

CHAPTER 36 

**OPEI - Workshop of Projects,
Entrepreneurship and Innovation:
A Multidisciplinary Experience**

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Abstract: The multidisciplinary teamwork is nowadays recognized as a challenge for innovation processes and also a necessary action. The University needs to include the multidisciplinary teamwork teaching approach into different levels, from undergraduate students to doctoral students, in order to improve value proposition thinking and wealth generation to society. In view of this situation, the aim of this article is to present an ongoing experience called OPEI: “Oficina de Projetos, Empreendedorismo e Inovação”, which stands for

“Workshop of Projects, Entrepreneurship and Innovation”. The OPEI class has been developed since 1st semester of 2016 at UFMG, with the participation of five professors from different areas: Industrial Engineering, Electrical Engineering, Physics, Business, and Biology. There are also active participation and academic contribution from undergraduate and graduate students, from different knowledge areas. This experience integrates not only students from different fields, but also faculties as well. Furthermore, this course connects the students with the local entrepreneurship ecosystem in the early stages of their project. This report includes each phase of class development: planning, execution and evaluation. We investigate the impact of this multidisciplinary class in student’s change of mindset, once they are exposed to innovative environment at both, the University and local entrepreneurship ecosystem. This teamwork experience also shows opportunities for student’s formation improvement in the innovation and entrepreneurship concepts. We develop the OPEI’s case study on a qualitative basis conducted with the use of a mix of methods and procedures: interviews, local observation and analysis of the student’s evaluations classes. The analytical method also includes content analysis. The results show how OPEI team is being translating multidisciplinary complexity into simplified and objective actions and content, adequate to its also multidisciplinary public, which spans students from dozens of knowledge courses and undergraduate freshmen to graduate students interacting at the

same class. The results presented are intended to provide subsidies to other similar teaching experiences on the innovation and entrepreneurship subject, recognized as necessary for quality of life improvement in society.

Keywords: Multidisciplinary Teaching, Innovation, Innovative environment, University, Entrepreneurship.

36.1 Introduction

This article presents the ongoing experience at UFMG of creating a multidisciplinary discipline offered by professors from different areas of knowledge, called "Workshop of Project, Entrepreneurship and Innovation - OPEI". The OPEI class has been developed since 1st semester of 2016 at UFMG, with the participation of five professors from different areas: Industrial Engineering, Electrical Engineering, Physics, Business, and Biology. The OPEI is an elective discipline for undergraduate students of UFMG and aims to awaken the entrepreneurial conscience of the students, promote teamwork, develop a critical eye on everyday problems and break the barrier that exists for the transformation of ideas into perceived value, in future new business. The key points will be taken into account during planning, execution and evaluation of OPEI class. We also pinpoint some actions that were required as to establish part-

nerships with important actors of the entrepreneurial ecosystem. This article also brings concepts and tools for ideation processes and validation of ideas, problem solution validation, product-market fit, development of new business models, agile and corporate management, people management, prototyping and communication of new ideas and products.

36.2 Theory Development

36.2.1 The multidisciplinary teamwork

High performance teams are typical formations of modern organizations¹. Although there is a lot of information available about people management, little knowledge is disseminated on effective practices and the impact of the active sharing of experiences and knowledge that enables a superior and innovative performance of certain teams. Therefore, modern organizations must rearrange themselves internally in the search for results improvement and track the factors external to the team that can affect the business, in order to meet the diverse demands of the market and to remain competitive and innovative. In a global competitive environment, changes are rapid and teams cannot be believed to be stable². The multidisciplinary teamwork involves different skills, experience and background of people working together to solve some problems or to build something new. The divergences are normal in the construction

of a teamwork and play an important role to foster the diversity and different viewpoints that will contribute to innovation.

36.2.2 Teaching innovation and entrepreneurship at university

Teaching in higher education happens each day more and more with the two way transfer of knowledge between students and teachers in the classroom. In the analysis of changes from the traditional teacher-centered education for the progressive student-centered Education,³ presents the benefits to consider the student as the focus of all the knowledge transference. The way in which a university should work in the preparation for a career is by promoting the imaginative aspects considering the various general principles underlying that career and promote the experience for the students in the academic environment⁴. Therefore, the combined interaction of the teacher, the students and the environment in which the transfer of information between them takes place is relevant for the results in the learning process⁵. Thus, this research proposes the investigation of the question: "Which are the key points for planning, execution and evaluation to build an effective multidisciplinary class capable of impacting the innovation and entrepreneurship student's mindset?" The hypothesis is: H1 - The key points chosen during OPEI class will be effective to impact students mindset and connect them to the innovative environment

and to influence students behavior and their demands during the semester.

36.3 Methodology

Considering the objective of this research Case Study methodology was used.

36.4 Data analysis and Results

The data was collect during the three phases of the OPEI class development: planning, execution and evaluation. The OPEI class had 80 students enrolled in the first semester of 2016 from seventeen different undergraduate courses and 82 undergraduate students enrolled in the second semester of 2016 from nineteen different courses. The OPEI's planning phase involves some key points: definition of programmatic content, the activities and games to be applied during the classes and evaluation methodology. The challenges were the communication and the process of knowledge transfer. The evaluation of the discipline external agents were invited for examining the final presentations, the pitch. The online satisfaction survey of the discipline showed that 42 undergraduates students enrolled were satisfied (84 % positivity). In order to understand the student's perceptions about the most relevant topics in the online survey we investigate, by giving some words and asked to choose the

five that they consider most relevant in the context of the topics covered by the contents during the semestre. The results confirmed the H1.

36.5 Conclusion

The focus of this paper was to present the experience of the multidisciplinary OPEI class and the main learning points. The discipline class-hours in 2017 went from 30 hours to 60 hours, due to a demand of the students for a deeper content and practice. The evaluation phase had some changes to make possible the discipline to contemplate individual activities. In addition, the leadership, decision making and autonomy of the students were areas of improvement worked and already implemented. In this way, this experience made possible an innovative environment both in a public University and in the local entrepreneurship ecosystem. This multidisciplinary teamwork experience also shows opportunities for student's formation improvement in the innovation and entrepreneurship concepts. The results presented are intended to provide subsidies to other similar teaching experiences on the innovation and entrepreneurship subject, recognized as necessary for quality of life improvement in society.

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