



Integration of Sasaknese Traditional Game in Ethnoscience Learning: Preservice Teacher's Perception

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Abstract: This study aims to explore the perceptions of prospective teacher students regarding the integration of traditional games in ethnoscience learning. This study is exploratory research conducted at the Mandalika University of Education with research subjects of 294 students. This research uses a research instrument in the form of a closed questionnaire with answers using a likert scale and has been validated by experts. This research data was analyzed using quantitative descriptive statistics and inferential statistics with independent sample t-test. The results of this research are (1) the perceptions of preservice teacher's regarding the integration of traditional games in ethnoscience learning have an average score of 3.27 in the very high category; (2) the perception of male preservice teacher's has an average score of 3.27 in the very high category, while for women it is 3.29 in the very high category; (3) there is no significant difference in the perceptions of male and female students regarding the integration of traditional games in ethnoscience learning, as evidenced by the significance value of 0.768 which is greater than 0.05 (>0.05).

Keywords: Ethnoscience learning; Preservice teacher; Sasaknese traditional game.

Introduction

Indonesia is a country rich in ethnic diversity, culture, regional languages, customs, languages and arts (Sarini & Selamat, 2019). Indonesia is rich in unique cultures (Muliadi et al., 2022). This cultural wealth then becomes a separate identity for an ethnic group and shows its identity (Asra et al., 2021). Every culture contains historical values that are rich in messages and knowledge (Setiawan et al., 2017), which is known as indigenous science (Battiste, 2005). This was confirmed by Toharudin & Kurniawan (2017) that local culture contains indigenous science which originates from the noble values of its predecessor traditions. The uniqueness of indigenous science is part of the social and cultural activities of local communities, and is passed down between generations (Arlanovita et al., 2015). According to (Mardianti et al., 2020) that indigenous science which originates from noble values of tradition and culture is realized as local wisdom in people's lives.

Each region has its own local wisdom which must be preserved and developed for the better in order to provide a civilized life (Sholahuddin & Admoko, 2021). Local wisdom is part of the nation's culture and is the pride of the Indonesian people which must be preserved (Asra et al., 2021). According to Bahtiar (2016), local wisdom describes how people carry out daily living traditions in the local cultural environment. Local wisdom is a way of life that is believed by the community to be good and full of wisdom (Isnaniah & Masniah, 2023). Apart from that, local wisdom is a form of people's understanding of nature and culture (Rumiati et al., 2021).

Local wisdom contains indigenous science that is unique to each cultural group of society, one of which is traditional games (Firdiani et al., 2019; Novitasari et al., 2017). Traditional games are not just games, but contain indigenous science that reflects the social life of society (Hariastuti, Retno & Laili, 2020). Traditional games are a typical game activity that grows and develops in an area

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that is full of values that are taught from generation to generation (Asih & El-Yunusi, 2024; Pratiwi & Heni, 2020). Thus, traditional games have become one of the unique cultural treasures of the Indonesian people (Fitriana et al., 2020). According to Cahyani et al (2023), traditional games found in Indonesia are games that originate from the traditions and culture of each region. Traditional games are an element of local culture that is often found in every region in Indonesia and is usually found in rural communities (Rumiati et al., 2021).

Sasak people of Lombok have several traditional games which are the cultural heritage of their predecessors and need to be preserved (Ikawati et al., 2018). The traditional games of the *Sasak* tribe are very diverse and are a tradition that continues to be passed down between generations (Sutama, 2021). Some traditional games that have developed and are often played by children include: *peresean, selodor, gansing, maen kaleng, cungklik, sepek manok, maen jingklak, maen dengklek, betet kantir, bejangkrikan, maen gatrik* (Safitri et al., 2022; Ikawati et al., 2018). The traditional games of the *Sasak* tribe are local wisdom that contain local ideas that are wise, full of wisdom and have good values which are embedded and followed by members of the community (Dani et al., 2022). This was confirmed by Arlianovita et al (2015) that every tradition of the *Sasak* tribe contains indigenous science.

Indigenous science contained in the traditional games of the *Sasak* tribe can be studied scientifically in science learning (Khoiri & Sunarno, 2018). This is possible because traditional games contain concepts in general learning such as mathematics, science and regional languages (Rumiati et al., 2021). Thus, indigenous science in traditional games can be elaborated scientifically in science learning (Hadi et al., 2019), which is known as ethnosience (Asmaningrum et al., 2021). According to Sarini & Selamet (2019) ethnosience, it is an exploration activity of indigenous science in culture and tradition using scientific science. The integration of indigenous science in science learning is very possible because science is the study of natural phenomena in people's lives (Khoiri & Sunarno, 2018). This was confirmed by Setyowati & Parmin (2013) that the concept of science has a relationship with the social life of society, so that indigenous science in society's culture and traditions can be explored through science learning (Puspasari et al., 2019).

Ethnosience learning allows student teachers to think scientifically about their surrounding environment (Seroto, 2012; Muji, 2012). The use of traditional games in science learning has a significant impact in improving learning outcomes and motivation (Widyaparamita et al., 2020; Ashar, 2017; Kusumaningsih & Suryanti, 2019), and can improve science process skills for students (Shofiyah et al., 2020). This is supported by Vygotsky theory which emphasizes the interaction of

interpersonal (social), cultural-historical and individual factors as the key to human development (Wahyu, 2017). According to Schunk (2012), learning interactions mediated by traditional games will produce results Cognitive changes when internalized in students. Next, the research results Andriani (2011) explained that traditional games can train students' concentration, knowledge, attitudes and skills. Thus, ethnosience learning for students can be effectively developed by relying on the characteristics of traditional *Sasak* tribal games (Kartono et al., 2012).

Ethnosience learning is an approach that can increase understanding and respect for cultural diversity and knowledge (Gonzalez-Perez & Martín-Rodilla, 2017). Ethnosience learning is effective in increasing understanding of science and promoting inclusivity and cultural diversity (Aikenhead, 2001). According to Rahmawati et al (2019), ethnosience learning can facilitate meaningful and contextual learning, thereby increasing student involvement in the learning process. An effective ethnosience learning process can develop students' deeper understanding of science and foster a caring attitude towards local culture (Sengdala & Yuenyong, 2021; Songsee & Nuangchalem, 2022). This was confirmed by Arlianovita et al (2015) that ethnosience learning can improve scientific literacy skills as well as cultural literacy for students. Prospective teacher students are expected to understand ethnosience, because of the rapid development of science, including science which must be oriented in everyday life (Sarini & Selamet, 2019).

Ethnosience learning is effective in facilitating student teachers in developing a holistic and in-depth understanding of natural or environmental phenomena through the perspective of local traditions and culture (Derkach et al., 2023; Kim et al., 2017). This confirms that it is important for student teachers to be equipped with knowledge and skills in designing and implementing ethnosience learning (Sudarmin & Asyhar, 2012). Thus, it is important to develop learning for students at the Mandalika University of Education by integrating traditional and local cultural values. The effectiveness of implementing ethnosience learning requires the support of lecturers and students to create an active and enjoyable learning atmosphere (Rahmayani et al., 2019; Hmelo-Silver, 2004).

Effective learning is the hope of all lecturers and students (Sartika et al., 2022). Student responses or perceptions are a very important indicator to determine the effectiveness of learning (Muliadi et al., 2021). This is because perception is obtained from the process of interpreting the stimulus received by students through the five senses and processed into an understanding (Zhafira et al., 2020). This means that when students have a good initial perception about ethnosience learning, they will consider the importance of learning,

so they can participate in learning with focused learning (Marlina & Sumaryoto, 2023). Thus, there is a need for a study to determine the perceptions of student teachers regarding the integration of traditional *Sasak* tribal games in ethnosience learning.

Method

This study is an exploratory descriptive research (Kerlinger & Lee, 2011; Fraenkel et al., 2012), for describe the perceptions of preservice teacher’s regarding the integration of traditional *Sasak* tribal games in ethnosience learning (Muliadi et al., 2021). This study uses an ex post facto approach because researchers only study and measure existing student attitude data without carrying out manipulation or treatment (Cohen et al., 2021; Takona, 2024). The research respondents were 294 prospective teacher students (preservice teacher’s) at the Mandalika University of Education who were obtained through convenience sampling techniques taking into account accessibility and students' willingness to fill out questionnaires distributed online (Fink, 2011).

This research uses an instrument in the form of a closed questionnaire with answers according to a Likert scale (Muliadi et al., 2022), which uses a degradation of the attitude scale, namely Strongly Agree, Agree, Disagree, Don’t Agree (Joshi et al., 2015), and is presented in a google form (Alfiah et al., 2020). The questionnaire was prepared in 12 statement items with reference to indicators of prospective teacher student perceptions about ethnosience developed by (Muliadi et al., 2022). The questionnaire has been validated by experts and declared valid.

Research data was analyzed using quantitative descriptive statistics and inferential statistics. Quantitative descriptive analysis was used to describe the perception data of prospective teacher students regarding the integration of traditional *Sasak* tribal games in ethnosience learning. Average student perception data is interpreted using assessment criteria developed by (Nugroho et al., 2023) as presented in Table 1.

Table 1. Criteria for conversion of average student perception scores

| Average score (\bar{p}) | Category |
|-----------------------------|-----------|
| $3.25 < X \leq 4.00$ | Very High |
| $2.50 < X \leq 3.25$ | Tall |
| $1.75 < X \leq 2.50$ | Low |
| $1.00 < X \leq 1.75$ | Very Low |

The inferential statistical analysis used is the independent sample t-test at a significance level of 5% to determine differences in students’ perceptions of the integration of traditional *Sasak* tribal games in ethnosience learning based on gender with the

formulation of a statistical hypothesis, namely $H_0: \mu_1 = \mu_2$ (there is no significant difference in the perceptions of male and female students) and $H_1: \mu_1 \neq \mu_2$ (there is a significant difference in the perceptions of male and female students). If the analysis results are significant or the p-value of the t-test is smaller than 0.05, then H_0 is rejected and H_1 is accepted or vice versa.

Result and Discussion

Description of the data from measuring student perceptions regarding the integration of traditional *Sasak* tribal games in ethnosience learning is presented in Table 2.

Table 2. Results of student perception data analysis

| Variable Group | N | ΣScore | Variance | Standard Deviation | Mean | Category |
|----------------|-----|--------|----------|--------------------|------|-----------|
| Student | 294 | 964.14 | 0.204 | 0.451 | 3.27 | Very High |
| Male | 253 | 828.89 | 0.201 | 0.448 | 3.27 | Very High |
| Female | 41 | 135.25 | 0.227 | 0.476 | 3,29 | Very High |

Based on the results of data analysis in table 2, it can be explained that (1) perceptions of preservice teacher’s regarding the integration of traditional *Sasak* tribal games in ethnosience learning have an average score of 3.27 in the Very High category; (2) the perception of male preservice teacher has an average score of 3.27 in the Very High category, while for women it is 3.29 in the Very High category. The data description is emphasized in Figure 1.

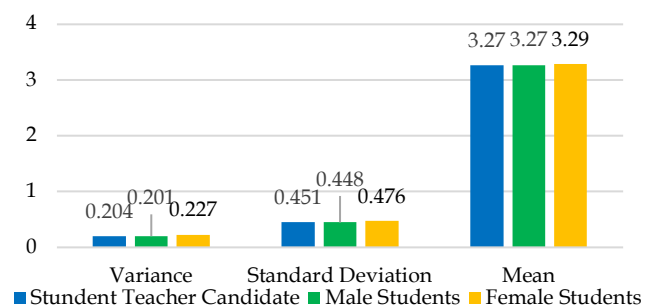


Figure 1. Student perceptions about the integration of traditional *Sasak* tribal games in ethnosience learning

Perception data of preservice teacher’s regarding the integration of traditional *Sasak* tribal games in ethnosience learning were analyzed using parametric statistics, after fulfilling the prerequisite tests, namely the homogeneity test and normality test as presented in Table 3.

Table 3. Homogeneity and normality test results

| N | Homogeneity | | Normality | |
|-----|---------------------------------|-------|----------------------------------|-------|
| | Levenes Statistical test scores | Sig. | Kolmogorov-Smirnov's test scores | Sig. |
| 294 | 0.301 | 0.584 | 2.224 | 0.000 |

The result of data analysis in table 3, it is known that the normality test results show a significance value of 0.000 which is smaller than 0.05 ($<0,05$), which means the data is not normally distributed, while the homogeneity test results explain that the significance value of 0.584 is greater of 0.05 (>0.05) which means the data variance is homogeneous.

Analysis of differences in preservice teacher’s perceptions regarding the integration of traditional *Sasak* tribal games in ethnosience learning based on gender was carried out using the independent sample t-test at a significance level of 5% with the results of the analysis as presented in Table 4.

Table 4. t-test results

| Variances | t-test for Equality for Means | | | |
|-----------|-------------------------------|-----|-------|------------|
| | t | df | Sig. | Mean diff. |
| Gender | -0.296 | 292 | 0.768 | -0.02254 |

The results of the t test in table 4 explain that the significance value of 0.768 is greater than 0.05 (>0.05), so H_1 is rejected and H_0 is accepted, which means that there is no significant difference in the perceptions of male and female students regarding the integration of traditional games in ethnosience learning.

The results of the research explain that (a) preservice teacher’s have very good perceptions about the integration of traditional *Sasak* tribal games in ethnosience learning; (b) there is no difference in the perceptions of preservice teacher’s regarding the integration of traditional *Sasak* tribal games in ethnosience learning based on gender. The findings of this research confirm that preservice teacher’s, both male and female, have positive perceptions about the importance of integrating traditional *Sasak* tribal games in ethnosience learning. This proves that students have quite good knowledge about ethnosience and its application in science learning (Ningrat et al., 2024). Students who have a better understanding of ethnosience tend to have positive opinions about the importance of integrating local cultural values in ethnosience learning (Freeman et al., 2014; Hacıeminoglu, 2016).

The very positive student perceptions explain that preservice teacher’s have quite good interest in ethnosience learning (Fulmer et al., 2019; McDonald et al., 2021). These findings indicate that students have good interest and motivation to participate in the ethnosience learning process (Munandar et al., 2023; Hariyono et al., 2023). Apart from that, according to Astalini et al (2019), students’ positive perceptions confirm their attitude in supporting the integration of local wisdom values in ethnosience learning. This means that prospective teacher students have high self-efficacy regarding the importance of integrating traditional *Sasak* tribal games in ethnosience learning

(Hacıeminoglu, 2016). The integration of local wisdom values in ethnosience learning is considered essential because it can build an active and enjoyable learning environment (Wahyu, 2017), and meaningful for students (Sudarmin et al., 2019). Ethnosience learning facilitates students to actively interact with concrete objects in everyday life such as traditional *Sasak* tribal games (Muliadi et al., 2022).

Students gave very positive responses regarding (a) traditional games can be integrated into ethnosience learning as a learning resource; (b) the integration of traditional games in ethnosience learning can increase scientific literacy, understanding of local cultural values, and understanding of the diversity of local traditions and culture; (c) the integration of traditional games in ethnosience learning can foster an attitude of loving and preserving local culture. This finding confirms that students understand the relationship between scientific science and indigenous science in local traditions and culture (Parmin et al., 2017). This students’ confession strengthens previous research findings which stated that ethnosience learning has proven effective in increasing understanding of science and promoting inclusivity and cultural diversity in science education (Gonzalez-Perez & Martín-Rodilla, 2017; Aikenhead, 2001). Another opinion confirms that ethnosience learning is effective in facilitating the development of students’ understanding of science and fostering an attitude of caring about local culture (Arlianovita et al., 2015; Wazni et al., 2023). Apart from that, ethnosience learning can facilitate student teachers in developing an attitude of love for the traditions and culture of their region as well as an attitude of tolerance for the cultural diversity of each region in Indonesia (Wahyu, 2017; Parrish & Linder-VanBerschoot, 2010).

Conclusion

Based on the results of the research above, it can be concluded that (1) perceptions of preservice teacher’s regarding the integration of traditional *Sasak* tribal games in ethnosience learning have an average score of 3.27 in the Very High category; (2) the perception of male preservice teacher’s has an average score of 3.27 in the Very High category, while for women it is 3.29 in the Very High category; (3) there is no significant difference in the perceptions of male and female students regarding the integration of traditional games in ethnosience learning, as evidenced by the significance value of 0.768 which is greater than 0.05 (>0.05).

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Author Contributions

Soemardiawan: developing literature study topics and defining literature analysis methodology.

Hilda Aqua Kusuma Wardhani: browsing and mapping literature related to the topic of literature study.

Agus Muliadi: analyzing literature related to literature study topics, writing draft articles, revising, and editing final articles.

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Conflicts of Interest

The authors declare no conflict of interest.

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