

https://dspace.org/

A study of grade 11 learners' understanding of concepts related to infinity

Merand, David Neville

2015-02-12
http://hdl.handle.net/10539/16959

Downloaded from a DSpace repository. https://dspace.org/

ABSTRACT

Do high school learners have a grasp of infinity? Can they use mathematically correct techniques to grapple with issues related to infinite processes and limits?

This study uses the familiar question “Is 0.9 recurring equal to 1.0?” to examine how learners’ prior knowledge and experience influences their answer to this question. Experience relates to discussions and teaching activities in this area during the two lessons examined in this study.

That is, a class of grade 11 learners were given two lessons which highlighted some of the paradoxes associated with infinity and in which techniques which can be used to understand numbers represented as infinitely recurring decimal fractions were discussed.

These lesson were videotaped and transcribed and were then analysed using Sfard’s commognitive framework for thinking and communicating to determine the type of and degree to which learning occurred during the lessons. According to commognition, learning is defined as occurring when a learner changes her discourse on a particular topic in an enduring way.

A set of questions and tasks which probed an understanding of infinitely recurring decimal fractions were used as learning activities and the question “Is 0.9 recurring equal to 1.0?” was used before and after the two lessons to determine if there was any change in learners’ discourse.