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João da Rocha e Silva, Instituto Politécnico de Bragança, Portugal;

João Eduardo Pinto Castro Ribeiro, Instituto Politécnico de Bragança, Portugal

Jorge Santos, Instituto Politécnico de Bragança, Portugal

Rui A. Lima, Universidade do Minho, Portugal

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Linear transformations in an engineering course – Matrices and dynamic representations

E. Cordeiro^{1*}, P.M. Barros²

¹Instituto Politécnico de Bragança, 5300-253, Bragança, Portugal

²Centro de Investigação em Educação Básica, Instituto Politécnico de Bragança, 5300-253, Bragança,

(*)**Email:** emc@ipb.pt

ABSTRACT

Several studies point to the importance of teachers creating learning environments that involve students more in the construction and communication of knowledge. On the other hand, digital technologies can be used as didactics tools to improve learning. To promote the development of skills in the area of linear algebra, more specifically in the context of linear transformations, we chose to propose an activity involving Geogebra. This software allows symbolic representations of multiple linear transformations of the plane, either through the matrix route or through its analytical expression, while also allowing the observation of the image of particular objects through this transformation. The experiment was carried out with students of an engineering course who were attending the Linear Algebra and Analytical Geometry curricular unit. The students also answered a questionnaire to evaluate their learning and assess the relevance of Geogebra in the acquisition of concepts. Their feedback shows that this software encourages creativity and promotes experimental research, having been considered an excellent ally in understanding concepts related to linear transformations and their properties.

Keywords: Geogebra, linear transformations, linear algebra, higher education.