40. **Victor Oxman, Avi Sigler and Moshe Stupel**

"What if not" investigation method with the aid of Geogebra of a geometric configuration of quadrilaterals that through a dynamic process aspire to be square

The purpose of this article is to describe the building of a geometric configuration and explore it, in order to train students in teaching mathematics according to:
'What if not?' (WIN) strategy suggested by Brown & Walter (1990).
The principles of the construction of the configuration are:
1. It has a generalization potential .
2. It has elements of "prove" and "calculate".
3. Challenging but not frustrating.
4. Allows construction of hypotheses which can be checked with Geogebra.
5. Thoroughly researched by us to prevent divergence or dead ends.
The chosen configuration begins with a rectangle whose exterior angles bisectors, when extended, form a new quadrilateral.
By using the WIN method ("what if not a rectangle"), different external quadrilaterals are formed, with a common characteristic that the student will quickly discover and with the aid of Geogebra, immediately prove.
The investigation branches off in directions of proving, calculating and extreme values, up to the question of the path of the ray of light in the external quadrilateral. We, who built the configuration, explored many patterns, and the interesting and surprising mathematical results are included in the article.
We also built a dynamic process that starts with a quadrilateral, continues to form another quadrilateral with its exterior angles bisectors extended, and from this form continues to create other quadrilaterals with its extended exterior angles bisectors. For example: a parallelogram forms a rectangle, which forms a square, which forms another square, where the process ends.
When this dynamic process is applied on different quadrilaterals, what emerges is a series of quadrilaterals that monotonically aspire to a square, in the sense that their angles all aspire to become 90 degrees, including the angle between the diagonals.
The creation of the exploratory configuration in combination with the technological tool, benefits the student, in our opinion, by giving him the sense that he is not only learning mathematics, but also doing mathematics.