

ABSTRACT

Developing Instructional Design of Statistical Topics Using Realistic Mathematics Education Approach for Junior High School Grade IX

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Preliminary research showed there were problems in statistical learning at junior high school grade IX . Students were more likely to be introduced by the use of formulas without involving the discovery of the concept itself and separate from the learning experience of students everyday. It underlies instructional design the topic of statistics and correlates with activity based on the student experience (experience-based activities). This research aimed to developing instructional design of statistical topics with Realistic Mathematics Education (RME) approach, for junior high school grade IX, implemented through a teacher books and student books were valid, practical and effective.

This research was a design research that combines models Plomp model Gravemeijer & Cobb, which consists of three phases which the preliminary research (preparing for the experiment), a development phase (prototyping phase/ design experiment) and the assessment phase (retrospective analysis). The subjects were students of grade IX MTsN Salido.

This research develops an instructional design of the topic Statistics using realistic mathematic education (RME) approach learning trajectory that find concept of the mode, the median, the mean and explore that central tendency to make decision. This learning trajectory was implemented through a teacher books and student books. The results of the experiment showed contexts teaching contained in the student books can stimulate students to develop their knowledge in finding statistical concepts. The whole strategy (emergent modeling) were found and discussed students, showing how the construction or the contribution of students in discovering the concept of statistics from the formal to the informal level. The results showed that the design of the learning topic Statistics with RME approach is valid, practical and effective. Valid in terms of content and language. Practical in terms of practice, the ease and time required. Effective in terms of its potential impact on student's mathematical reasoning abilities.

ABSTRAK

Pengembangan Desain Pembelajaran Topik Statistika Berbasis *Realistic Mathematics Education* Di Kelas IX SMP/MTs.

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Hasil studi pendahuluan menunjukkan bahwa terdapat masalah dalam pembelajaran statistika kelas IX SMP/MTs. Siswa lebih cenderung dikenalkan dengan penggunaan rumus tanpa melibatkan penemuan konsep itu sendiri dan pembelajaran terpisah dari pengalaman siswa sehari-hari. Hal tersebut mendasari untuk mendesain alur belajar topik statistika dan menghubungkannya dengan aktivitas berdasarkan pengalaman siswa (*experience-based activities*). Tujuan dari penelitian ini adalah untuk merancang alur belajar topik statistika kelas IX SMP/MTs dengan pendekatan *Realistic Mathematics Education* (RME), dimplementasikan melalui buku guru dan buku siswa yang valid, praktis dan efektif.

Penelitian ini merupakan *design research* yang mengkombinasikan model Plomp dengan model Gravemeijer & Cobb, yang terdiri dari 3 fase yaitu fase penelitian pendahuluan (*preliminary research/preparing for the experiment*), fase pengembangan (*development or prototyping phase/design experiment*) dan fase penilaian (*assessment phase/retrospective analysis*). Subjek penelitian adalah siswa kelas IX MTsN Salido.

Penelitian ini menghasilkan desain pembelajaran topik Statistika dengan pendekatan *realistic mathematic education* (RME) dengan alur yaitu menemukan konsep modus, menemukan konsep median dan statistika lima serangkai, menemukan konsep mean dan mengeksplorasi ukuran pemusatan data dalam pengambilan keputusan. Alur belajar diimplementasikan melalui buku guru dan buku siswa. Hasil dari *conducting experiment* menunjukkan konteks yang dimuat dalam buku siswa dapat menstimulir siswa untuk mengembangkan pengetahuannya dalam menemukan konsep statistika. Seluruh strategi (*emergent modelling*) yang ditemukan dan didiskusikan siswa, menunjukkan bagaimana konstruksi atau konstribusi siswa dalam menemukan konsep statistika dari level informal ke formal. Hasil penelitian menunjukkan bahwa desain pembelajaran topik Statistika dengan pendekatan RME sudah valid, praktis dan efektif. Valid dari segi isi dan bahasa. Praktis dari segi keterlaksanaan, kemudahan dan waktu yang diperlukan. Efektif dari segi dampak potensialnya terhadap kemampuan penalaran matematis siswa.