

WHERE TO WITH HIGH SCHOOL GEOMETRY?

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In South-African high schools where the emphasis is on formal Euclidean geometry, one often hears complaints from teachers and learners that geometry is difficult, boring and irrelevant, i.e. has no real-life application (Glencross, 1998). This is not just the trend in South Africa, but also part of a much-talked about topic worldwide, and researchers are constantly searching for solutions to the problems surrounding the teaching and learning of geometry. It seems that in most countries geometry education has entered a period of low tide. Even in those countries where geometry still maintains its former central position in school curricula, this seems to be owing more to the persistence of tradition, than to a careful analysis of the impact of formalist Euclidean style geometry teaching on the “mathematical culture” of contemporary learners (Mammana, 1998). Hansen (1998:20) believes that when selecting geometry content in the secondary school mathematics curriculum, it will become increasingly important to choose units of geometry that foster the “right” skills, abilities and attitudes for meaningful and useful (further) education. The question that needs to be addressed then is: What should be the aims and outcomes of geometry education in primary and secondary grades?

In an attempt to address this question, an investigation in the form of an email enquiry among identified international experts in the field (n=30) was done to determine what kind of geometry, and geometry teaching and learning should be done in the high school mathematics curriculum? From this, key perspectives emerged, which will be discussed in the presentation. For instance, transformation geometry must definitely be included in the curriculum (e.g. Glencross, 1998; Bartels, 1998; Mariotti, 1998); formal proof must have a place in the curriculum (e.g. Carroll; 1998); in countries where Euclidean geometry had to make place for transformation geometry, it was not always exactly the right thing to do (e.g. Pressmeg, 1998).

In view of the outcomes of the email survey, a field survey followed among selected teachers (n=147) in the Northwest Province of South-Africa to determine the extent to which current classroom practices were in compliance with the identified perspectives. Results, which will be discussed too, suggest that, due to inappropriate teacher training, little else than traditional practices were prevailing. As a change of a curriculum has to start at the teacher-level (Mammana, 1998), the question about appropriate school geometry-related training for teachers needs to be, and will be accounted for, again, in view of the gained perspectives.