Motion or accumulation?

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The concepts of point, line and plane are among the most difficult concepts for students to understand. The biggest reason for this has been shown as the inability to define precisely these concepts. In today's mathematics books, there are statements that lines are formed by the coming together (acculumation) of the points and planes are formed by the coming together (acculumation) of the lines.

In ancient works written in the 12th, 15th and 17th centuries, these definitions are based on the concept of movement [1,2].

In other words, definitions are given as lines are formed from the motion of the points, and planes are formed from the motion of the lines. In line with my experiences as a former teacher, I talked to the first-year mathematics teaching students of the university where I am currently working on these issues. They also had statements that the motion-based definitions were easier to understand.

In this context, we believe that it would be appropriate to enter the motion-based definitions into the textbooks. In addition, when it is considered in terms of mathematics education, there is a need for studies on re-considering the definitions made in ancient works.

References

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