Internationalization of Technology Education in National Research Tomsk Polytechnic University

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ABSTRACT

This research investigates the internationalization of Master of Information Technology (MIT) education in National Research Tomsk Polytechnic University (TPU). Through a conducted case study about a course (also known as a subject or a unit) specially developed and delivered by a foreign researcher-teacher for the internationalized MIT program, it investigated how TPU approached internationalization of MIT education, why the approach was adopted and how TPU overcame the challenges in internationalizing their MIT programs (offered in two languages) and curricula. The research adopted a qualitative case study research method, which involved the data collection techniques such as survey, observation and documentations. Ten MIT program students were involved in the course delivery. The research team observed how the MIT program worked, how the students learnt from the specially provided course by a foreign researcher-teacher in the MIT program, the challenges and difficulties in the delivery of course learning, and how they were overcome. The results indicated that the students were highly satisfied and greatly benefited from the specially developed course in their internationalized MIT program.

Keywords: Case Study, Course Development, Information Technology Education Internationalization, Internationalized MIT Program, Teaching and Learning Challenges

INTRODUCTION

National Research Tomsk Polytechnic University (TPU) is the oldest engineering university in Russia. It celebrates its 120-year anniversary in 2016. Today, TPU is one of the best universities in Russia according to the ranking of the Ministry of Education and Science of the Russian Federation. It is a participator of the Project 5-100. The goal of this Project is to maximize the
competitive position of a group of leading Russian universities in the global research and education market (The Ministry of Education and Science of the Russian Federation, 2015). Times Higher Education (THE) published a new ranking of European universities in March 2016, in which Tomsk Polytechnic University was ranked in the group of 131-140 (Bothwell, 2016).

In the report of Times Higher Education World University Rankings 2015-2016, TPU has a position in the group of 251-300 (Times Higher Education World University Rankings, 2015). In this same ranking, TPU is the third Russian university positioned after Moscow State University and Saint-Petersburg State Polytechnic University. This result is largely due to TPU’s internationalization policy.

On 5th April 2011, the Academic Council of TPU adopted the mission “To contribute to Russia’s prosperity through the internationalization and integration of research at the highest international levels of excellence”. Particularly, TPU aims to achieve in advanced engineering education, training of engineering elite, generation of new knowledge, innovative ideas, and creation of resource-efficient technologies. Among all programs, Master of Information Technology (MIT) program is a priority educational program in TPU’s magistracy. To date, every second student in Russia considers engineering education as the most prospective. It was a strategic approach to develop TPU into a research university to improve its competitiveness. It is a strategy for TPU to transform in order to produce more better-benefited graduates and post-graduates. To implement the strategy, the masters and other post-graduate programs were actively re-developed. The redevelopment is of high necessity, as it would attract not only post-graduate students from Russian universities, but also from foreign universities. Over 15% of the educational programs in TPU will soon be delivered in English language. Therefore, another strategy is to attract more foreign teachers-researchers. Considering all of the above, it requires some different approaches and the changes to the forms of educational process. For examples, TPU started networking between universities around the world using mixed forms of learning in Russian and English languages, using Internet technologies and, if possible, implementing face to face classes with foreign specialists.

This research specifically explores how a course “System Analysis” delivered by a foreign researcher-teacher fit into the MIT program. It also investigates the challenges that TPU could possibly face and how they could overcome the challenges or difficulties in internationalizing their MIT program in two languages and the curricula. This research article presents a case study related to this particularly selected English-language course “System Analysis” as a part of the MIT program developments. The research adopted a qualitative case study research method. The case study investigated the technology education development for Master of Information Technology (MIT) program in TPU. The research specifically examines a course ‘Systems Analysis’ as a small part of MIT program development (in Russian-language, English-language or both languages) by engaging an invited Australian university academic as a foreign researcher-teacher from Central Queensland University, Australia, to co-plan, co-develop, and co-execute the teaching delivery of a course (or subject). The research investigates whether there were challenges, how the challenges were overcome and whether the students achieved the planned course learning outcomes as an additional component to MIT program. Before the course could be conducted to test whether the redevelopment benefit the students, the course was collaboratively and actively planned, designed and developed involving both TPU staff and the foreign researcher-teacher.

Many special careful considerations were given to the selection of students with English language abilities, skills to understand the lectures, abilities to complete their tutorials work, and needs for teacher-student consultation or extra help.

Ten students from the MIT program, selectively chosen by the MIT Program Director together with Academic Department Institute of Cybernetic TPU, were to attend the course to obtain the
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