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Learning linear algebra with the MathE platform: an experience in a Mechanical Engineering course

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Linear algebra is part of the curriculum of most engineering courses. However, many students' difficulties in this area and the heterogeneity of their mathematical knowledge pose significant challenges for teachers. In this context, more personalized and interactive learning is needed to help overcome individual difficulties and promote autonomy in constructing knowledge. Technological platforms such as MathE are important tools in this process, as they facilitate the development of skills in searching, selecting, and analyzing the information provided. Therefore, as part of the Linear Algebra and Analytical Geometry course unit of a Mechanical Engineering degree course, we proposed that students use the Self Need Assessment component of the MathE platform to take two tests: one at a basic level and the other at an advanced level on the topics of Vector Spaces (VS) and Linear Transformations (LT). After submitting each test consisting of seven multiple-choice questions, the students were asked how they had performed. We also asked them to present their solutions to get them to identify and correct their own mistakes based on the feedback provided by the platform and the teacher. When complemented with other approaches, the MathE platform can be a valuable tool to increase students' autonomy in overcoming their difficulties, thus promoting the learning of linear algebra.

Keywords: Linear algebra, MathE platform, higher education