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Management

ESTABLISHMENT ACADEMIC ENTREPRENEURSHIP AT UNIVERSITIES

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ABSTRACT This paper presented the notion of the academic entrepreneurship appears to be promising as research on exploiting technological knowledge originated within universities. In addition, entrepreneurial climate adds a new facet towards other "sub climates" like innovation climate, justice climate or service climate. Given the proven linkages between climate concepts and positive outcomes like performance or satisfaction, the concept of academic entrepreneurship contributes to entrepreneurship research.

KEYWORDS : Academic Entrepreneurship, Innovation, Entrepreneurial Climate

1. INTRODUCTION

Entrepreneurship received lot of attention in society during the latest decades since entrepreneurship is viewed as crucial for economic growth and enabling organizations to quickly be able to adjust to new situations in order to stay competitive in an ever increasing competitive and more knowledge-based environment (Hitt, Ireland, Camp and Sexton, 2002). This refers especially to the field of management, since both entrepreneurship and management are interested in firm performance and the "the exploitation of profitable opportunities".

The notion of the climate concept in the field of academic entrepreneurship appears to be promising as research on climate in other disciplines suggests linkages to satisfaction, quality perception, performance, involvement and behavior *(Glisson, 2007; Riordan et al., 2005; Katz-Navon et al., 2005; Liao/Rupp, 2005; Anderson/West, 1998; Ostroff, 1993)*.

Academic entrepreneurship – in terms of companies, created specifically to exploit technological knowledge originated within universities *(Grandi/Grimaldi, 2005)* – is one way to facilitate this transfer and to establish new enterprises with innovative knowledge and technologies as their strategic resource and competitive advantage. Furthermore, spin-offs are probably the most visible form of commercialization of university research *(Landry et al., 2006)*.

Hence, a more holistic approach is needed, which might capture the full entrepreneurial potential at universities and, therefore, enables an even more effective technology transfer process. In order to fill this gap, we provide a framework that links different organizational conditions with university members' entrepreneurial perceptions. Thus, we introduce the concept of a university's entrepreneurial climate in the sense of university members' perceptions of entrepreneurship at their university.

2. Literature review

2.1 Entrepreneurial climate

Entrepreneurial climate refers to the work-environment at universities and thereby to an organizational level. The specific referent in this described setting is entrepreneurship. Hence, it describes the university members' perceptions of entrepreneurial activities and academic start-ups within the university.

The concept of organizational climate was first mentioned in the 1950s. In contrast, the concept of organizational culture is by far younger and was introduced into organizational literature in the 1970s. In the 1990s both construct were discussed together for the first time and researchers tended to be confused about their similarities and differences *(Glisson, 2007)*.

Referring to entrepreneurial climate at universities, it could be understood as a source why university members act entrepreneurial and is manifested in the observable artefacts, values, and basic assumptions held by the universities' members. This pattern of basic assumptions results in observable behaviour of the employees and visible artefacts, which could be perceived by the organizational members and therefore constitutes the entrepreneurial climate.

2.2 Potential factors influencing academic entrepreneurship

In the previous research concerning academic entrepreneurship mostly concentrates on tangible factors, such as incentive and reward system for faculty and inventors or universities' royalty regulations *(Lockett/Wright, 2005; Markman et al., 2004;*, universities' expenditures for R&D *(Coupé, 2003)*, appropriate infrastructure and their employees like incubators or technology transfer offices and their staff *(Moray/Clarysse, 2005; Lockett/Wright, 2005; Siegel et al., 2003)*. Covering intangible factors, most studies focus on university-policies and their impact on spin-off formation *(Power/McDougall, 2005; Degroof/Roberts, 2004; Di Gregorio/Shane, 2003; Roberts/Malone, 1996)* To extend the literature, we primarily focus on intangible factors beside university-policies which might influence the entrepreneurial climate. Prior research mainly neglected this perspective. Furthermore, we concentrate on factors that could be influenced by a university's management without overstressing financial resources. Consequently, we exclude financial incentives and royalties from the study.

Referring to academic entrepreneurship it is important to mention that in most cases entrepreneurship is not seen as a main goal of universities. Their traditional goals could be summarized as facilitating research and disseminating knowledge across academic and student communities *(O'Shea et al., 2005)*. During the last decades, fostering the technology transfer process was attributed to them as a third mission in order to overcome limitations of economic development *(Niosi, 2006; Degroof/Roberts, 2004)*. Hence, an ideal type of a new university was developed – the entrepreneurial university. But until now, this third mission of universities is not clearly implemented everywhere *(Etzkowitz/Klofsten, 2005)*. Therefore, it could be argued that the clear perception of entrepreneurship as a university's goal and as a part of its mission is a key-factor for perceiving a university as entrepreneurial and for fostering its entrepreneurial climate *(Palacio Aguirre et al., 2006; Etzkowitz/Klofsten, 2005; Friedman/Silberman, 2003; Jacob et al., 2003; Laukkanen, 2003)*.

Furthermore, entrepreneurial qualification offers symbolize the institutionalization of entrepreneurial activities. Such an institutionalization might have a positive impact on entrepreneurial climate *(Burg van et al., 2008; Palacio Aguirre et al., 2006; Etzkowitz/Klofsten, 2005; Moray/Clarysse, 2005; Laukkanen, 2003)*. Finally, the perceived **exposure to entrepreneurship** within the university in the sense of the frequency of contact with the topic could enhance the awareness of academic entrepreneurship and its perception, thus influencing entrepreneurial climate. This includes the official university's communication, e.g. via campus magazines, newsgroups or newsletters, as well as informal communication within the university's daily life, e.g. social interactions among the university's members *(Burg van et al., 2008; Moray/Clarysse, 2005; Klein et al., 2001; Morgeson/Hofmann, 1999)*.

Regarding the above mentioned factors it could be assumed that different factors influence the goal perception as well as they symbolize the university's effort to implement their mission and goals into their structures and routines and make the mission more visible for university members *(Etzkowitz/Klofsten, 2005; Moray/Clarysse, 2005)*.

In short, we assume that the following factors might influence either directly or indirectly a university's entrepreneurial climate: the perception of entrepreneurship as a university's goal (goal), the perception of successful role-models (role models), the perception of entrepreneurial qualification offers, the perceived exposure to academic entrepreneurship (exposure), the perception of infrastructure and the perception of social support.

3. Research results

The data for this study was collected through a survey at five National Vietnam universities in 2017. Therefore, standardized online and paper questionnaires where developed and distributed at the universities. In total, 500 students returned the standardized questionnaires. Respondents rated all measures on seven-point Likert-type scales (1 = "totally agree", and 7 = "totally disagree").

The perception of entrepreneurship as a university's goal was measured with three indicators (e.g., "The facilitation of business formations is a goal of my university."), perception of entrepreneurial qualification offers with two indicators (e.g., "There are a lot of offers for entrepreneurial education and further education at university."). The perceived exposure to academic entrepreneurship contains three indicators (e.g., "You often come in contact with entrepreneurship at my university."), perception of successful role-models one indicator ("There were successful spin-offs during the last three years at my university."). Infrastructure was assessed using five indicators (e.g., "To what extend could students or faculty members use offices for their business creation at your university?") and the perception of social support with two indicators (e.g., "If you will become an entrepreneur, how would your colleagues think about you?"). Finally, entrepreneurial climate was measured with two indicators (e.g., "To my mind, my university is very entrepreneur-friendly.").

As reported in table 1 measurement model – for students – show values above the required thresholds regarding reliability, convergent and discriminant validity *(Hair et al., 2006; Fornell/Larcker, 1981)*. Therefore, we deduce that both measurements are valid and reliable. Furthermore, the fact that Q^2 is greater than zero in both samples indicates that there is predicting relevance within the structural relationships *(Fornell/Cha, 1994)*.

Table 1: Evaluation of the reflective measurement modell (PLS estimation) for students (n = 500)

construct/factor	M	SD	Factor Loadings (≥0.707)	CR (≥0.7)	AVE (≥0.5)	Fornell/Larcker (AVE > Corr²)[b]	R^2 (>0.3)	Q^2 (>0)
goal				0.903	0.756	0.76 > 0.38	0.460	0.339
university	4.05	1.561	0.858					
school	4.41	1.725	0.915					
professor	4.55	1.631	0.834					
qualification offers				0.896	0.812	0.81 > 0.51		
quality	4.55	1.560	0.911					
quantity	4.19	1.341	0.891					
exposure				0.820	0.605	0.61 > 0.46		
general contact	4.39	1.666	0.860					
university's communication	4.91	1.625	0.779					
contact at work	4.92	1.785	0.686					
role-model	2.78	1.053		*1.00*	*1.00*	*1.00*		
infrastructure				0.914	0.682	0.68 > 0.11		
offices	3.74	1.329	0.803					
laboratory	3.49	1.185	0.855					
machines	3.71	1.155	0.839					
production facilities	3.88	1.233	0.897					
computer centre	2.83	1.231	0.724					
social support				0.912	0.839	0.84 > 0.05		
faculty	2.68	1.054	0.896					
professor	2.48	1.119	0.935					
entrepreneurial climate				0.905	0.827	0.83 > 0.51	0.611	0.496
my university is very entrepreneur-friendly	3.85	1.581	0.913					
there is a very good entrepreneurial climate at my university	4.23	1.379	0.905					

Note: M = mean, SD = standard derivation, CR = composite reliability, AVE = average variance extracted, Corr² = highest squared correlation between the model constructs, R^2 = coefficient of determination, Q^2 = predictive relevance (Stone-Geisser criterion)

In this respect, for students the perception of entrepreneurship qualification offers are the most important factor influencing the entrepreneurial climate at the university. Furthermore, the perception of available infrastructure for spin-offs and the perceived positive attitude towards entrepreneurial activities by student do not influence the climate perception direct.

4. Implications

The purpose of this study was to introduce the concept of academic entrepreneurship at universities and examine if and to what extend it could be influenced via factors that are related with academic entrepreneurship. In this respect, the term entrepreneurial climate refers to an organizational-level construct describing the university members' shared perceptions of entrepreneurial activities and academic start-ups within the university's organization. The research results showed that qualification offers are most important for students.

Our results provide a wide range of practical implications. First, new possibilities arise for universities to improve the entrepreneurial climate in a strategic manner. Second, the mentioned students ask for measures and tools specifically designed for academic entrepreneurship. Furthermore, general exposure and educational offers play a crucial role for improving entrepreneurial climate and goal perception. Thus, we suggest that more effective interventions be created, targeting more than one of these factors.

Further research, however, is necessary to examine the connections between the climate construct and other important constructs like attitude toward entrepreneurship or the intention to start a new business.

5. CONCLUSION

In conclusion, the introduction of the academic entrepreneurship construct allows us to take a closer look behind current activities related to fostering entrepreneurship, and how these activities and further factors influences the overall perception of entrepreneurship at a university. Furthermore, we contribute to extent literature in that we avoid focussing solely on persons with a positive attitude towards entrepreneurship or at an advanced entrepreneurial stage (e.g. having a business idea, writing a business plan or doing market research for own business ideas). Therefore, this approach contributes to a further strengthened technology transfer in academic settings in that it helps to shift the focus towards earlier stages of venture creation.

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