 87-99.
- Link A. and Scott J. (2005). "Opening the ivory tower's door: An analysis of the determinants of the formation of US university spin-off companies", *Research Policy*, Vol. 34, pp. 1106-1112.
- Lockett A. and Wright M. (2005). "Resources, capabilities, risk capital and the creation of university spin-out companies", *Research Policy*, Vol. 34, No. 7, pp. 1043-1057.
- Lumpkin G. T. and Lichtenstein B. B. (2005). "The role of organizational learning in the opportunity-recognition process", *Entrepreneurship Theory and Practice*, Baylor, pp. 451-472.
- Martin B. R. (2012). "Are universities and university research under threat? Towards an evolutionary model of university speculation", *Cambridge Journal of Economics*, Vol. 36, pp. 543-565.

- Naidoo J. B. (2011). "Gender differences in leadership", MN+BA dissertation, University of KwaZulu-Natal, available online at: http://hdl.handle.net/10413/5367.
- Nelles V. and Vorley T. (2009). "Constructing an entrepreneurial architecture: An emergent framework for studying the contemporary university beyond the entrepreneurial turn", *Innovation in Higher Education*, Vol. 35, pp. 161-176.
- O'shea R. P., Allen T. J., Morse K. P., O'Gorman C. and Roche F. (2007). "Delineating the anatomy of an entrepreneurial university: The Massachusetts Institute of Technology experience", *R&D Management*, Vol. 37, No. 1, pp. 1-16.
- Roberts E. B. and Eesley C. E. (2011). "Entrepreneurial impact: The role of MIT, an updated report", *Foundations and Trends of Entrepreneurship*, Vol. 7, No. 1-2, pp. 1-149.
- Roffe I. (1999). "Transforming graduates, transforming firms", Education +Training, Vol. 41, No. 4, pp. 194-201.
- Rothaermel F. T., Agung S. D. and Jiang L. (2007). "University entrepreneurship: A taxonomy of the literature", *Indus. Corpor. Change*, Vol. 16, No. 4, pp. 691-791.
- Sarfaty M., Bloodhart B., Ewart G., Thurston G. D., Balmes J. R., Gidotti T. L. and Maibach E. W. (2015). "American Thoracic Society member survey on climate change and health", *Annals of the American Thoracic Society*, Vol. 12, No. 2, pp. 274-278.
- Short J. C., Ketchen D. J. J., Shook C. L. and Ireland R. D. (2010). "The concept of 'opportunity' in entrepreneurship research: Past accomplishments and future challenges", *Journal of Management*, Vol. 36, No. 1, pp. 40-65.
- Sporn B. (2001). "Building adaptive universities: Emerging organizational forms based on experiences of European and US universities", *Tertiary Education Management*, Vol. 7, No. 2, pp. 121-134.
- Vanaelst I., Clarysse B., Wright M., Lockett A., Morray N. and Sjegers R. (2006). "Entrepreneurial team development in academic spinouts: An examination of team heterogeneity", *Entrepreneurship Theory and Practice*, Vol. 30, No. 2, pp. 249-271.
- Vohora A., Wright M. and Lockett A. (2004). "Critical junctures in the development of the university high tech spinout companies", *Research Policy*, Vol. 33, pp. 147-174.
- Wilson K. (2013). Entrepreneurial Universities and Their Role in the Ecosystem; Piloting the Entrepreneurial University The Copenhagen Case, Copenhagen.
- Wright J. A., Soto N. A., Baldwin A. L., Bateson M., Beale C. M. and Clark C. (2007). "Anthropogenic noise as a stressor in animals: A multidisciplinary perspective", *International Journal of Comparative Psychology*, Vol. 20, No. 2, pp. 2168-3344.
- Yosof M. and Jain K. K. (2010). "Categories of university-level entrepreneurship: A literature survey", International Entrepreneurship Journal, Vol. 6, pp. 81-96.