

The Analysis of Multiculturalism in the Context of Development of Academic Spin-Off Companies in the United States of America

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ABSTRACT

It is widely agreed upon in the literature on creativity that the diversity of the team is conducive to developing more creative ideas. The most breakthrough innovations are developed on the border between different worlds, areas or fields. This observation leads to the greater need of a cultural competence of the innovators, manifested in their ability to understand, communicate and cooperate with people from different ethnic and socio-economic background, as well as different life experience and educational history. The case of multiculturalism is especially important in American university spin-off companies. These types of companies are frequently an example of combining two levels of multiculturalism. Firstly, their employees might have diverse ethnic and cultural backgrounds. Secondly, they operate within two worlds – of the academia and the industry. Those two worlds have different modes of operating, goals and organizational cultures, which leads to different mindsets of their representatives and results in communication difficulties. Spin-off companies as intermediaries in the knowledge and technology transfer process play a significant role in overcoming these problems.

Keywords: Cross-Cultural Diversity, Multicultural Environment, University Spin-Off, Innovation

INTRODUCTION

Globalization provides an opportunity to companies to expand geographically. This opportunity converts domestic companies into multinational companies. The changing accent on accepting differences and diversity has led become a necessity for managers to take this challenge by fully utilizing the potential capabilities of multi-cultural workforce in order to achieve organizational effectiveness in a globally competitive business environment. To address this situation, we attempted to understand the impact of cross-cultural diversity on university spin-off companies' development since they are culturally sensitive and internationally focused, with an orientation toward the future rather than the past.

University spin-off companies are under many competitive pressures which necessitate ongoing innovation and new product development and human capital largely determines their potential for success. Moreover, university spin-offs are a relationship-rich industry, in an increasingly complex environment, and depend on the diversity of their employees. Even though cultural diversity has been recognized as an innovation driver, there are issues that should be debated especially in contest of organizational performance as a recurrent theme in various domains of <https://openaccess.cms-conferences.org/#/publications/book/978-1-4951-2110-4>

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management and an important concept in strategic management.

The given study investigates aforementioned issues. The objective of the research project was the exploration of the theme of multiculturalism within the spin-off companies and building a theoretical model of the cross-cultural exchange within the academic companies. The research was exploratory in its nature and was intended as theory-building, rather than theory testing study. The results are based on comparative case-study of sixteen companies based at three American universities: University of Washington in Seattle, University of Maryland in College Park and University of Central Florida in Orlando. The case-studies were created by using multiple qualitative methods, such as semi-structured interviews, observations and the analysis of documents. The choice of methods allowed for methodological triangulation.

The effect of the study is the model of the strategies of building cross-cultural competence and increasing the potential of the multiculturalism within the organization. Our research suggests that multiculturalism in spin-off companies has a unique character, resulting also from their dual position within the academia and the industry. Since one of the most valued competences is the ability of the spin-off employees to apply knowledge from different fields and areas to solve new problems and create innovation, the higher levels of diversity are resulting in better performance. The cross-cultural competence is one of the most sought after abilities of the academic entrepreneurs and the model of the American universities is conducive to its development.

MULTICULTURAL ENVIRONMENT IN UNIVERSITY SPIN-OFF COMPANIES

The environment or context is the place where the teams, departments and organizations evolve. Organizational contexts include: competitive strategies, patterns of social integration, social climate and organizational culture (Jackson et al., 2003). As part of the management of cultural diversity, multiple devices can be set up to make the environment conducive. These include, among others, creating cultural synergies, intercultural cooperation and even the conditions for cultural learning (Loth, 2006). The proactive strategy tends to progressively replace the reactive approaches. It is increasingly accepted that the heterogeneity provided by the cultural diversity determines the efficiency of the organizations (Nkomo and Cox, 1996). Companies that promote diversity within them and are deemed by their diversity management are likely to attract best qualified employees (Carrel and Everett, 1995).

University spin-off companies provide also a ground for inter-sectors collaboration; encourage mobility and cooperation among faculties, students and business employees. Industry people share their wisdom and experience with university researchers and faculties and students have opportunity to be engaged entrepreneurial projects, and share their knowledge. Due to university spin-offs activities both groups learn from each other (Rasmussen, 2006). University spin-off companies foster an entrepreneurial spirit, stand linkages between industry and universities, and remain a platform for educating the skilled employees of the future (Gomez Gras et al., 2008). Much of the success of major system-building efforts derives university spin-offs' ability to bring together two diverse cultures: groups of researchers from universities and professionals from industry, and due to their commitment extend the innovations (O'Shea et al., 2008).

University spin-off managers promote cultural diversity recruit, retain, reward, and promote a heterogeneous mix of employees since the university spin-off ventures are established to exploit new research results, in which human capital plays an important role (Biswas and Bhowmick, 2012). Those innovative businesses accelerate the process of commercialization of research, combine market mechanisms and resources of higher education and accelerate the implementation of innovative solutions (Rasmussen, 2006). University spin-off companies remain important part of the new economy, are producers of the latest technologies and creators of new sectors of production. Play important role in the development of a knowledge society, design new networks and innovative environment (Benneworth and Charles, 2005). University spin-off companies meet requirements of "New Management Paradigm"; consideration of organization competitive advantage and empowerment of employees are their main features, furthermore are process-orientated, continue organizational changes. Belong to innovation ecosystem and are supported by institutions that stimulate and foster technology transfer (Rasmussen, 2011).

The concept of cultural diversity in university spin-off companies is both specific and contextual. Cultural diversity plays there a critical role at the international context (Reddy, 2011) and has become a pivotal topic of concern among managers, researchers, and policy makers. Their cultural diversity distinguish them from other companies especially in the context of academia and industry and has a significant impact on achieving organizational goals and competitive advantages (Nkomo and Cox, 1996).

There is substantial literature which argues that diversity in research-oriented companies base of talents generated by a gender-and ethnic-diverse organization becomes a priceless advantage since their creativity thrives on diversity, those companies are found to be better at problem solving, possess better ability to extract expanded meanings, and are more likely to display multiple perspectives and interpretations in dealing with complex issues and are less susceptible to “groupthink (Morgan, 1989). Multicultural organizations tend to possess more organizational flexibility, and are better able to adapt to changes (Rotter and O’Connell, 1982). Furthermore, are better suited to serve a diverse external clientele in a global market with the use of collective intelligence and knowledge can produce higher quality goods to meet customer needs more satisfactorily. Such organizations have a better understanding of the requirements of the social, political, legal, economic and cultural environments of foreign nations. In the long term, compared to homogeneous groups, culturally diverse groups are more effective both in social interactions at the level of job performance (Adler, 1991).

Diversity has also some drawbacks. A lack of culturally appropriate communication can create animosity and division between employees, leading to internal challenges that will hinder overall performance (Devine, 2007). According to Sheridan in problem-solving situations, unexpected costs in time and financial resources can negate the benefits of synergy, and may even degenerate into, Furthermore, diversity does not fare as well under conditions of uncertainty and complexity which may lead to confusion (Watson, 1993). Cultural diversity can be associated with lower levels of psychological identification with group members which would tend to detract from overall performance and result in adverse effects on productivity and absenteeism. Homogenous groups manage better communication issues usually in multicultural groups it is more difficult for everybody to make optimal contributions to the group effort (Tsui et al., 1992). Diversity can complicate to arrive at an agreement on a particular course of action, and can result in negative dynamics that can create work disadvantages for minorities. Traditionally, cultural conflicts between majority and minority group members are usually resolved in favor of the majority groups. Therefore it creates significant barriers to full participation by minority members (Edewor, 2010).

Therefore, the management of cultural diversity requires a type of organizational culture in which everyone can pursue a career unimpeded by race, nationality, gender, religion, or other factors which are not related to companies’ performance (Bryan, 1999). It requires establishing the means for diverse culture to be fully integrated in an reasonable workplace where no group is privileged over another (Torres and Brussels, 1992). The issue of cultural diversity has more perspectives; it is debated not only in business world but stands also a core issue to discuss by politics, sociologists, lawyers, teachers etc. (Williams and O’Reilly, 1998).

METHODOLOGY

Data was collected from sixteen start-up companies representing various industries: pharmaceuticals, biotechnology, medicine, chemistry, nanotechnology, and information technology. The start-ups were chosen as representative of academic start-up companies whose main focus is innovation, and therefore constitute a good sample for the study of multiculturalism in the context of academic spin-off. Choosing extreme cases is a strategy recommended in the literature (Eisenhardt, 1989; Yin, 2009) and lends itself to fulfilling the theory building goal of this paper. The final cases were chosen after initial analysis of the start-ups founded at three American universities: University of Washington, University of Maryland, and University of Central Florida.

Eisenhard argues that building a theory from case studies should include data collected by means of multiple methods (Eisenhardt, 1989). Three main methods were used (in accordance with the principle of methodological triangulation): interviews, observation and document analysis.

Ten high-level management figures were interviewed, including company founders, presidents, vice-presidents and managers. The interviews lasted approximately 1 hour and were recorded and written out in transcript form, with the transcripts coded for the main themes. We posed open-ended questions about the characteristics of management, <https://openaccess.cms-conferences.org/#/publications/book/978-1-4951-2110-4>

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team composition and the organizational culture of the company. The interviews were accompanied by observations from the CEO's and the team. Additionally we have analyzed documents, such as websites, press releases, job descriptions, etc.

THE CHARACTERISTICS OF MULTICULTURALISM OF THE ACADEMIC SPIN-OFF

Ubiquitous Multiculturalism

In the present study multiculturalism was pointed out as one of the main factors influencing the organizational culture in the academic spin-offs. All of the analyzed companies had diverse workforce in the context of ethnic and racial background, age, educational and work experience. However, it is important to point out the low levels of gender diversity among the academic spin-off, especially in the management of the companies. This situation is consistent with research on gender inequality in STEM fields and start-ups.

The employees of the spin-off companies have seen multiculturalism as an important element of the successful innovative process, but as an important factor creating larger innovative culture of the United States. They perceive the creativity as a process happening in-between worlds, so the multicultural organization is conducive to creating more creative outcomes. The CEO of the IT start-up company located in Seattle said:

“All the good ideas – from my experience – are happening on the boundary of two fields of knowledge or two sets of experiences. So the more you bump in the people who have different experience, the more sparking there is for new ideas [...]. That's where innovation comes from, when cultures collide and ideas collide.”

The CEO of the spin-off from medicine industry located in College Park stressed:

“The most important skill we need in order to develop and launch our product successfully is to exploit what I've got from one part to other parts of the world, which brings something innovative in the market”.

The important, systematic factor impacting the development of multicultural academic spin-offs is the mode of action of modern American universities. The widespread immigration of the academics to the USA has always been an important element of the American higher education system. There is a constantly increasing number of international students from all around the world. Since the universities are becoming more multicultural, the academic spin-off originating from the faculty and students are more diverse. The president of the chemistry spin-off located in College Park underlined:

“We are very dependent on our multicultural team [...]. It's our survival, the key to our success. It's very common for us to have one project team made up of professionals from all of our regions”.

Dimensions of Multiculturalism

Multiculturalism within spin-off companies is a complex, multilevel phenomenon. Two main dimensions, having the greatest impact on the mode of action of this type of companies, are individual-level diversity, including different ethnic and cultural backgrounds, age, religion, etc, and group-level diversity, resulting from the position of the spin-off companies in the model of technology and knowledge transfer. Spin-off companies play a role of the intermediaries between industry and academia, which manifests itself in the diversity of educational and employment experience of the employees of the spin-off.

The most important aspects of the individual-level multiculturalism, impacting the development of the spin-off companies, is the differentiation of the ethnic and cultural background and age groups of the employees. The ethnic diversity is resulting from larger, social trends, especially, the constantly increasing importance of multicultural universities. However, the growing importance of the age diversity within the spin-offs is characteristic to this type of companies. Founders or investors in the spin-off companies are often faculty members with extensive work and research experience, closer to retirement age or already retired.

The most important aspects of the group-level diversity is combining within one company people with different educational and work experience, in order to combine the best of the two worlds: the academia and the industry. This process is important to provide solutions that are scientifically important, technologically advanced, but at the same time applicable to the real problems and acknowledging the mundane issues, such as the need to less costly solutions to increase the scale of the innovation. In order to do that, the spin-off employees need to be able to adopt the business-oriented perspective. The CEO and investor in Seattle-based technology company explained:

“Unless you have a mechanism to look at all these great ideas [academic discoveries] with the background that let you project the market need to make an assessment of commercial value, unless you combine those two, you won’t have an effective technology transfer. Innovation by itself is nothing. “

The multiple perspectives are of key importance for the development of the innovation. Spin-off companies are composed of people from different fields within academia, but also different work experiences. The member of the management of the academic start-up noted about what is important to successfully manage an innovative project:

“I draw upon a diverse set of educational and work experiences. My major focus is developing a deep technical understanding and then working out how to communicate that understanding effectively to others. This is especially critical for a complex technology such as ours, we have found that we need to educate potential users on what they are doing now as well as what our technology would change. [...] My experience as an officer in the U.S. Navy flying from aircraft carriers is surprisingly relevant: gather data, plan a mission, execute in a disciplined manner, respond to rapidly changing situations decisively.”

The CEO while searching for new management team emphasized:

“In our company there is a huge need of innovative talent that can bridge the differences between multinational cultures facing very rapidly changing, fast moving environments our business is not definitely business as usual”.

The interviewed members of academic spin-offs shared the belief that in order to create a breakthrough innovation, one need to be located in-between the worlds. The employees of the researched companies have acknowledged the fact that those two worlds are significantly different and have different cultures and perspectives. The most important problem that academics and executives are facing while producing the innovation is being able to produce a solution that is applicable to the real world problem, efficient and economically lucrative. But at the same time academic are curiosity driven, taught to focus on the researched phenomenon, not the practical issues. The organizational learning and knowledge management are deeply dependent on group-level multiculturalism, as noted by chief scientific officer of one of the companies:

“The truth is indeed in academia you can stumble to very insightful solutions, discoveries. However most of academia is probably naïve in the sense how this can be converted in something usable. I would say academia plays bigger and bigger role in innovation, in practical, however the industry is way more important in bringing new products to the market. Again, academic occasionally results in very deep incredible insights that can be then developed to practical needs, however on average academics are not that useful from the practical perspective.”

THE DEVELOPMENT OF MULTICULTURAL SPIN-OFF COMPANY

Since the importance of multiculturalism is wildly agreed upon among the employees and managers of the spin-off companies, the strategies necessary to create an organizational framework allowing for maximizing the effects of the diversity of perspectives within the company is one of the key management issues. Spin-off companies adopt multiple solutions to increase the cross-cultural competence and knowledge exchange between the employees.

Strategies for the Development of Multicultural Organization

The strategies to create a highly innovative, multicultural company are oscillating around the ways to increase the multiplicity of perspectives. The first strategy is connected with human resources management strategies. The management of the spin-off companies focuses on hiring people with broad, but not necessarily deep knowledge.

They view the ability to apply knowledge from different areas to new problems as a more important competence and they look for this ability in their potential employees.

Second characteristics of the researched spin-off companies was maximizing the effects of the multiple perspective by creating a specific organizational structure. The studied companies had rather flexible, not hierarchical structure. Employees had worked in different, small teams focusing on different projects, which increased the scale of cooperation and the intensity of the knowledge transfer. CEOs were concerned with creating organizational culture based on values, such as openness to share ideas and opinions, open communication, truthfulness. Implementing such values might have led to mitigating of the effect of potential cross-cultural boundaries and conflict. One of the founders of a spin-off company and a former academic has underlined the importance of the acceptance of other people's ideas in his company:

“Everybody has a right to speak. If somebody has an idea, this idea is never shut down and that from day one was one of the things I really insisted on.”

Strong organizational culture also leads to other important outcomes in the presented companies. The employees have started to highly identify with the organization. The workers admitted they have worked longer hours, strongly believed in the project and that the work is an important part of their lives. Such strong identification with the superordinate category (the company) can result in less belligerent attitudes of the employees and more peaceful intergroup relations, which also ameliorates the risks connected to the multiculturalism. This phenomenon might be illustrated by the quote from the CEO of previously mentioned IT company:

“I think start-up companies tend to be fairly rigid [when it comes to organizational culture], which doesn't mean that they are generally intolerant. They are only intolerant of the deviation from the culture – and it could be things like: get your work done, be nice to other people, so on. [...] Its just we want you to be fully commit to the way we work here. I think start-ups are like that because people tend to work long hours, they are smaller groups, which means the culture tend to be more uniformed.

PROPOSED MODEL OF THE MULTICULTURALISM AND THE DEVELOPMENT OF ACADEMIC START-UPS

We argue that there is a connection between the diversity and the growth of the company, but the path of this relationship is not straightforward. The model proposed as a result of the study suggests the mediating role of the organizational characteristics, organizational culture and the type of innovation in the relationship between the multiculturalism and the development of the company.

Our research proposes that the organizational characteristics are allowing to maximize the effects of the multiculturalism observed in the spin off companies. The specific aspects of spin-offs – higher risk, uncertainty, larger workload, frustration with the lack of effects, but also sense of purpose, belief in the project, promise of the large compensation, all add to the creation of a specific organizational culture. Culture of spin-off is at the same time rigid, when it comes to deviation from cultural norms, and flexible when it comes to everyday work. The characteristics of the model of spin-off companies are conducive to creating radical forms of innovation (since the need to create something new and have an impact are the key motivators of the employees). The disruptive forms of innovation are better for the rapid growth of the companies, since they make it possible to compete with large players on the market.

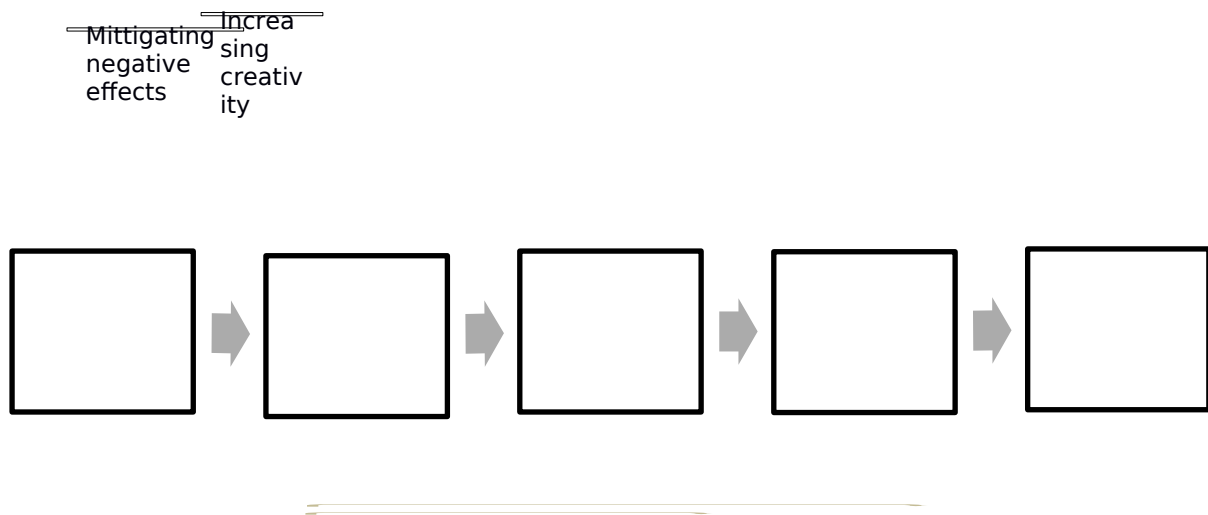


Figure 1. The model of the relationship between multiculturalism and the development of the spin-off

The proposed model of the intertwining effects of social and organizational components of spin-off companies is non-linear and multilevel. The strong organizational culture allows for ameliorating the negative effects of multiculturalism, such as lack of identification of the company, increase of conflict or problems with communication. The fact that the company is creating a radical innovation, or at least striving for it, allows for creation of a specific organizational culture, focused on common goal.

We argue that higher level of diversity – understood on both individual and group level will lead to different organizational values and will be conducive to more radical forms of innovation for academic spin-offs. It is important to underline the fact that in our view, spin-off companies differ from traditional forms of companies, located specifically on the industrial part of the knowledge transfer and the model of the relationship between the multiculturalism and the development of the company could not be applicable to them.

CONCLUSIONS

The multiculturalism is emerging as an important theme in the literature on innovation, but also on higher education. The diversity in the context of spin-off companies is a fruitful, yet relatively unexplored area of inquiry. The spin-offs have a specific role and position in the economy that can be illuminated by taking a closer look at the cross-cultural relations in the company. In this article we presented results of qualitative study aimed at exploration of the common themes in the spin-off companies that can lead to the increase of the understanding of the development of the spin-off companies, as well as the organizational environment conducive to multicultural and multi-perspective in group relations.

We are aware of the limitations to the present study. Because of the non-random nature of the collected sample, the results may not be representative of the entire population of companies. The study was designed as an exploratory analysis for discovering the relationships between variables and potential explanations for phenomena under consideration, resulting in the construction of a theoretical model. Further research should focus on empirically testing the theory proposed herein, taking into account a probability sample while controlling for industry, company size and its geographic location.

Another promising area of the future research is the analysis of the dark side of cross-cultural aspects of academic spin-off companies. It has to be acknowledged that apart from undeniably positive impact multiculturalism has on <https://openaccess.cms-conferences.org/#/publications/book/978-1-4951-2110-4>

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the development of the spin-off companies, there are also challenges that this type of companies might face. Since it has been shown in the interviews how important communication is for the success of the spin-off, communication problems resulting from the people representing different groups within the company might lead to obstacles. Another important issue resulting from the model adopted by the spin-off companies is the difficulty with some groups to enter the system. The striking gender segregation is the most obvious example.

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