

ZMATH 2009e.00205

Ruthven, Kenneth

Herschel's heritage and today's technology integration: a postulated parallel.

Teach. Math. Comput. Sci. 5, No. 2, 419-430 (2007).

Summary: During the early 20th century, advocacy of a range of mathematical technologies played a central part in movements for the reform of mathematical education which emphasised 'practical mathematics' and the 'mathematical laboratory'. However, as these movements faltered, few of the associated technologies were able to gain and maintain a place in school mathematics. One conspicuous exception was a technology, originally championed by the mathematician Herschel, which successfully permeated the school mathematics curriculum because of its: • Disciplinary congruence with influential contemporary trends in mathematics. • External currency in wider mathematical practice beyond the school. • Adoptive facility of incorporation in classroom practice and curricular activity. • Educational advantage of perceived benefits outweighing costs and concerns. An analogous perspective is applied to the situation of new technologies in school mathematics in the early 21st century. At a general level, the cases of calculators and computers are contrasted. At a more specific level, the educational prospects of CAS and DGS are assessed.

Classification: D30 U50 U70 R25

Keywords: technology integration; mathematics education; historical analysis; mathematical laboratory; squared paper; computer algebra; dynamic geometry