The effect of ethnoscience-based course review horay learning towards cultural concept understanding and science process skills of the elementary school students

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ABSTRACT

Purpose: This research aims to analyze the effect of the ethnoscience-based course review horay learning model on the understanding of cultural meaning understanding and science process skills of students at the elementary school level.

Design/Methodology/Approach: This study is quasi-experimental in nature, with a nonequivalent post-test only control group design. The sample of this study comprised 29 students in the experimental group and 28 students in the control group, making a total sample size of 57 participants. Data was collected using a test method consisting of 10 essay items to measure cultural meaning understanding, and a questionnaire consisting of 30 statements to assess science process skills. Inferential statistical analysis and quantitative descriptive analysis were the two methods used for data analysis.

Findings: The research findings showed that the ethnoscience-based course review horay learning model had a significant effect on both cultural meaning understanding and science process skills, both simultaneously and partially. This was demonstrated by a significant difference in mean values and sig value<0.05 for both cultural meaning understanding and science process skills between the experimental and control groups.

Conclusion: The findings also suggested that science process skills were more strongly influenced by the ethnoscience-based course review horay model compared to the understanding of cultural meaning, which is indicated by the larger mean difference observed in the former. Therefore, it is recommended that the ethnoscience-based course review horay learning model be utilized as an innovative learning model to address the issue of low levels of both cultural meaning understanding and science process skills among elementary school students.

Keywords: *Concept understanding, Culture, Course review horay, Ethnoscience, Learning model, Science process skills.*

1. INTRODUCTION

Science learning involves the integration of all fields of science, namely Physics, Chemistry, and Biology (Januarisman & Ghufron, 2016; Pendem, 2021). Through the process of science, students develop an understanding of concepts related to nature (Mudanta, Astawan, & Jayanta, 2020). Science is constructed on the foundation of scientifically based products, procedures, and attitudes (Kuswanto, 2019), and it encompasses all aspects of student development at the primary education level (Jupriyanto, 2018). Science has a positive impact on the personality development of students as a whole (Arisantiani, Putra, & Ganing, 2017), and it is taught from an early age to provide the students who can collaborate with one another and think critically, methodically, logically, and creatively (Amalia, Putri, & Rezkita, 2019; Ekici & Erdem, 2020). Science learning in elementary schools serves as a tool for the students' education about themselves and the natural environment (Made & Bayu, 2019). High-quality science learning brings an impact on the understanding of students regarding the material being studied. One of the abilities or competencies that are expected to be attained in learning is comprehension (Hidayat, Yandhari, & Alamsyah, 2020). According to Nomleni & Manu (2018), the area of concept comprehension in particular is still relatively low among students. Comprehensive conceptual understanding is an absolute necessity

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for success in learning (Widyantari, Ayub, & Ardhuha, 2020), as it involves not only the ability to remember and understand concepts, but also the ability to apply them in different ways and integrate them into the students' cognitive structures (Ripa, Seleky, & Agustin, 2021). The students' understanding of the material being studied is crucial to their ability to think critically and develop a complete scientific thinking framework (Fitriana & Yuberti, 2019; Putri, Sutrisno, & Chandra, 2020). The formation of a solid scientific framework is the basis for science process skills. Independent learning is recommended for students to develop their conceptual understanding, and process skills are essential for success in science.

The ability to solve problems in daily life will be influenced by the students' process skills (Tanti, Kuswanto, & Wardhana, 2020). In the learning process, a problem, an issue, or a scientific phenomenon is identified using science process skills (Idris, Talib, & Razali, 2022; Rosana, Kadarisman, Purwanto, & Sari, 2021), and they are created to impart new knowledge and encourage students to look up facts and concepts on their own (Ekawati, Iswari, & Lisdiana, 2018). The practice of science process skills occurs during the process of observing, classifying (grouping), communicating, predicting, inferring (concluding), formulating hypotheses, interpreting (analyzing), controlling variables, and designing & conducting experiments (Elfeky, Masadeh, & Elbyaly, 2020; Ihsan, Jamal, & Salam, 2017; Setiawan & Sugiyanto, 2020). Science process skills will have an effect on the educational process. The existence of science process skills will be able to foster students' capacity for critical thinking (Darmaji, Astalini, Kurniawan, & Putri, 2021; Firmansyah & Suhandi, 2021; Kurniawan, Perdana, & Ikhlas, 2020). Process skills affect scientific attitudes (Juhji & Nuangchalerm, 2020; Zeidan & Jayosi, 2014), and science skills can provide conceptual understanding (Tan, Yangco, & Que, 2020). Therefore, science process skills will develop problem solving abilities. In the initial analysis, it was discovered that there were teachers who still applied conventional learning models. In the conventional learning model, the majority of the students' activities were passive. In addition, learning with conventional models also is likely to be monotonous and boring. Students who have to deal with several subjects at once every day, coupled with many hours of lessons, should accept learning using the same method, namely lectures. Besides that, when the students are not involved directly in a lesson, they become less focused, bored, and even sleepy during class hours. This condition will affect the students' low understanding of the material being studied. Moreover, the problem being faced is that students' mindsets are only limited to memorizing and are less able to develop the concepts they already have. The students are less enthusiastic about receiving the learning because the teachers often present material through lectures, questions & answers, and assignments. In addition, most of the students are less active in the learning process in class, both in asking questions, answering questions proposed by the teacher, or responding to their classmates' answers. Finally, student interaction in the learning process is still low because not all of them pay close attention to the lessons the teacher is teaching. In other words, the skill in the science process of students is still low. Process skills in science still become problems of their own for the teaching and learning process at schools because their achievements are still low (Agustina, Saputra, Anif, Rayana, & Probowati, 2021; Hunaepi, Susantini, Firdaus, Samsuri, & Raharjo, 2020). If this situation continues, it will definitely have an adverse impact on the ability of students to solve problems, which will surely affect the learning outcomes and objectives.

The solution that is offered is to conduct learning models, one of which is the Course Review Horay. The Course Review Horay Learning model gives students the chance to participate actively in the process of learning (Dalimunthe & Siregar, 2022). Course Review Horay (CRH) is a cooperative learning model that is fun and improves the students' ability to compete in the learning process. In addition, it can develop critical thinking skills and improve the concepts being learned (Chilmi, Sina, & Utami, 2019; Masruddin, 2019). Learning with the CHR model attracts and encourages the students to be able to go directly into it and it trains the student cooperation so that the theory delivery will not be monotonous. Finally, it can attract the students' attention and increase their motivation to focus on the lesson (Triyanti, Harmoko, & Lestari, 2018). Because it can enhance students' thinking abilities, this learning model has a favorable effect on the learning process. This statement is in line with several research findings which have been conducted previously, including the one which stated that children's abilities can be enhanced by the Course Review Horray, which helps children significantly concept understanding of numbers (Rangkuti & Rangkuti, 2019). Another research discovered that review of the course Students in fifth grade who are visually impaired learn social studies more effectively using the Horay method (Hermawan, Putro, & Sugini, 2018). The next research findings found that the Course Review Horray model can ease the students in learning. It is a very effective to be implemented and is able to pique students' interest or make them happy to study science learning material at elementary schools (Munib & Wulandari, 2021). Another research finding also stated that the cooperative learning model in the form of Course review horay works well to boost engagement and learning results of the fourth grade elementary school students (Novela, Daharnis, Erita, & Fauzan, 2021). The results show that the CRH model can help elementary school students learn mathematics more effectively (Kusfabianto, Kristin, & Anugraheni, 2019). Therefore, it can be said that the CRH model can enhance students' academic results at the elementary school level in both mathematics and other subjects. Thus, this learning model is used as a solution to overcome the students' low understanding and poor process skills in science. This study is distinct from the previous ones since in this study, the CRH model will collaborate with ethnoscience.

Ethnoscience is local knowledge that is expressed through language, customs and culture, morals, and technology developed by a particular society or group of people but incorporating scientific knowledge (Defiyanti & Sumarni, 2020). The act of fusing scientific knowledge with societal native knowledge is known as ethnoscience (Dinissjah, Nirwana, & Risdianto, 2019; Saputra, 2016). Ethnoscience that lives and develops in society is still in the knowledge of concrete experience as a result of the interaction between the culture and natural environment (Wulandari, Eny Hartdiyati, & Nurwahyunani, 2018). Ethnoscience is able to strengthen the pupils' critical thinking abilities and attitudes based on local wisdom so that it produces continuity among knowledge (Wibowo & Ariyatun, 2020), hence it provides meaningful learning for students (Rahmawati & Atmojo, 2022). In ethnoscience, native culture can also motivate students to understand and learn science (Fikri, Milama, & Yunita, 2019). Ethnoscience can connect classroom learning to real-world situations and motivates students to actively participate in the learning process; it helps students' cognitive abilities and critical thinking (Rosidah, Hidayah, & Astuti, 2019). According to these explanations, it can be said that ethnoscience will have a positive impact on the students' abilities, both critical thinking skills and the skill of the scientific process. The advantages of the learning model variables and the ethnoscience approach will give a positive impact on the learning process so a study that aims at analyzing the impact of a learning model based on ethnoscience that helps elementary school students understand the relationship between culture and science has been developed. With this instructional strategy, teachers anticipate that students will comprehend the cultural meaning and science process skills. Through this learning, students are expected to learn more through this experience than just the basics of the culture existing in the community, but also to understand the meaning of the culture around them. In addition, with this model, students are also expected to possess science process skills in which they are accustomed to carrying out scientific procedures in investigating culture and science learning. Briefly, the ethnoscience-based course review horay learning model is anticipated to be able to enhance the learning process.

2. METHOD

This study uses a non-equivalent post-test only control group in a quasi-experimental design. The experimental group was treated with an ethnoscience-based course review horay learning model, while the control group was treated with a different learning model. A post-test was given to both the experimental and control groups to find out differences in cultural meaning understanding and science process skills between them.

The data uncovered by this study include (1) cultural meaning understanding of the students who were taught using the ethnoscience-based course review horay learning model (Y1); (2) cultural meaning comprehends of the students who were not taught using the horay learning model based on ethnoscience (Y1); (3) science process skills of the students who were instructed using the ethnoscience-based course review horay learning model (Y2), and (4) science process skills of the students who received instruction based on the ethnoscientific course review horay learning model (Y2). This research consisted of three stages: search preparation, implementing the research, and concluding the study or experiment. The procedure of the research is presented in Table 1.

This study was conducted at five public elementary schools in Patas village, Gerokgak District, Buleleng Regency during the even semester of the academic year 2022/2023 from April to May. The study's population consisted of fourth graders from these five elementary schools: Patas Public Elementary School No.1, Patas Public Elementary School No.2, Patas Public Elementary School No. 3, Patas Public Elementary School No.4, and Patas Public Elementary School No.5. There were 140 participants in the study as the population, and random sampling was used as the sample collection technique. The sampling method known as random sampling gives every component (member) of the population an equal chance of being chosen as a sample member. To ensure that the samples are truly equivalent, an equivalence test was performed using a one-way analysis of variance (ANOVA). Based on the results of ANOVA analysis at a significance level of 5%, an F value of 2.22 was obtained, while the Ftable of 2.43 was obtained with db between groups = 4 and db within groups = 136. Thus, it can be seen that F value < F table, so that H0 is accepted, and H1 is rejected. According to this statement, it is evident that H1, which states that there is a significant difference in the fourth-grade students' general science examination scores during the odd semester of the 2012–2013 academic year at SD Negeri Patas, Gerokgak District, Buleleng Regency, is rejected. Therefore, the samples are equivalent. Meanwhile, for the selection, a lottery technique was used to divide the two groups into the experimental and control groups. In the lottery process, one class was determined as the experimental group that received treatment using the ethnoscience-based course review horay learning model, and another class was assigned as the control group, which was given a conventional learning model. The experimental group had 29 participants, while the control group consisted of 28 participants.

A test and a questionnaire were used to collect data for this study. The test method is one way that is employed to determine the level of individual ability indirectly, and this is done by having people respond to various stimuli or questions that are presented. The test, conducted using essay-style questions, was used to determine the cultural meaning understanding of the students. The steps of the test methods were as follows: 1) creating test instrument grids, 2) developing inquiries in the form of essays, 3) consulting grids. The designed test instrument consisted of 10 items, but only 10 questions were included in the exams given to the students. The test grid is shown in Table 1.

Table 1. Indicators of cultural meaning understanding.

No	Indicators of cultural meaning understanding	Indicators
1	Understanding the culture found around that is associated with science learning	Exemplifying culture which can be integrated into science learning
		Explaining the relation between the culture and the science material being studied
		Interpreting the meaning of the culture integrated in the science learning
		Proving the relation between culture and the science material being studied
		Showing the result of investigation about the integration of culture and science learning

In order to check the reliability of the test instrument for understanding cultural meaning, it is necessary to perform testing that ensures the accuracy of the test items, the reliability of the test, the level of difficulty of the test items, and the degree of discrimination of the test instrument. The Content Validity Ratio (CVR) formula was used to evaluate the validity of the test instruments for understanding cultural meaning. The calculation for each instrument item's CVR yielded a result of 1, and the overall CVR for all instrument items for understanding cultural meaning was 10. Therefore, it can be determined that each instrument item meets the criteria for validation in the CVR formula. The instrument for understanding cultural meaning was put through a content validity test using the Content Validity Index (CVI) formula, and the results showed that the instrument passed with a score of 1, which is considered very good according to the CVI formula's rules for all instruments' content validity. The Alpha Coefficient was used in the reliability test of the cultural meaning understanding instrument where the data were in polytomies with a result of 0.85, which falls within the range of $0.60 < r_{11} \leq 0.85$. Therefore, the cultural meaning understanding test's reliability meets strict requirements. Out of the 10 questions created, 7 questions rated as medium and 3 questions were rated as a high difficulty for the cultural meaning understanding test items. The degree of difficulty for the test instrument falls under the category of medium criteria.

The science skills were measured using a questionnaire collection method. The developed questionnaire consists of 5 choices, namely strongly agree, agree, sufficient, disagree, and strongly disagree. The number of instruments was 30 consisting of 12 dimensions, which were further developed into 24 indicators. Table 2 displays a grid that is more comprehensive. It was necessary to test the reliability, the validity of the instrument items, and the validity of the instrument content in order to determine whether the scientific process skill questionnaire was valid. The CVR formula was used to evaluate the questionnaire's content validity. The validation requirement for each instrument item in the CVR formula was declared valid if the result of the calculation of each instrument item was 1, and the total CVR for all science process skills instrument items was 30. The reliability test of the questionnaire was carried out using SPSS. The content validity yielded a result of 0.85, which is considered to be very strong. The Cronbach's Alpha value of the analysis obtained from the reliability test of the questionnaire using Statistical Packages for Social Sciences (SPSS) was 0.81, indicating that the questionnaire was extremely reliable.

Table 2. Indicators of science process skills.

No	Dimension	Indicator
1	Observing	Using one or more senses to collect information about objects/events Identifying object characteristics (Shape, color, size, and texture)
2	Classifying	Identifying characteristics that are useful for classifying objects Developing and using a classification system in tabulation or visualization form
3	Measuring	Measuring under given conditions using appropriate units with appropriate degree of accuracy
4	Using space/Time relationship	Describing the position/condition of the object (At first, during the process, and after the process ends) Describing the condition of the object compared to other objects
5	Using numbers	Calculating results from raw data Solving theoretical problems to improve academic ability by using pictures/mathematics to show scientific meaning
6	Communicating	Changing information into other forms, such as graphs, tables and diagrams Examining the data presented in the form of graphs, tables, etc.
7	Predicting	Using the facts to formulate the next process sequence Using patterns/relationships to calculate cases in which no information is collected
8	Inferring	Analyzing the causes and effects of decisions Organizing the observed data in a logical order that helps possible solutions
9	Variable identification and control	Determining the independent, dependent, and control variables identifying the variables that may have an impact on the outcomes of the experiment, and keeping the majority of them constant despite manipulation with the exception of the independent variables
10	Interpreting data	Identifying the relationship between variables, from the graph/table given from the data (Connecting with the investigation) Drawing conclusions from the data by determining a clear pattern
11	Formulating hypothesis	Identifying questions/statements that can be tested or cannot Constructing assertions that can be tested through experimentation, such as questions, inferences, and predictions Stating the expected results of the experiment
12	Experimenting	Using safe procedures during investigations Using the appropriate equipment

Inferential statistical analysis and descriptive analysis are data collection techniques used in this study. Post-test data were analyzed as part of the descriptive analysis, which included mean, standard deviation, maximum and minimum values. The inferential statistical analysis used was the MANOVA test with prerequisite tests in the form of the Kolmogrof-Smirnov normality test, the homogeneity test using the Levene statistic, the Box's Test of Equality of Covariance Matrics, and the multicorrelation test. All tests were carried out using SPSS 25.0 for Windows.

3. RESULTS

After receiving instruction in accordance with the learning design, the results showed that there was an increase in cultural meaning understanding and students' science process abilities that were taught using the ethnoscience-based course model. The results of the descriptive analysis are presented in Table 3. Based on the research findings, there were differences in the students' cultural meaning understanding and science process skills, as indicated by differences in the mean value. The mean difference of the cultural meaning understanding between students who were instructed utilizing the ethnoscience-based course review horay learning model and those who were not was 3.98, in which the mean value of the students who were instructed utilizing the ethnoscience-based course review horay learning model was higher. Meanwhile, the mean difference of the science process skills between the students who were instructed utilizing the ethnoscience-based course review horay learning model and those who were not was 4.34, in which the mean value of the students who were instructed utilizing the ethnoscience-based course review horay learning model was higher. The results also show that the science process skill variable is more influenced than the understanding of cultural meaning, this is indicated by the greater mean difference. The findings also indicate that the science process skill variable is more influenced than the cultural meaning understanding variable since the mean difference is higher.

Table 3. The result of descriptive analysis of cultural meaning understanding and science process skills.

Treatment	Dependent variable	Mean	Standard deviation	Maximum	Minimum
Ethnoscience-based course review horay learning model	Cultural meaning understanding	85.55	5.01	94.00	78.00
	Science process skill	87.48	7.57	99.00	71.00
Non ethnoscience-based course review horay learning model	Cultural meaning understanding	81.57	6.34	91.00	67.00
	Science process skill	83.14	7.50	95.00	68.00

The Kolmogorov-Smirnov normality test shows that all data come from normally distributed data groups, which are indicated by the Sig value. > 0.05 as shown in Table 4. The homogeneity test was carried out with Box's Test of Equality of Covariance Matrices and the homogeneity test of variance with Levene's Test of Equality.

Table 4. Result of normality analysis.

Dependent variable	Learning approcah	Kolmogorov-Smirnov		
		Statistic	df	Sig.
Cultural meaning understanding	Ethnoscience-based course review horay learning model	0.14	29	0.17
	Non ethnoscience-based course review horay learning model	0.11	28	0.20
Science process skills	Ethnoscience-based course review horay learning model	0.11	29	0.20
	Non ethnoscience-based course review horay learning model	0.11	28	0.20

The findings of the homogeneity analysis show that the research data comes from homogeneous data groups. Levene's Test of Equality is 0.39 for understanding cultural meaning, while the significance value of science process skills is 0.92. The homogeneity test with Box's Test of Equality of Covariance Matrix obtained a significance value of 0.34 and an F value of 1.12. The results of the analysis show that the VIF and tolerance values are close to 1 in the multicollinearity test. Thus, the variable understanding of cultural meaning and science process skills has no correlation.

The conditions required for MANOVA analysis are met, so MANOVA hypothesis testing can be performed. The full analysis findings are detailed in Table 5, and Table 6.

The result of MANOVA indicated that *Wilks' Lambda, Hotelling's Trace, Pillae Trace,* and *Roy's Largest Root* showed an F coefficient of 10843.42 with a significance value of 0.00. Consequently, there were simultaneous differences in the cultural meaning understanding and the science process skills of the students who were instructed using the ethnoscience-based course review horay learning model. The analysis of the between-subjects effects tests produced an F value of 6.93 with a significance value of 0.00, which is smaller than 0.05. This showed that the ethnoscience-based course review horay learning model has a significant impact on how people understand the cultural meaning. Moreover, the result analysis of *Tests of Between-Subjects Effects* showed an F value of 268.31 with a significant value of 0.00, which is smaller than 0.05. This demonstrated a significant influence of the ethnoscience-based course review horay learning model on the science process skills.

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Table 5. Result analysis of MANOVA test.

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial eta squared
Intercept	Pillai's trace	1.00	10843.42	2.00	54.00	0.00	0.998
	Wilks' lambda	0.00	10843.42	2.00	54.00	0.00	0.998
	Hotelling's trace	401.61	10843.42	2.00	54.00	0.00	0.998
	Roy's largest root	401.61	10843.42	2.00	54.00	0.00	0.998
Treatment	Pillai's trace	0.19	6.48	2.00	54.00	0.00	0.19
	Wilks' lambda	0.81	6.48	2.00	54.00	0.00	0.19
	Hotelling's trace	0.24	6.48	2.00	54.00	0.00	0.19
	Roy's largest root	0.24	6.48	2.00	54.00	0.00	0.19

Table 6. Analysis result of tests of between-subjects effects.

Source	Dependent variable	Type III sum of squares	df	Mean square	F	Sig.	Partial eta squared
Corrected model	Cultural meaning understanding	225.69	1	225.69	6.93	0.01	0.11
	Science process skills	268.31	1	268.31	4.73	0.03	0.08
Intercept	Cultural meaning understanding	397882.11	1	397882.11	12225.23	0.00	0.99
	Science process skills	414733.99	1	414733.99	7304.765	0.00	0.99
Treatment	Cultural meaning understanding	225.69	1	225.69	6.934	0.01	0.11
	Science process skills	268.31	1	268.31	4.726	0.03	0.08
Error	Cultural meaning understanding	1790.03	55	32.55	0.00	0.00	0.00
	Science process skills	3122.67	55	56.78	0.00	0.00	0.00
Total	Cultural meaning understanding	400353.00	57	0.00	0.00	0.00	0.00
	Science process skills	418623.00	57	0.00	0.00	0.00	0.00
Corrected total	Cultural meaning understanding	2015.72	56	0.00	0.00	0.00	0.00
	Science process skills	3390.98	56	0.00	0.00	0.00	0.00

4. DISCUSSION

The study findings indicate that the ethnoscience-based course review horay learning model has a significant impact on both cultural meaning understanding and science process skills, both simultaneously and partially. This condition undoubtedly affects the way learning is conducted, as students have opportunities to actively learn and determine the type of learning they want based on their culture. Integrating Culture in the educational process increases the significance of learning, allowing students to investigate and internalize their knowledge, leading to experience and social emotional development (Bressington, Wong, Lam, & Chien, 2018; Kostiainen et al., 2018).

The use of the ethnoscience-based course review horay model further strengthens this meaningful learning. The application of this model increases students' interest in the educational process by incorporating games into learning. Learning through games encourages the students' enthusiasm for education. Student interest is a crucial factor in learning success, and this enthusiasm is a result of the students themselves (Yunitasari & Hanifah, 2020). Interests play a significant role in the students' lives and have a great impact on their attitudes and behavior (Aprijal, Alfian, & Syarifudin, 2020). High enough interest will affect learning activities (Ardies, De Maeyer, & Gijbels, 2015; Mauliya, Relianisa, & Rokhyati, 2020), which later influences the learning objectives (Hurriyyah,

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2017). Therefore, students who actively participate in their learning will have a significant impact on cultural meaning understanding.

The learning application of the ethnoscience-based course review horay learning model improves the learners' understanding. Students' understanding is related to various concepts which are in accordance with the material they master and is used to achieve learning objectives (Deliany, Hidayat, & Nurhayati, 2019). Students' understanding is not just memorization, but their ability to give meaning related to the subject matter being studied. The students' comprehension of the subject matter greatly helps to improve their ability to think at the next level (Fitriana & Yuberti, 2019). The integrity of the concepts possessed by students can help form a complete scientific framework as well (Putri et al., 2020).

In applying the ethnoscience-based course review horay learning model, the understanding obtained by students is not only related to the background material but also the development of cultural meaning understanding, which becomes more complex considering that this model is based on ethnoscience in which the learning provided is integrated with existing culture in society. Ethnoscience is the process of bridging the gap between social science and scientific knowledge (Dinissjah et al., 2019; Saputra, 2016). Ethnoscience that lives and develops in society still belongs to the knowledge of concrete experience as a result of the interaction between culture and the natural environment (Wulandari et al., 2018). Cultural values that are incorporated into the educational process are presented in the course review horay learning syntax, which has an impact on increasing the students' ability to understand cultural meaning.

The students' understanding is improving because the syntax of the ethnoscience-based course review horay learning model makes learning more comfortable and engaging with the inclusion of games. As we know, peer learning facilitates students' learning and can have a positive impact on their social-emotional development. Peer learning motivates students to participate actively in their education, promotes self-learning, and fosters collaboration among peers (Gabriele, Holthaus, & Boulet, 2016; Oh, 2019). Peer-based instruction also reduces anxiety and stress and increases students' self-confidence, as peers guide, help, and provide feedback to one another (Andersen & Watkins, 2018). Peer-based instruction also reduces anxiety and stress and increases students' self-confidence, as peers guide, help, and provide feedback to one another (Han, Baek, & Jeong, 2015; Stone, Cooper, & Cant, 2013). Based on these explanations, it is important to create a conducive learning environment that allows students to communicate their learning goals. The ethnoscience-based course review horay learning model meets this expectation and can positively impact the students' attitude toward science and their level of understanding during the learning process. The concept of integrity possessed by the students can help to form a complete scientific framework as well (Putri et al., 2020). The formation of a complete scientific framework is the basis of science process skills. The students' concepts understanding will be developed well if they learn through independent learning.

The application of the ethnoscience-based course review horay learning model has been found to affect both scientific process ability and understanding of cultural meaning at the same time, consistent with previous research findings. In this learning process, a problem, issue, or scientific phenomenon is identified using science process skills (Idris et al., 2022; Rosana et al., 2021), and new knowledge is imparted to encourage students to seek facts and concepts on their own (Ekawati et al., 2018). The practice of science process skills occurs during the process of observing, classifying (grouping), communicating, predicting, inferring (concluding), formulating hypotheses, interpreting (analyzing), controlling variables, as well as designing and conducting experiments (Elfeky et al., 2020; Ihsan et al., 2017; Setiawan & Sugiyanto, 2020). These skills are well developed in the application of the ethnoscience-based course review horay learning model. The cooperative learning model known as CRH is enjoyable and helps students become more competitive in their learning. Additionally, it can develop critical thinking skills and improve the concepts learned (Chilmi et al., 2019; Masruddin, 2019). Learning with the CHR model attracts and encourages students to be able to involve directly and trains student cooperation, so the theory delivery will not be monotonous. Consequently, it can attract the students' attention and increase their motivation to focus on the lesson (Triyanti et al., 2018). With this learning model, the students will be stimulated to hone their problem-solving abilities. In the current study, the problems that should be solved were cultural problems integrated with science learning. These problems were carried out through a scientific process that will produce a clarification or solution related to the problem being faced. By familiarizing students with scientific processes, they will certainly be able to improve their science process abilities.

The results of this study also demonstrate that scientific reasoning abilities are more influenced than understanding cultural meanings. This is certainly inseparable from how this learning is conducted. In this learning, the students are invited to learn by presenting and demonstrating the material of the topic being studied, which in this case, is studied from the culture that exists in the student community. Before being able to present or demonstrate the material, the students are expected to investigate through the scientific process. By doing scientific activities, students are certainly accustomed to it and able to develop other process skills. With the existence of science process skills, it will undoubtedly affect the achievement of learning goals and have an impact on how students learn. Science processing abilities can grow the critical thinking skills of the students, Kurniawan et al. (2020); Darmaji et al. (2021); Firmansyah and Suhandi (2021). Process skill will affect scientific attitude (Juhji & Nuangchalerm, 2020; Zeidan & Jayosi, 2014), and science skills may provide science concept understanding (Tan et al., 2020). Consequently, science process abilities will advance problem-solving abilities.

The current research is different from existing studies as it collaborates the CRH model with ethnoscience, specifically integrating the Balinese culture into daily lessons. This learning model has yielded significant results, as students have developed an understanding of cultural meaning and science process skills. The aim of this model is not only to provide knowledge of the community's culture but also to understand its significance. Moreover, this model enables students to acquire science process skills that apply to studying culture and learning science. Therefore, the ethnoscience-based course review horay learning model is anticipated to enhance the learning process. However, this study has limitations, as the sample size is small, and it is recommended to conduct further research with a larger sample size.

5. CONCLUSION AND RECOMMENDATIONS

The study results indicate that the ethnoscience-based course review horay learning model has a significant impact on both understanding the cultural meanings and the science process skills, both simultaneously and partially. The mean value reflects the students' understanding of cultural meaning and scientific methods. Additionally, the outcomes suggest that science process ability variable is more influenced than the cultural meaning understanding which is indicated by the larger mean difference. Therefore, it is recommended to utilize the ethnoscience-based course review horay learning model as an innovative learning model to address the issue of low understanding and science process skills.

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CONFLICT OF INTEREST

The author declares that there are no conflicts of interests regarding the publication of this paper.

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