



AN CHOMHAIRLE MHÚINTEOIREACHTA
The Teaching Council

The Misconceptions of Mathematical Probability amongst Primary Student Teachers:- Can ICT be used constructively to highlight and eliminate?

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Overview of Research

This research investigates the existence of probability misconceptions amongst student teachers at primary level and explores the use of ICT-based methodologies to address those.

Rationale and Aims

The researcher was interested in addressing the findings of a 2005 NCCA report, which stated that primary teachers found the data strand within the teaching of Mathematics least satisfying, and in particular, the chance or probability area. It is argued by the researcher that to teach Mathematics well, in particular the new curriculum, the teacher needs a deeper understanding of mathematical concepts such as the area of probability. Given this rationale, the researcher set out to investigate the existence of misconceptions and to build an ICT-informed mechanism to constructively highlight and eliminate the most common of these.

Design and Methodology

The research used two artefacts, one to determine the presence of probability misconceptions, and the second artefact to determine if participation in probability simulations (rolling dice, tossing coins, selecting cards) serves to highlight and address these misconceptions. The research sampled 60 postgraduate Froebel student teachers, divided into two groups. The researcher adopted a dual quantitative and qualitative data analysis methodology, using data generated from the artefacts and from feedback questionnaires.

Ethical considerations were taken into account and all participants were assured of confidentiality.

Findings and Recommendations

The researcher argues from the findings that probability misconceptions were evident amongst all student teachers sampled. In a sizeable proportion of the group, these misconceptions were quite significant. In order to recognise and correct these issues, it is suggested that teachers must have the appropriate knowledge to address their own misconceptions. It is contended in the research that ICT can add value to teaching and learning when used purposefully and that the specific ICT artefact created has succeeded in dispelling a number of the identified misconceptions around probability as discussed in international literature.

Further research is suggested in investigating the issue of probability misconceptions amongst existing probated teachers. This might lead one to imply that ICT methodology in teaching and learning may also benefit the continuing professional development (CPD) of teachers for the teaching of Mathematics at primary level.