

ABSTRACT

It is widely accepted that the integration of Information and Communication Technologies (ICTs) in teaching and learning presents innovative ways to enhance the face-to-face classroom experience. However, an erroneous belief often exists amongst policy makers and other stakeholders in education that the mere provision of ICTs will automatically enhance teaching and learning and have a positive influence on learners' academic performance. What they fail to realise is that for technology to be beneficial, it must be integrated pedagogically with understanding. The literature indicates that South African teachers are not using technology optimally but rather to replicate the traditional chalkboard or whiteboard-based way of teaching. The South African government has invested substantial funds into providing ICTs to schools. Its most recent project is that of "paperless schools" established at selected sites in Gauteng. Paperless classrooms are a new phenomenon internationally and the literature indicates that there are different connotations associated with this term. However, the MEC of the Gauteng Department of Education (GDE), Panyaza Lesufi maintained that in Gauteng Paperless Schools, teaching and learning would take place solely with the use of technology and exclude the use of the chalkboard, pen, and paper. Considering that South Africa is plagued with various challenges such as load-shedding as well as the lack of technological skills on the part of both teachers and learners, the question arises as to how teaching and learning can be constructed in a paperless context. This study focused on the viability of teaching and learning Mathematics in a paperless classroom, and is underpinned by the TPACK (Technological, Pedagogical and Content Knowledge) conceptual framework. It employs a qualitative, multiple case study methodology. Data were collected using semi-structured, in-depth face-to-face interviews, focus group discussions, and classroom observations of Mathematics lessons. The findings reveal that despite paperless classrooms being established in 2015, Mathematics is still being taught in a blended environment, contrary to what the Gauteng MEC expected. In addition, most of the teachers are using the smartboard simply as a replacement for the chalkboard and the tablet solely to access electronic copies of the textbook. Teachers and learners prefer a blended teaching and learning environment and believe that Mathematics cannot be taught solely with ICTs. The study concludes that there are too many factors that contribute to the non-viability of teaching and learning Mathematics in a paperless context to make this viable in current circumstances. Furthermore, the propensity amongst teachers seems to be to resist a full-

scale move to an entirely paperless classroom environment, and instead continue to develop the blended learning space with both digital and non-digital media and technologies.