

Investigation of the Mathematics Knowledge in Traditional Paiwan's Culture

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The aim of this study is to investigate the mathematics knowledge in traditional Paiwan's culture by interviewing tribe elders through case study method. Based on the framework of Bishop (1988) which pointed out the relationship between mathematics knowledge and human culture, the author designed the outline of interview. Ten Paiwan's elders were interviewed with 13 semi-structured items in total. The results indicated that the mathematics knowledge in Paiwan's traditional culture could be classified into number, measurement and geometry. In the domain of number, base-ten numeric system was used for daily life, and the biggest number was ten thousand. They have the concept of division, but equally divided was not the crucial consideration. The concepts of fraction and decimal were not developed. People usually used a metaphor to describe extremely large or small number. On measurement, they used specific object such as a span to measure the length, or observed the natural phenomena such as location of sun in the sky to know the time. On the concepts of geometry, some geometric shapes that were often appeared on the artificial cultural and art products, such as triangle, came from images of animals and natural with special culture meanings, or naturally formed by its making skills and methods. The development of mathematics knowledge in Paiwan's traditional culture were emphasized on the practical utility of life and the meanings of culture. Paiwan people did not develop the generalization of mathematics knowledge because of lacking of words record and adopted apprenticeship to learn professional skills. They also did not build an abstract and systemic mathematics knowledge.

Keywords: case study, knowledge system of indigenous people, Paiwan people, traditional culture, mathematics knowledge