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Article

Tri Hita Karana Based Subak in Strengthening Character and Social Studies Learning Outcomes

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Abstract

It is a common belief that the higher is the optimal learning, the greater are the results in enhancement of character and students' learning outcomes. A major role is often played by the application of Subak (water management system) based on Tri Hita Karana (three causes of happiness and prosperity). This study aimed to analyze the role of Tri Hita Karana based Subak in strengthening the character and enhancing the learning outcomes of elementary school students. This quasi-experimental research design utilized the post-test group design, with a sample size of 60 students, divided into experimental class and control class with 30 students each. The data was collected through a test and a questionnaire. The test instrument comprised 10 questions while the questionnaire contained 30 statements, to measure learning outcomes. Quantitative descriptive analysis and inferential statistical analysis were the data analysis methods used, with MANOVA as the data analysis technique. The results indicate that there is a positive effect of the application of Tri Hita Karana based Subak learning on students' character and learning outcomes. The results revealed that the average value of students' character and student learning outcomes taught with Tri Hita Karana based Subak learning was higher. In addition, the research findings also indicated that the learning outcome variable was strongly influenced by the Tri Hita Karana-based Subak learning.

Keywords

Tri Hita Karana, character, social science studies, learning outcomes

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Technology and science development demands an individual to own a strong character. Character is the way someone thinks and acts to live and cooperate in the context of family and society which is expressed in thought, behavior, feeling, words and act (Rehusisma et al., 2017). Character does not only have integrative dimension which means improving students' intellectual moral and becoming strong people (Fitriani & Sundawa, 2016). Strong character which is the benchmark of the nation's progress consists of character value such as honesty, perseverance, mutual assistance, discipline, independence, tenacity and responsibility (Tanto et al., 2019). Involving family, in this case parents and relatives, is not enough to control the students' behavior (Rahmawati et al., 2019). School environment and surrounding are elements which support and play important role in students' moral development (Syarifuddin & Fahyuni, 2019). There are two things which can be done at school to build good character. First, internalize character education since early stage in order to make the students strong individuals. Second, include noble values to the students' learning (Estuwardani & Mustadi, 2016). The importance of character should be given to the children as early as possible (Tanto et al., 2019). In other words, character is an important thing which should be developed as early as possible so that it will give a significant influence to the students' success in the learning process afterward and it makes the students strong and responsible people to face advancement.

Good character will certainly also affect the learning outcomes. This statement is supported by several research findings, such as research which found out that independent character has relationship with the students' learning outcomes (Rahmayani, 2019). Research which stated that character affects the sixth-grade learning outcomes of Sungguminasa Elementary Schools (Abustan et al., 2019). Research which reported that there is a significant effect of study hard towards students' physics learning outcomes in which the more positive (the higher) the students study hard in physics, the better learning outcomes will be gained (Fitriani et al., 2021). Research which discovered that there is a significant effect of character education upon the students' learning outcomes on 'the beauty of togetherness' theme (Sitorus et al., 2020). According to those explanation, it can be stated that the students' character defines the learning outcomes. Therefore, in order to improve the students' character in the learning process, it should be supported with quality learning process. In addition, learning resources which supports the learning process is also needed.

In the learning process, the learning resource is needed so that it becomes more meaningful and directed, enabling the learning objective to be achieved (Sutanto & Purwasih, 2015). The learning resource can be identified as message, people, data, fact, idea, object, technology and environment which could lead into learning activity (Amrullah et al., 2020). Good learning resources should be developed based on the students' learning style in understanding subject, especially mathematics (Rosmawanti et al., 2020). Nevertheless, current learning cannot be defined as the optimal one in developing a student's character. It can be proved that there are several students who are impolite to others, have fewer responsibility and less environmental care attitude. This is caused by several factors, one of them is the learning resource which is incompatible to the students' character and focuses more on the learning material without paying attention to the students' character. If this is allowed, it will certainly give negative effect on the continuity of the learning process.

One solution which is offered to solve this problem is local wisdom-based education. Local wisdom is proved to be effective to conduct well an education which is defined as traditional education, including character education (Priyatna, 2017). Local wisdom based education is the one that teaches students to be sticky to the real situation, and face any adverse situations strongly (Afiqoh et al., 2018). A study claimed that local wisdom values exist in Keleleng tradition at Punggur Kecil Village Kubu Raya Regency, of West Kalimantan Province, which are discipline and responsibility, cooperation, kinship, concern, generosity, and leadership value (Saripaini, 2021). Another study claimed that Balinese culture was very interesting as BIPA supportive learning media for beginner level, especially for those who are studying in Bali and as motivation to improve the ability to understanding the subject being learned by the students (Parwati, 2021). The next research proved that local wisdom learning environment can improve the environmental care attitude, for example keeping the spring surrounding areas clean by taking & throwing the garbage around its area in the trash bin, planting fibrous plants, i.e. Chinese Albizia to expand water absorption area, and doing other environmental care actions (Immaniar et al., 2019). Another study stated that the reinforcement of local wisdom based education for students at school can completely build the students' character with the noble values in their environment, i.e. school, family, and society. (Sakman & Syam, 2020). The last research claimed that there was a significant difference between care character and students' responsibility before and after following the learning, using integrative thematic teaching materials based on local wisdom (Lestariningsih & Suardiman, 2017). According to the previous explanation, it can be stated that local wisdom can give positive effect toward students' character building. Based on this, this current study which aimed at analyzing the implementation of Tri Hita Karana based Subak to strengthen the character and learning outcomes of elementary school students was deemed necessary.

This study is different from the previous ones since Subak is the local wisdom used. Subak is one Balinese local wisdom which is related to the water management system and its use (Lestari et al., 2015; Sudantra, 2018). Subak is also a traditional organization in the field of water management system and its use, or a plant growing system at farm level in Bali which is socio-agrarian, religious, economic and historical, as it keeps growing and developing (Wijayanti & Windia, 2021). Currently, Subak is still effective as a water management system which exists only in Bali (Tanu, 2016; Tristaningrat, 2020).

Therefore, Subak is the Balinese local wisdom which has noble values such as socio-agrarian, religious, and economic that can be implemented upon the students. Subak is based on Tri Hita Karana, which relates to three causes of human happiness and prosperity, which come from the harmonious relationship between man and God, man and other people, and man and nature (Adhitama, 2020; Anjarsari et al., 2017). The existence of Tri Hita Karana concept should be comprehensively conveyed and implemented to all students and Hindus in the society (Arsana & Muniksu, 2020). The existence of Tri Hita Karana in the learning process will give effect to it, i.e. character and learning outcomes (Narayani1 et al., 2019). The blend of these two Balinese local wisdoms is said to make a positive effect on students' character.

Method

Research Design

This study used a quasi-experimental, with a post-test only control group design (Rogers & Revesz, 2019). The study sample was divided into experimental group and control group. The experimental group was given treatment with Tri Hita Karana based Subak. On the other hand, the control group was treated without it. Both groups were given a post-test to discover the difference in the attitude and perception of each group regarding character and learning outcomes. Data obtained in this study was coded as (1) character (Y1) of the students who were taught using Tri Hita Karana based Subak; (2) character (Y1) of the students who were taught without using Tri Hita Karana based Subak; (3) Social Studies learning outcomes (Y2) of the students who were taught using Tri Hita Karana based Subak; and (4) Social Studies learning outcomes (Y2) of the students who were taught without using Tri Hita Karana based Subak. In simple terms, the design of this study is presented in Figure 1.

Group	Treatment	Output
Experimental Group	X	O1
Control Group	-	O2

Figure 1. Research Design

where

- X : Tri Hita Karana based Subak
- O1 : Post-test on experimental group
- O2 : Post-test on control group

Sample

The experiment was conducted at Undiksha Laboratory Elementary School by taking class IV A as the experimental group and class IV B as the control group. There were 30 students in each group.

Research instrument and procedure

A test and a questionnaire were used to collect the data for this study. The test was conducted to measure the students' learning outcomes. It was developed based on the learning material, i.e. ecosystem. The test being developed was 10 essay questions in the C4-C6 level. The steps were as follows; 1) making the content outline of the test instruments; 2) creating essay questions; 3) consulting the content outline of the test and the essay questions which were developed by the expert. At the validity test of the learning outcomes test instrument, it was needed to test the validity of the item and the content of the instrument, the reliability of the test, and the difficulty level of the test item & the test instrument. The item validity test of the learning outcomes instrument was conducted using CVR formula. The result of CVR calculation of each instrument item was 1 and the number of all CVR of all test instrument item for critical thinking skill was 10 and it could be stated valid based on the validation requirements of each instrument item in CVR formula.

The content validity test of the learning outcomes instrument was conducted using CVI formula in which the result was the CVI value was 1 and the learning outcomes test instrument was stated very good based on the content validity requirements of the whole instrument in CVI formula. The reliability test of the learning outcomes, in which the data were in the form of polytomy, used Alpha Coefficient with the result was 0.75 and in the range $0.66 < r_{11} \leq 0.85$. Therefore, the reliability of the learning outcomes test was at high criteria. The difficulty level of critical thinking skill test item showed that out of 10 questions, 3 questions were of medium criteria and 7 questions were of high criteria. Meanwhile, the difficulty level of the test instrument was of difficult criteria.

The questionnaire collection method was used to measure character. Self-character questionnaire consisted of close questionnaire, the form of self-efficacy questionnaire used Likert scale in which each item was completed with 4 answer choices, i.e. Very Suitable (SS), Suitable (S), Unsuitable (TS), Very Unsuitable (STS). The questionnaire was developed from character dimension which is the students character values consisted of honesty, perseverance, mutual assistance, discipline, independence, tenacity, and responsibility (Tanto et al., 2019). These eight dimensions were developed into 15 indicators which would be developed into 30 statements. At the validity test of questionnaire instrument, it was needed to test the item validity, content validity, and reliability. The item validity test of the questionnaire instrument used CVR formula. The result of the calculation of each instrument item was 1 and the number of the total CVR from the whole character instrument items was 30 and it could be stated valid based on the validity requirements of each instrument item in CVR formula. The content validity test was conducted using SPSS and the result was 0.78, a score which meant very strong. The analysis result of questionnaire reliability test using SPSS with Cronbach's Alpha score was 0.85 which meant the questionnaire being developed was very reliable.

Data Analysis

The data analysis method in the study was descriptive and used inferential statistics analysis. The descriptive analysis was processed using SPSS 25.0 for Windows. The values which were looked for in the statistics test were mean, maximum and minimum score, and deviation standard. The MANOVA test was conducted on the post-test data for inferential analysis. Before conducting the t-test, the prerequisite tests, i.e. normality and homogeneity tests were done. Similarly, before doing MANOVA test, the prerequisite tests were conducted in which the normality test, homogeneity test, and linearity test were also conducted in order to discover whether there was linear relationship among each bound variable being analyzed.

Findings

After the students were taught based on the learning design, i.e. Tri Hita Karana based Subak learning, a descriptive analysis result was obtained which showed that there was a significant effect of the implementation of Tri Hita Karana based Subak learning. The result of descriptive analysis is fully presented in Table 1. It reveals a difference in the students' character and learning outcomes who were taught using Tri Hita Karana based Subak, as compared to those who were not. This is seen in the gap score of 3.10 in which the average core of students' character, who were taught using Tri Hita Karana based Subak learning, was higher than those who were taught without it. Meanwhile, the learning outcomes showed the gap score of 6.83, in which is the average score of students' learning outcome who were taught using Tri Hita Karana based Subak learning was higher than those who were taught without it. Another finding based on the result of descriptive analysis was the learning outcomes variable affected by the Tri Hita Karana based Subak learning. It was seen from the gap score between character variable and learning outcomes variable.

Table 1. Result of Descriptive Analysis on Character and Learning Outcomes

Treatment	Bound Variable	Mean	Std. Deviation	Min.	Max.	Range
Learning with Tri Hita Karana based Subak	Character	83.60	5.58	71	93	22
	Learning Outcomes	87.33	7.56	71	100	29
Learning without Tri Hita Karana based Subak	Character	79.97	6.42	68	91	23
	Learning Outcomes	80.50	6.42	71	93	22

There were a few prerequisite tests conducted including the normality test of data distribution, homogeneity of variance test, homogeneity of multivariate test, and linearity test of bound variable. The first prerequisite test was normality test using Kolmogorov-Smirnov. The result of analysis showed that all data came from normal distributed data group, as revealed by the Sig. value > 0.05 , as seen in [Table 2](#). After the normality requirement was fulfilled, the next was homogeneity test, conducted using two analyses, i.e. homogeneity of variance test, using Levene's Test of Equality, and homogeneity of multivariate test, using Box's Test of Equality of Covariance Matrices.

Table 2. *Result of Normality Analysis*

Treatment		Kolmogorov-Smirnova		
		Statistic	df	Sig.
Character	Experimental	0.11	30	0.200
	Control	0.11	30	0.200
Learning Outcomes	Experimental	0.10	30	0.200
	Control	0.10	30	0.200

The result of homogeneity analysis showed the same meaning, i.e. the data of the study result came from homogeneous data group as seen from the sig. value of each test being more than 0.05. The Sig. value of Levene's Test of Equality was 0.61 for character while the Sig. Value of learning outcomes was 0.62. Meanwhile, the homogeneity test using Box's Test of Equality of Covariance Matrices discovered the Sig. value of 0.64 and the Box's M value was 1.77. The next prerequisite test was the linearity test which aimed to find out whether there was a linear relationship among each bound variable being analyzed. The analysis result showed that the sig. Value of Deviation from Linearity was 0.85 (>0.05). This means that there is a linear relationship between character and learning outcomes data. The prerequisite test for MANOVA analysis was fulfilled in which the data of the study result was normally distributed, and it was homogeneous, so that the hypothesis testing with MANOVA could be conducted. The results of the analysis are fully described in [Table 3](#) and [Table 4](#).

Table 3. *Results of MANOVA Test Analysis*

	Effect	Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	1.00	10458.272	2.00	57.00	0.00
	Wilks' Lambda	0.00	10458.272	2.00	57.00	0.00
	Hotelling's Trace	366.96	10458.272	2.00	57.00	0.00
	Roy's Largest Root	366.96	10458.272	2.00	57.00	0.00
Treatment	Pillai's Trace	0.19	6.625	2.00	57.00	0.00
	Wilks' Lambda	0.819	6.625	2.00	57.00	0.00
	Hotelling's Trace	0.239	6.625	2.00	57.00	0.00
	Roy's Largest Root	0.239	6.625	2.00	57.00	0.00

[Table 3](#) shows results of Pillae Trace, Wilks 'Lambda Hotelling's Trace, and Roy's Largest Root, which reveals F coefficient being 10458.272 with the Sig. Value 0.00. It means that there is simultaneous difference on character and learning outcomes between the students who were taught using Tri Hita Karana based Subak learning and those who were taught without it. [Table 4](#) shows the results of Tests of Between-Subjects Effects, revealing that F was 5.46 with Sig. value 0.02, which was less than 0.05. It suggests that there was an effect of the implementation of Tri Hita Karana based Subak learning toward the students' character. In the second phase, the result analysis of Tests of Between-Subjects Effects also shows that the F value was 7.13 with Sig. Value 0.01 which was less than 0.05. This means that there was an effect of Tri Hita Karana based Subak learning toward the learning outcomes.

Table 4. Result Analysis of Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Character	198.02	1	198.02	5.46	0.02
	Learning Outcomes	350.42	1	350.42	7.13	0.01
Intercept	Character	401310.82	1	401310.82	11072.40	0.00
	Learning Outcomes	432650.42	1	432650.42	8798.13	0.00
Treatment	Character	198.02	1	198.02	5.46	0.02
	Learning Outcomes	350.42	1	350.42	7.13	0.01
Error	Character	2102.17	58	36.24		
	Learning Outcomes	2852.17	58	49.18		
Total	Character	403611.00	60			
	Learning Outcomes	435853.00	60			
Corrected Total	Character	2300.18	59			
	Learning Outcomes	3202.58	59			

Discussion

The findings indicate that there is an effect of the implementation of Tri Hita Karana based Subak learning toward the students' character and learning outcomes. It is not separated from how the learning was conducted and where the students learn with contextual learning resources. Learning with contextual learning resources makes students more active in the learning process. Environment as the learning resource eases the learning process, develops attractiveness, and motivates the students to be more active, interactive and critical in solving problem formulation (Irwandi & Fajeriadi, 2019). Contextual learning also makes the learning process more meaningful. It will give experience to the students which can be used in daily life eventually (Bressington et al., 2018). Besides having more contextual learning, the implementation of Tri Hita Karana based Subak also gives more chances to the students to be used to doing Balinese local wisdom, i.e. Tri Hita Karana. Through learning with the resources, the students see directly how the human relationship with God, others and environment. This will affect the learning process.

There are a few things evident from the findings of the current study. First, Tri Hita Karana based Subak learning affects students' character. It brings experience related to the character development. In this learning, the students get used to learning based on Tri Hita Karana values, i.e. *Parahyangan*, *Pawongan* and *Palemahan*. In *Parahyangan* value, the students make contact with God by praying before and after studying and always being grateful for the everything given by God. The form of the human relationship with God is their attitude or behavior by worshiping *Hyang Widhi* (Arsana & Muniksu, 2020). In Subak, there are several series of ceremonies which should be conducted as the form of devotion and gratitude of the Subak member; the ceremonies are collective and the religious ceremonies are conducted individually by the member of Subak (Lestari et al., 2015; Wijayanti & Windia, 2021). This combination develops the religious character of the students. Tri Hita Karana based Subak learning also accustoms the students to do mutual assistance and work together in the learning process since the second Tri Hita Karana value second is *Pawongan*.

Pawongan is the relationship between human and others (Adhitama, 2020). Relationship or social relations which exist in Balinese society like family while social group based on profession is called *sekaa* (Yasa, 2020). The implementation of *Pawongan* value is clearly seen when the students study or discuss with their peers to solve problem given. This condition certainly affects their attitude to cooperate and do mutual assistance. In addition, Tri Hita Karana based Subak learning is able to develop the students' environmental care attitude. In accordance with the previous explanation, the last Tri Hita Karana value is *Palemahan*. In the *Palemahan* value (human relationship with environment), the students are taught how to treat plants and maintain cleanliness. Certainly, by accustoming this, the students get used to care the environment.

Second, there is an effect of the implementation of Tri Hita Karana based Subak learning toward the learning outcomes. It brings positive effect to the learning process. By applying the values of Subak and Tri Hita Karana in the learning process, it accustoms the students to study contextually and cooperate with their friends to solve the learning process. Therefore, there will be a good relationship between the students and their peers which

will certainly affect their learning outcomes. Learning with peers will encourage the students to play an active role in the learning (Oh, 2019). Peers method improve the students' self-learning through experience which is the feedback from their peers (Gabriele et al., 2016). Peers help, guide, and support others so that they are able to build learning through interaction and collaboration (Andersen & Watkins, 2018). Learning which involves peers will decrease anxiety and stress by being guided, helped, and given feedback by the peers so that the students are able to improve their confidence (Han et al., 2015; Stone et al., 2013). Based on the previous explanation, in order to create a learning which is conducive and suitable to the current condition, the learning should give chance to the students to share learning hope. In this study, the learning outcomes variable is the one which is affected at the most. It is not separated from how the learning process is conducted.

The findings of this study are in accordance with those which were conducted previously. The first study stated that Tri Hita Karana based PAKEM model significantly affects the writing skill of the four-grade students at Letkol Wisnu Cluster Elementary Schools in Denpasar Utara Academic Year 2017/2018 (Pradnyawathi & Gst, 2019). The next study confirmed that the implementation of Tri Hita Karana concept encourages the achievement of the students' learning success and also aims to mature the students to own sensitivity toward perfect moral values and become balanced between intellectual quotient, emotional and spiritual intelligent (Jaya, 2019). Another study investigated the implementation of Tri Hita Karana in education management at Dwijendra Junior High School Denpasar from *Parahyangan, Palemahan, and Pawongan aspect* (Rai et al., 2021). The study stated that the implementation of Tri Hita Karana concept can give an effect to the learning outcomes because one of Tri Hita Karana concept, i.e. maintain the harmony with friends and obey the teacher and religion orders, so that it will bring a better result in achieving cognitive, psychometric, and affective aspect that can give life guidance to the students. The 21st century learning is expected to be technology based in order to balance the demands of the time in the millennial era so that the students are used to the life skill of the 21st century (Dikta, 2020).

According to the previous explanation, it can be stated that there is an effect of the implementation of Tri Hita Karana based Subak learning toward the students' character and learning outcomes. This study has specialty, i.e. the students were taught using the combination of Balinese local wisdom that is Subak and Tri Hita Karana. This combination gives positive effect to the character and learning outcomes because the students are accustomed to study together and become grateful for everything God given to them. Vocational education can help develop optimal, quality, and competitive human resources so that (Gunawan et al., 2021) the existence of vocational education is closely related to the social development of the workforce and producing quality workers (Hamid et al., 2017). Vocational learning must be able to encourage students to be creative and innovative, think critically to solve problems, and have the ability to communicate and collaborate (Hidayati & Wagiran, 2020). Thus, because vocational education is one of the educations that produces human resources who are ready to work, it must be able to develop human resources who are able to compete in the period of the industrial revolution 4.0 and possess 21st century skills.

Conclusion

The research findings reveal that there is an effect of the implementation of Tri Hita Karana based Subak learning toward the students' character and learning outcomes. This condition is evident in the result of data analysis in which the average score of the students' character and learning outcomes with Tri Hita Karana based Subak learning is found higher. In addition, the findings also reveal that the learning outcomes variable is excessively affected by Tri Hita Karana based Subak learning. Therefore, it is recommended to be used as one innovative learning at elementary school.

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