Interdisciplinary studies in higher education; Student centered summer schools of “YTU – BEST”

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Abstract

Today in higher education, students are one of the pioneers of new responsibility shareholders formed by the reflection of globalization. As one of the responsibilities to increase the awareness on education issues and to gain knowledge through experience, students constructed an organization “Board of European Students of Technology (BEST)”. Throughout Europe, BEST supports interdisciplinary studies since 1989. Three summer schools of Yildiz Technical University BEST will be discussed in the sense of interdisciplinary study examples to evaluate the contributions of student centred education on student’s individual and collective learning styles, participatory design techniques and practices.

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1. Introduction

Today as globalization progresses as a significant theme, there are considerable and continuous changes not only in education, but in numerous fields. Development of information technologies, increase of communication possibilities between individuals and countries are important elements triggering this change. Individuals can improve themselves by keeping up with this change. As a reflection of globalization, boarders are becoming blurry, new specialties and responsibilities with new shareholders are formed. In higher education, students are one of the pioneers of these new responsibility shareholders (ed. Spiridonidis, C., Voyatzaki, M., 2011).

In this context, throughout Europe, students constructed a non-profit and non-political organization Board of European Students of Technology (BEST). Since 1989 BEST provides communication, co-operation and exchange possibilities for students all over Europe in a triangle of student-company-university. “91 Local BEST Groups (LBGs) in 30 countries are creating a growing, well organized, powerful, young and innovative student network” supporting interdisciplinary studies.

In this paper, three summer courses of Yildiz Technical University BEST will be discussed in the sense of interdisciplinary study examples to evaluate the contributions of student centered education on student's individual and collective learning styles, participatory design techniques and practices.
2. BEST and Yildiz Technical University BEST

BEST, Board of European Students of Technology is a voluntary, apolitical, non-profit, non-representative international association of European students of technology. The vision of BEST is “empowered diversity; people understand and respect different cultures and societies. The environment of empowered diversity supports people in applying their full potential and acting responsibly”. And their mission is “developing students; BEST helps students to achieve an international mindset, to reach a better understanding of cultures and societies and to develop the capacity to work in culturally diverse environments. BEST creates opportunities for personal development of students and supports them in reaching their full potential”. The priority is to offer high quality services by bringing all the partners; student-company-university closer with the BEST spirit. Flexibility, friendship, fun, improvement and learning are the inspiration for all BEST activities.

- **Flexibility:** seek the ability to make changes and deal with changing conditions, raise the ability of being mobile, respond to changes in the environment or any other obstacles that is faced.
- **Friendship:** build good relationships in which people help, support and care for one another, value good personal relations and teamwork, focus on each person involved in activities, create synergy.
- **Fun:** strive to make activities enjoyable to everybody, act with passion and share this passion with people around.
- **Improvement:** continuously improve the standards, use all creativity to enhance the work.
- **Learning:** gain skills and understanding through experience, learn as much as possible from every aspect of the work, encourage personal development and create an open learning community.

Throughout the year BEST organizes different activities where students from member universities get the opportunity to increase their international experience, establish contacts, improve their English and have fun. Each BEST event is attended by 20-30 students. The core activity is a complementary education where a significant added value brought to the education provided by the universities. The other activities are providing career support and increasing educational involvement.

There are Seasonal events such as BEST Courses, BEST Events on Education, BEST Seasonal Engineering Competitions and BEST Leisure events. Moreover there are European BEST Engineering Competition (EBEC), Local, National and Regional BEST Engineering Competitions (www.best.eu.org).

A group of student from Yildiz Technical University (YTU) established BEST as one of the university clubs in August 2008. YTUBEST was the third BEST established throughout the Turkish Universities. Since 2008, YTU BEST has organized Regional Board Meetings, BEST Leisure events, Local and National Engineering Competitions, National High School Competitions and Summer School Courses. YTU BEST organization held the international summer school courses - "Built Your Dream Stage 2009", “Tape Istanbul: Create the Short film of European Capital of Culture 2010" and “Sense Istanbul: Photographic it, expound it 2011”.

3. Summer School Courses of BEST

A BEST course must aim to provide new knowledge or skills for participants and be taught by professional people. For ten days the participant gains new skills in a new cultural environment with a team of local students. The general criteria that a BEST Course should fulfill are;

- Duration of 10 days including arrival and departure days
- Attendance of 20-30 students from different universities
- Free accommodation, meals and transportation throughout the course
- A set theme for the course
- Lectures covering the topics of the theme given by the host university’s teaching staff and / or other experts from companies
ECTS credits in recognized courses at the end of an exam that is designed to evaluate the participants’ success
An evaluation questionnaire answered by the students

In this paper, three summer school courses of YTU BEST will be discussed in the sense of interdisciplinary study examples to evaluate the contributions of student centered education on student's individual and collective learning styles, participatory design techniques and practices. The main focus on these courses was the engineering students’ learning styles. As mentioned in studies of Rowe (1987), Voordt and Wegen (2005), vertical and lateral thinking were two different approaches to a problem solution. According to Zeisel (1995) engineering students study on problem-focused solutions as to art and design students study directly solution oriented. Thus the hidden agenda of these courses is to bring round the cognitive synthesis and highlight creativity. In the context of BEST mission, vision and spirit, the scope and objectives of these summer school courses can be summarized as;
• to adjust interdisciplinary study,
• to promote group work,
• to bring together different cultural backgrounds,
• to give wider point of views,
• to improve communication techniques.

According to these objectives, all three courses of YTU BEST had the same scheme / outlines;

• A city rally in which the students explore one chosen neighborhood by following the clues they were given,
• At least 2 lectures outside the classroom helping students understand the city accompanied by the teaching staff
• Lectures about the chosen theme in the campus
• At least 2 days of teamwork
• Presentation of the team projects

3.1. Build Your Dream Stage, 26 June – 6 July 2009

In this summer school course the main goal was to change vertical thinking of an engineering student by focusing on a designing issue. 20 students were asked to create a small-scaled stage for a well-known enterprise that will have a spot at a rock festival. To help students solve this design problem, five lectures were organized. First lecture was organized in the historical peninsula about the stages of Istanbul throughout the history. While talking through the historical gathering spaces, students were also informed about the general history of Istanbul. In this lecture the students discovered the city with professors. The second outdoor lecture was in a boat on Bosphorus. It was focused on the contemporary concert spots of Istanbul enjoying the day full of Bosphorus architecture. Architectural history professors gave these both lectures. After getting informed about the general notion of Istanbul, the theoretical lectures were given. A professor from department of architecture made a design problem presentation, focusing on lateral thinking through architectural design elements. A professional DJ and radio broadcaster was invited to give a lecture on “how a stage should be”. And the last lecture was about the acoustical conditions of the stage given by a professor from building physics unit. As the client, the manager of the well-known enterprise made a briefing about their needs for the stage.

From 15 different countries, 21 students started working on their dream stage. Their disciplines were;
• Aerospace/Aeronautical Engineering
• Architecture
• Computer Science/Automatic Control/Informatics
• Civil Engineering
• Electronic/Electrotechnical Engineering
• Environmental and Territory Engineering
• Industrial Engineering
• Rural and Surveying Engineering
• Transportation Engineering
To promote teamwork, students were divided into groups considering each team has one architecture student. During the teamwork days, 2 professors from architecture were advising the designs. As an exam, the students had a final presentation. The tools of presentation were digital or analog drawings and physical models. After the group presentations, five professors gave critics and evaluated the success of the final product.

3.2. TapeIstanbul: Create the Shortfilm of European Capital of Culture 2010, 19-27 June 2010

Istanbul was selected as the European Capital of Culture in 2010. The cultural layers, diversity, chaos and the incredible history of Istanbul were the attraction point. In its own right, perceiving such a cosmopolitan was a problem. From this point of view, the main theme was based on this problem; creating a shortfilm of Istanbul. Istanbul is famous with many things but the summer course focused on;

- Animals,
- Vehicles,
- People and
- Spaces of Istanbul.

In this summer course general Istanbul presentation and the themes of the short film were given before the city rally so that the students would understand the city through these subtitles. A professor from Art and Design Faculty, Photography and Video Department gave lectures about how to write a script, how to shoot a film and the history of short film. From different disciplines 22 students of 16 countries attended the summer school course. Their disciplines were;

- Aerospace/Aeronautical Engineering
- Architecture
- Chemical Engineering
- Civil Engineering
- Computer Science/Automatic Control/Informatics
- Economics/Business Administration/Marketing
- Electronic/Electrotechnical Engineering
- Environmental Engineering
- Industrial Engineering
- Multimedia and Communication Design
- Telecommunications/Electronics

Students had one day for writing a script in a boat on Bosphorus, two days of shooting the film in three chosen neighborhoods and half of a day for the montage at the university. As the final presentation, the shortfilms were watched in the closing night. The critics about the short films were given afterwards via e-mail.

3.3. Sense Istanbul: Photograph it, expound it, 15-23 June 2011

The summer school course is focused on how to feel the city and express these feelings through photography. A professor from faculty of architecture and a well-known editor gave the basics for photography and presentation techniques (mostly through photoshop files). Students were asked to take snapshots of portrait, still life and landscape. The program contained two company visits. First one was to an intense photography agency working for advertising and press. The visit helped students to understand how professional photographers work in business. Second visit was to a tile company showroom where students had the chance to take snapshots of still life, objects. For landscape photographs, the boat trip on Bosphorus was a fundamental day. There were 21 students from 16 countries attending the course. Their disciplines were;

- Aerospace/Aeronautical Engineering
- Architecture
- Civil Engineering
- Computer Science/Automatic Control/Informatics
- Economics/Business Administration/Marketing
- Environmental Engineering
- Genetic Engineering
• Industrial Engineering
• Mechanical Engineering
• Multimedia and Communication Design

For the final segment of the summer school course, the photographs taken by the students were presented at an exhibition on the faculty hall. Two professors attended these presentations, giving critiques and making the final evaluation.

4. Conclusion

Interdisciplinary and student-centered studies are supportive activities in terms of improving students’ individual and collective learning techniques. These studies widen students’ perspectives on the approaches to a problem from different disciplinarians. All students participating in three summer school courses observed learning styles in different disciplines and learned to work with them to achieve a solution for a design problem. They had to use lateral thinking instead of vertical thinking which is the skill gained throughout their formal studies. From this point of view interdisciplinary studies in higher education will provide a multi-dimensional platform where students will gain skills, understand through experience and create an open learning community.

References


