

ABSTRAK

Winda C Banjarnahor. 2023. Eksplorasi Etnomatematika pada Candi Kalasan dan Penerapannya pada Lembar Kerja Peserta Didik. Skripsi. Program Studi Pendidikan Matematika, Jurusan Pendidikan Matematika dan Ilmu Pengetahuan Alam, Fakultas Keguruan dan Ilmu Pendidikan Matematika, Universitas Sanata Dharma Yogyakarta.

Etnomatematika adalah ilmu tentang budaya yang dikaitkan dengan matematika. Salah satu budaya yang dikaji yaitu Candi Kalasan. Tujuan penelitian (1) mengetahui aspek historis dan filosofis Candi Kalasan (2) mengetahui aktivitas fundamental matematis pada Candi Kalasan (3) mengetahui materi matematika Fase D pada Candi Kalasan, (4) mengetahui penerapan eksplorasi etnomatematika Candi Kalasan pada LKPD topik Segi Empat dan Bangun Gabungan Fase D sesuai Teori Van Hiele.

Jenis penelitian adalah penelitian kualitatif pendekatan etnografi dengan dua narasumber petugas Balai Pelestarian Kebudayaan Wilayah X. Metode pengumpulan data dengan observasi, wawancara dan dokumentasi. Teknik analisis data, yaitu reduksi data, penyajian data dan kesimpulan.

Hasil penelitian (1) aspek historis dan filosofis yaitu Candi Kalasan dibangun oleh Rakai Panangaran tahun Saka 700 untuk mewujudkan permintaan biksu agar dipersembahkan bagi Dewi Tara. Candi Kalasan memiliki stupa sebagai persembahan kepada Bodhisattva, stupa perwara sebagai pendamping, persembahan dan pemujaan terhadap Bodhisattva serta tempat abu jenazah pendeta yang telah meninggal. Candi Kalasan juga memiliki relief yang menggambarkan flora dan fauna di sekitar candi saat itu dan berfungsi sebagai hiasan dinding candi. Arca Candi Kalasan menggambarkan tentang Bodhisattva yang dijadikan sebagai hiasan. Pemugaran dilakukan satu kali oleh Van Romondt tahun 1927-1929 (2) aktivitas fundamental matematis *counting* berisikan banyak candi, stupa, stupa perwara, arca, relief, jumlah pengunjung. *Locating* berisikan letak candi yang berada di Dusun Kalibening, Desa Tirtomartani, Kecamatan Kalasan, Kabupaten Sleman, Yogyakarta. Letak stupa berada pada atap candi, stupa perwara berada di sekeliling candi dan tidak melekat dengan candi, arah hadap Candi Kalasan adalah arah Timur. *Measuring* berisikan ukuran candi, stupa, stupa perwara, luas kompleks, jarak antar stupa perwara, jam buka dan jam tutup, tiket masuk, biaya parkir, pemberlakuan biaya retribusi. *Designing* berisikan bentuk batu penyusun, bentuk alas, bangun ruang, bangun datar. *Playing* berisikan aturan dan pola penyusunan batu, aturan berkunjung. *Explaining* berisikan keunikan Candi Kalasan (3) topik matematika yang terdapat dalam hasil eksplorasi etnomatematika pada Candi Kalasan adalah bilangan bulat, perpangkatan dan bentuk akar, bilangan pecahan, lingkaran, bangun ruang sisi datar, perbandingan, garis dan sudut, segiempat, segitiga, bangun gabungan, teorema pythagoras, kekongruenan dan kesebangunan, aljabar dan aritmatika sosial, PLSV, himpunan, statistika (4) penerapan eksplorasi etnomatematika Candi Kalasan pada LKPD sesuai Teori Van Hiele pada topik segiempat dan bangun gabungan.

Kata kunci: Historis, Filosofis, Candi Kalasan, Etnomatematika, Topik Matematika, Penerapan, Aktivitas Fundamental Matematis

ABSTRACT

Winda C Banjarnahor. 2023. *Exploration of Ethnomatematics in Kalasan Temple and Its Application to Student Worksheets*. Thesis. Mathematics Education Study Program, Department of Mathematics Education and Natural Sciences, Faculty of Teacher Training and Mathematics Education, Sanata Dharma University, Yogyakarta.

Ethnomatematics is the science of culture associated with mathematics. One of the cultures studied is the Kalasan Temple. The aims of the research were (1) to discover the historical and philosophical aspects of Kalasan Temple (2) to discover the fundamental mathematical activities at Kalasan Temple (3) to discover the mathematical concepts of Phase D of Kalasan Temple, (4) to discover the application of ethnomatematics exploration of Kalasan Temple in the worksheets on the topic of Quadrilaterals and Combined Constructs Phase D according to Van Hiele Theory.

This type of research was a qualitative research with an ethnographic approach with two informants from the Cultural Preservation Center for Region X. The method of collecting data were observation, interview, and documentation. Data analysis techniques were data reduction, data presentation and conclusions.

The results of the study were (1) historical and philosophical aspects, namely that Kalasan Temple was built by Rakai Panangaran in the Saka year 700 to fulfill a monk's request to be dedicated to Dewi Tara. Kalasan Temple has a stupa as an offering to a Bodhisattva, an ancillary stupa as a companion, offerings and worship of the Bodhisattva and a place for the ashes of a priest who has died. Kalasan Temple also has reliefs depicting the flora dan fauna around the temple at that time. The Kalasan Temple statue depicts a Bodhisattva who is used as decoration. The restoration was carried out once by Van Romondt in 1927-1929 (2) the fundamental mathematical counting activity contained many temples, stupas, ancillary stupas, statues, reliefs, the number of visitors. Locating contains the location of the temple is in Kalibening Hamlet, Tirtomartani Village, Kalasan District, Sleman Regency, Yogyakarta. The location of the stupa is on the roof of the temple, the ancillary stupa are around the temple and are not attached to the temple, the direction facing Kalasan Temple is east. Measuring contains the size of the temple, stupas, ancillary stupas, the area of the complex, the distance between the ancillary stupas, opening and closing hours, entrance tickets, parking fees, application of retribution fees. Designing contains the shape of the constituent stones, the shape of the base, the shape of the room, the shape of the plane. Playing contains the rules and patterns of stone arrangement, visiting rules. Explaining contains the uniqueness of Kalasan Temple (3) mathematical topics, namely integers, exponents and square roots, fractions, circles, plane side shapes, comparisons, lines and angles, quadrilaterals, triangles, compound shapes, Pythagorean theorem, congruence and congruence, algebra and social arithmetic, PLSV, sets, statistics (4) application of ethnomatematics exploration of Kalasan Temple to worksheets according to van Hiele's theory on quadrilaterals and compound shapes.

Keywords: *History, Philosophy, Kalasan Temple, Ethnomatematics, Mathematical Topics, Application, Mathematical Fundamental Activities*