

# Challenges and opportunities in remote teaching, learning and assessment of undergraduate mathematics

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Almost all teachers spent 3 semesters teaching remotely. The triad teaching-learning-assessing (TLA) has been provoked. Pedagogical challenges have been inevitable: innovative learning resources containing different ways and prototypes - to help students grasp the material acquiring essential knowledge and skills, had to be delivered. Visualization and step by step technique proved to be helpful for effective teaching and learning. Interactivity and non-assessed assignments appeared to be necessary to track students' learning trajectory. The assessment challenge has been of equal importance. Innovative assignments/questions that require students to apply knowledge, thinking skills and critical thinking have been developed. As some students need more time to master essential skills and knowledge it was necessary to design classes to allow for more personalization of pace. As a whole, learning outcomes and educational goals has to be re-considered and clearly described for the purpose of higher order learning in case of remote TLA process. Computer Algebra Systems proved to be a basic instrument for implementation of new methodological approaches in a remote TLA process. The latter is an iterative process: changes in one of the components of TLA require adequate changes in the other two. Such effects will be illustrated. Concerning opportunities: they can be seen in the innovative learning resources and assignments we have created; it has to be mentioned that the learners are co-creators of the innovations.

## Keywords

Undergraduate mathematics, remote teaching, pedagogical and assessment challenges, CAS

## References

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