FEBS Workshop on Molecular Life Sciences:
Training Tomorrow’s Scientists

To determine first learning experiences with team-based learning (TBL) at Izmir University of Economics, School of Medicine. Within this aim, the following objectives were formulated:

1) Apply TBL for integration and review of the concepts and principles related to the Cell
2) Assess the students’ view of the TBL activity
3) Compare the effectiveness of Group readiness test versus Individual readiness test
4) Evaluate the whole activity and draw conclusions on how to make it more effective

Materials and Methods: This pilot study involved 35 (out of 38) students of the first-year medical school. The trainers were six faculty from the disciplines of Medical Biochemistry, Histology and Embryology, and the TBL topic mainly involved “the cell”.

This activity was planned complying with the main strategies and methods of a TBL activity, with some modifications, involving whole group discussions and feedback. The applied activity comprised the following steps:

1. Individual Readiness Test: This test was taken by all students individually.
2. Group Readiness Test (Working in Teams): The class was assigned into 8 groups; the groups discussed the questions again, this time within the teams, and took the same test all together.
3. Discussion of the answers with the trainers (Whole class): The correct answers were discussed all together (Whole class)
4. Application Exercise: Vignettes (short clinical cases involving the information given during the whole course) were discussed within the 6 groups (teams).
5. Discussion of the vignettes all together (whole class, with the trainers)
6. Feedback: Oral and written feedback was received. The written feedback forms were structured with open ended questions. 22 Students out of 35 (63%) filled-in this questionnaire.

Results: According to the results of the questionnaire and the oral feedback, the students had a positive experience with TBL and found it valuable and worthwhile. Students enjoyed working in teams. The main issues appreciated were: Discussion within the teams, repeating what has been learned, filling out tables, reviewing, and brain storming. The suggestions of students to the question “What could be improved for the next time?” were as follows: “maybe we can choose our groups”, “we need more time to answer the questions”, “easier cases for the application exercise would be more helpful”, “filled-in tests could be returned to us”. Students found both the “individual” and “group readiness tests” useful, though there was more interest in the “group readiness tests”. The application exercise was found to be useful by 90 % of students who answered. Comparing the results of the Group Readiness tests with the results of the individual readiness tests, it was found that there was, on the average, %80 increase in favour of the Groups Readiness tests.

Conclusion. TBL is an effective teaching strategy to simulate the reality of health professions where practitioners are required to work in a team. The results of this pilot study suggest that TBL has an enhancing effect on the students’ learning outcome. Further investigations are needed to confirm these results. We suggest that TBL can be used to integrate/review the concepts’ information learned and enhance the learning process. TBL could be offered more frequently both in basic and in clinical courses of a medical curriculum.

PP-019
3D MODELING FOR REALISTIC TRAINING AND LEARNING
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Background: Three-dimensional reconstruction and modeling techniques based on computer vision have shown significant progress in recent years. The rapid development has created a new learning and teaching tool for medical education. Patient-specific models, which are derived from the imaging data set and are anatomically consistent with each other, are important for the development of knowledge and skills.

As 3D printing technology evolves and costs fall, there will be a choice of material and printer options for the weight of the original model and full color printing. Thus, models compatible with anatomical structure and tissue will be created.

3D modeling and importance
3D printing has emerged as an innovative way to help surgeons implement more complex procedures. Some anatomical variations and pathological changes in the clinical tables, where postoperative complications are common, make the problem more complex, challenging and patient specific. In addition, the disease process and the condition of the disease cause the disease to vary in different individuals. In this case, it is important that physicians are trained by techniques that remove the limitations of current training modalities. Recent studies have shown that 3D modeling is a powerful tool for pre-operative planning, proofing, and decision-making. 3D models have excellent potential for alternative interventions and surgical training on both normal and pathological anatomy.

Results: 3D printing is an attractive, powerful and versatile technology that has the potential to be accessible to those interested. Patient-specific models can improve performance and improve learning faster, while improving the knowledge, management and confidence of trainees, whatever their area of expertise. Physical interaction has proven to be the key to gaining the necessary motor skills for surgical intervention.

Key words: 3D printing technology, medical education, learning, surgical training

PP-020
CHALLENGES RELATED TO THE EDUCATIONAL MODELS APPLIED IN MOLECULAR MEDICINE EDUCATION IN DIFFERENT UNIVERSITIES
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Although Molecular Medicine existed since the beginning of Molecular Biology, i.e. the mid of the last century, it experienced a kind of a “revolutionary” development and elaboration in the last decade. Beside the pioneer university that teaches this discipline at undergraduate and graduate levels, the number of universities offering the course increases annually however there is a relative difference in curricula offered by each institution. One of the landmarks in this type of education in Europe is the ORPHEUS network of universities. Beginning was in the provision of biological knowledge related to medical education which ended later into an independent discipline of science.

This is a qualitative analysis work. Here, we will highlight and discuss the potential impact of the acquisition of the molecular medicine students from other institutions on the teaching experiences and quality of knowledge acquisition. Among these experiences are; the use of the 3D models to describe 2D biological and biochemical structures and pathways, learning of developmental biology, molecular diagnostics, genomics and personalized medicine curriculum development, lessons learned from the teaching of cytology in European institutions and the integration of the non-invasive molecular imaging into molecular medicine.

The lessons derived from these experiences can help us to further develop or enhance the capacities related to the teaching curricula taught currently in part to be more effective.

Keywords: molecular medicine; education; educational models