

***Interdisciplinary Approach to Student Exchange:  
The Case of ITMO University***

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**Abstract**

Interdisciplinarity and arising from it an interdisciplinary study approach have long been known to positively influence the science and innovation evolvement. Being a response to the global market demands, interdisciplinarity encourages higher education to revise and modernize curriculum plans which are still placed within borders of one discipline. As the result, higher education institutions are gradually implementing interdisciplinary programs and nurturing the generation of global citizens who possess and utilize professional competences, skills and knowledge at the cross-section of disciplines. The paper includes a literature review of an interdisciplinary approach exercised by leading world higher education institutions and, in particular, by ITMO University, Russia. Furthermore, it demonstrates the application of this approach upon the practice of a student exchange. The choice of ITMO University is advocated by its increasing emphasis towards interdisciplinarity at the master's level and elimination of background requirements for a student admission. In the paper framework, an interdisciplinary student exchange is viewed as an applicable platform for attending courses from a different discipline, and is asserted to facilitate a prudent choice of a professional track and students' competitiveness in the labor market.

**Keywords:** Interdisciplinary approach, Interdisciplinarity, ITMO University, student exchange

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## **Introduction**

Since knowledge is considered to be the most significant world-wide value and the main engine of progress, the vast majority of the countries in the global arena endeavor to respond to this challenge via education area. Nowadays, the Higher Education Institutions (HEIs) have come to the fore and play one of the most important roles in searching for solutions as they are responsible not only for establishing of knowledge but also for serving the new economic system as well as new international order (Panibrattsev, 2014).

According to Humburg & Van der Velden (2017), the analysis of the up-to-date global socioeconomic trends discloses the following features: increasing uncertainty, information and technology (ICT) revolution, high performance workplaces, globalization and the change of the economic structure. These features have a strong impact on skills that should cater for the demands of the 21st century and respond to the current global circumstances. The compilation of competences includes professional expertise, flexibility, innovation and international orientation (Humburg & Van der Velden, 2017). It can be concluded that, from the perspective of skills, the role of graduates' has undergone a qualitative transformation.

## **Interdisciplinarity**

Within the context of the transformation, interdisciplinary approach can become an appropriate solution to better facilitate the mentioned socioeconomic trends. ICT revolution forces cutting-edge technologies to evolve rapidly; therefore, innovation has become the cornerstone of the process. Humburg & Van der Velden (2017) state that creating of innovations require not only broad academic skills including basic analytical and critical thinking but also the ability to overcome disciplinary borders to consider other perspectives. Basically, a significant part of current innovations is located on the periphery of disciplines therefore successful teamwork of specialists from different fields is partly supported by interdisciplinary knowledge (Humburg & Van der Velden, 2017).

While discussing working in teams, there is a need to highlight the necessity of making shared decisions, a joint search for solutions and assessing work of each other. The statement is based on the analysis of the European context by Felstead et al. (2007), Allen et al. (2011), and Miles and Martinez-Fernandez (2011). Furthermore, it is advocated that teammates who come from different disciplinary backgrounds should undertake a preliminary educational insight into each other's sphere in order to provide more qualified assessment and authoritative opinions while working on one project.

Another role of the ICT revolution is marked by the emergence of high performance workplaces which require wide range of competences and completion of multiple tasks (Humburg and Van der Velden, 2017). According to the research carried out over the past 20 years, organizations which integrate high performance work practices have been discovered to have higher effectiveness and better financial indicators (Appelbaum et al. 2000; Bartel, 2004; Black & Lynch, 2004).

To sum up, all the above mentioned skills generated by the trends of the 21st century can be formed during interdisciplinary studies. In the paper by Nissani (1997) the studies are defined as a course that involves the combining of two or more academic disciplines into one activity which can be either a cooperative research or a group project. Interdisciplinarity serves to seek solutions for complex problems that affect various scientific spheres.

According to Vincenti (2001), interdisciplinarity stimulates academia to advance curricula correspondingly. In order to meet the demands in specialists capable of managing interdisciplinary tasks, HEIs are launching interdisciplinary courses, short-term programs, bachelor's and master's degrees which cover several disciplinary fields. For instance, the University of Essex, the UK, runs an Interdisciplinary Studies Centre which allows students to opt for modules from across subjects in humanities and social sciences and receive learning experience from professors from various departments. Another example accounts to the faculty of management and law at Bradford University, the UK, that is in the process of eliminating departmental division. Moreover, interdisciplinary research centers promote cooperation between faculty and students, and facilitate the connection between teaching, learning and research.

### **Case of ITMO**

Realizing that the future of innovations is laid at the cross-section of scientific fields, ITMO University took an international interdisciplinary path several years ago. Firstly, there were established Master's interdisciplinary programs, the vast majority of which nowadays are already considered as a natural combination. Bioinformatics, which requires knowledge of Biological Sciences as well as Programming and many others might fall into this category. However, ITMO went further and launched creative interdisciplinary studies that combine two extremes, for instance, Lighting Design (Optics & Design), Data, Culture & Visualization (Programming & Humanities) and Art & Science. It should be added that Art & Science at ITMO University is the first program which was set in Russia and also, due to it, ITMO is in Art & Design top-200 by QS Subject Ranking in 2019.

Secondly, this extraordinary synthesis demanded ITMO to eliminate background requirements for a student admission. As the result, designers, architects, historians of art, linguists meet programmers, engineers, physicians, biologists at one classroom and since there are no limitations, it is predicted that more unexpected combinations are yet to come. Moreover, the Data, Culture & Visualization program is a brand new program at ITMO. The decision to open it in upcoming academic year was rationalized by the high demand among students in interdisciplinary studies.

Lastly, it is of a prime importance to stress the fact that it is obligatory for students of all level of studies to attend at least 6 ECTS from a different discipline. In this sense, ITMO University realizes necessity of interdisciplinarity and integrates it in at different levels of the educational process.

### **Interdisciplinary student exchange**

In order to meet current globalization tendencies, HE institutions (HEI) not only transform their curriculum but also commonly utilize student exchange as an

internationalization strategy by initiating exchange agreements with partner universities (Altbach & Knight, 2007). These agreements enable students to undertake a study program at a host university as a part of their degree without tuition fees increase. As a general, exchange period can last for either one semester or for an academic year.

Student exchange is widely argued to positively impact universities' international outlook, academic outcomes, students' career perspectives and personal qualities (Doyle et al. 2010). From the institutional respect, sufficient international student exchange strengthens HEI's positions in the world university rankings, and, therefore, facilitates their competitiveness in the global educational arena. From the educational respect, long-term exchange lasting for at least three months is advocated to improve student academic performance (Hansel & Grove, 1986; Dwyer, 2004), quality of learning (Severiens & Wolff, 2008), and to evidently develop students' individual human capital that is essential for entering professional fields (Messer & Wolter, 2007). Moreover, student exchange has been researched to enhance students' soft power qualities such as communication and adaptation skills, and ability to work in a team (Atkinson, 2010). Hutteman et al. (2015) also underline the importance of the exchange experience for the students' positive personal development and self-esteem.

The paper argues that student exchange further can serve as a platform for an interdisciplinary experience and an important stage to acquire knowledge and skills at the cross-section of different disciplines in a fast and productive way. Firstly, internationalization is interdisciplinary since it unites knowledge from multiple disciplinary fields in order to create new and more comprehensive ways to understand global tendencies and phenomena (Childress, 2010). Secondly, according to Vincenti (2001) and Fleischmann and Hutchison (2012), international experience shows positive impact upon advancement of interdisciplinary competences. Moreover, unfamiliar social, academic and research environment can facilitate flexibility, faster knowledge and skills acquisition, and, therefore, expand both students' learning and professional proficiency (Gerner et al. 1992).

Therefore, it is proposed that students who spend a semester or an academic year at a host university can benefit from joining peers studying another major. Even a semester-long insight into curricula of another academic program abroad is asserted to be significant for forming students' professional interests and priorities, and increasing cognitive abilities (Dwyer, 2004; Nunan, 2006). Moreover, Vincenti (2001) argues that qualities and skills necessary for specialists in interdisciplinary fields can be compared to those qualities and skills that are advanced or increased during international and multicultural experience.

## **Conclusion**

Nowadays, national states are to establish educational institutions which best uncover creative abilities and innovative environments and which contribute to economic development (Crouch, 2005). Positive impact of interdisciplinary approach exercised by leading world universities and in particular by ITMO has inspired the authors of the paper to offer another innovative approach which accounts to application of interdisciplinarity upon student exchange. The paper restrains from offering a manual on how to correctly implement changes into the current HE system and allow

interdisciplinarity during a period of student exchange. Instead the paper presents an innovative idea supported by current researches on how HEIs can better adapt to global tendencies today (Humburg & Van der Velden, 2017). Moreover, profound efforts are to be done by home and host HEIs to revise and match own administrative rules, study programs and curriculum in order to offer exchange students an individual interdisciplinary study path. These changes should be supported by further researches in the sphere of the interdisciplinary approach and interdisciplinary student exchange.

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