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An Investigation into the ICT used for the teaching of 'Shape, position and movement' within Primary Mathematics at Key Stage 2.

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Background

A number of studies including those carried out by Ashby (2009), Passey et al (2003) and Reynolds et al (2003) reveal that combining the use of ICT with Mathematics can bring about positive results. The National Council of Teachers of Mathematics (NCTM) 2000 as cited in Stohl Drier (2001), considers technology to be "essential in teaching and learning mathematics." Furthermore they consider that technology can influence "the mathematics that is taught and enhances student learning." Research findings by Passey et al (2003), Harrison (2002) and ongoing research by BECTa (British Educational Communications and Technology Agency) certainly reiterates this. Indeed BECTa goes as far as summarising the key benefits of using ICT in mathematics as firstly promoting greater collaboration and encouraging communication on the sharing of knowledge. Secondly, ICT gives rapid and accurate feedback to learners and this contributes towards positive motivation. With the third benefit allowing learners to focus on strategies and interpretations of answers rather than spending time on tedious computational calculations. More recent research by BECTa summarised in their publication 'Harnessing technology review 2009' indicated that 86% of primary teachers made use of ICT resources at least once a day and approximately half made daily use of the internet in their work. This certainly goes to prove that ICT is being used in mathematics teaching and even more so in the primary sector than the secondary. According to BECTa's findings 46% of primary mathematics lessons included learners using technology more than once a week compared to only 7% in secondary mathematics lessons. What specific ICT is being used in mathematics lessons varies considerably and a great deal of research has been carried out focussing on the benefits of specific aspects of ICT in relation to mathematics. This includes Drier (2001) who looked into interactive spreadsheets, Kennewell (2001) and (2004) and Wilson & Miller (2003) who have investigated the use of the IWB and Kennewell et al (2007) who looked at interactive technology to implement interactive teaching to name but a few.

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Research Questions

The focus of this enquiry is centred on a survey of ICT use in the teaching of 'Shape, position and movement' within Key Stage 2 classes in primary schools in Wales. This particular aspect of the mathematics curriculum has been chosen as it was thought that the content of the programme of study, as detailed within the National Curriculum for Mathematics in Wales (WAG 2008), allowed for a wider range of ICT resources to be used by both the learners and the teacher in a range of situations.

Methods

The research method adopted for this study involved the use of a questionnaire. This was considered to be the most appropriate method to use to provide baseline data focussing on the resources teachers use for the teaching of 'Shape, position and movement', the frequency with which they are used, why they are used and any issues which affect their use. Responses were received from a total of forty schools in eight counties across South Wales. These were either primary or junior schools since the focus for this investigation was on the Key Stage 2 phase of primary education.

Frame

This work does not adopt a particular analytical framework.

Research findings

Following an initial analysis of a sample of the returned questionnaires, it is evident that the Interactive White Board (IWB) is being used by teachers every time they teach 'Shape, position and movement'. It would appear that other ICT resources such as the Bee-Bot, Roamer and Turtle have limited and often sporadic use when compared with the IWB. This has been identified as being as infrequent as once a week or even only once per half term. In terms of classroom organisation when using the IWB, the most dominant approach adopted by primary school teachers is that of whole class teaching.

Early indications reveal that primary school teachers appear to be making far more regular use of the IWB within mathematics lessons, especially those related to 'Shape, position and movement', as opposed to other resources that also lend themselves to use in this particular area. This has implications for future teaching and learning in that there is a need to increase awareness of the range and effective use of other resources to support this area of mathematics.