Investigating Mathematical Knowledge of Teaching for Secondary Preservice Teachers in Papua New Guinea Based on Probabilities

Authors : Murray Olowa

Abstract : This article examines the studies investigating the Mathematical Knowledge for Teaching (MKT) of secondary preservice teachers in Papua New Guinea based on probabilities. This research was conducted due to the continuous issues faced in the country in both primary and secondary education, like changes in curriculum, emphasis on mathematics and science education, and a decline in mathematics performance. Moreover, the mathematics curriculum doesn't capture Pedagogical Content Knowledge (PCK) or Subject Matter Knowledge (SMK). The two main domains that have been identified are SMK and PCK, which have been further sub-divided into Common Content Knowledge (CCK), Specialised Content Knowledge (SCK) and Horizon Content Knowledge (HCK), and Knowledge of Content and Students (KCS), Knowledge of Content and Teaching (KCT) and Knowledge of Content and Curriculum (KCC), respectively. The data collected from 15-_year-_ ones and 15-_year-_fours conducted at St Peter Chanel Secondary Teachers College revealed that there is no significant difference in subject matter knowledge between year one and year four since the P-value of 0.22>0.05. However, it was revealed that year fours have higher pedagogical content knowledge than year one since P-value was 0.007<0.05. Finally, the research has proven that year fours have higher MKT than year one. This difference occurred due to final year preservice teachers' hard work and engagement in mathematics curriculum and teaching practice.

Keywords : mathematical knowledge for teaching, subject matter knowledge, pedagogical content knowledge, Papua New Guinea, preservice teachers, probability

Conference Title : ICMET 2022 : International Conference on Mathematics Education and Technology
Conference Location : Kuala Lumpur, Malaysia
Conference Dates : December 09-10, 2022