

Subak Local Wisdom as Social Studies Learning Source in Junior High School

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Abstract—*Subak* local wisdom is the Balinese agricultural culture that has been declared by UNESCO as a world cultural heritage. *Subak* which is based on the philosophy of Tri Hita Karana has social, religious and ecological values and serves as the basis for a harmonious community life. This study aims to determine: (1) the level of knowledge and understanding of social studies teachers about *subak*, and (2) social studies teachers' attitude towards the idea about developing social studies learning models based on *subak* local wisdom. The study sample consisted of social studies teachers who were determined by purposive sampling. The research instruments were a semi-structured test and attitude questionnaire based on the Likert scale. Data were analyzed by quantitative descriptive techniques. The results showed that: (1) the majority of the teachers had a low level of knowledge and understanding about *subak* (47.50%); the remaining 32.50% are classified as moderate and only 20% are classified as high. (2) The majority of the teachers (77.50%) stated that they never used *subak* as a social study learning resource. (3) The teacher's attitude towards the idea of developing the social studies learning model based on *subak* local wisdom was very positive, where 97.50% expressed a strong agreement. The implication of the research is that further research needs to be done with a focus on developing social studies learning models based on the local wisdom of *subak*.

Keywords: *subak*, social studies learning

I. INTRODUCTION

Indonesia has a variety of local cultures with their respective unique local wisdoms. The use of local wisdoms in social studies learning has a strategic role in developing character, students' social literacy, and ecological intelligence in overcoming problems of environmental damage [1-3]. Education and teaching that are based on local wisdom can develop cultural identity and simultaneously strengthening the local wisdoms existence itself in facing the challenges of the global cultures [4]. The community local wisdom absolutely has to be used as the learning resource at school because it is capable of enhancing students' ability in relation to understanding the relation between the real life and what they learn at school. Through local wisdom the students learn about their cultural values which shape attitude, behavior, and thinking skill [5]. The use of the community local wisdom in learning can integrate modern science into traditional

knowledge and can create a meaningful learning and effective teaching materials [6,7].

The development of local wisdom as the source and model of teaching at school (including social studies) has only been attempted by a few teachers [5]. The development of social studies learning based on local wisdom can be used as a correction to the weaknesses of today's social studies learning that still focuses on the academic aspect, thus is less contextual and has not yet been capable of facilitating the students to use modern technology critically in accordance with their culture. The academic nature is marked by the emphasis on material, not on competence, by the lack of orientation toward the sharpening of logical and critical thinking, the lack of the arousal of curiosity, the lack of activities of problem solving and the lack of social skill development and the fact that the learning occurs in a less joyful atmosphere. The learning is less contextual because it prioritizes the discussion of global issues that are less related to the real problems in the local environment. These weaknesses confirm the opinion of Ismail et al. [8] who see the weakness in social studies education from two aspects. *First*, from the aspect of substance, conceptual sources and empirical sources that become the substantial reference for social sciences education are too curriculum-centered and ignore local wisdoms as their substances. *Secondly*, from the aspect of learning, social studies learning at school produces instrumental output that is not powerful, does not give the opportunity to the students to empower themselves, based more on the formal need than the students' real need, and is very boring.

One of the local wisdoms of the local Balinese community that is relevant to be used as learning resources is *subak*. *Subak* local wisdom is Balinese community agricultural culture that is very well-known and has been declared by Unesco as a world cultural heritage. *Subak* is based on the philosophy of *Tri Hita Karana* (THK), that means three components of the cause of happiness in life (*Tri* = Three; *Karana* = cause; *Hita* = happiness). The three components are: (1) *parhyangan* that regulates the harmonious relation between human beings and God, (2) *pawongan* that regulates the harmonious relation among human beings, (3) *palemahan* that regulates the harmonious relation between human beings and the natural environment. These three components contain the basic values

of a harmonious community life, i.e., religious value, social relation value (humanity) and environment conservation value (ecological) [9-11]. These basic values have relevance and significance to the scope and objectives of social sciences education.

This article is the first part of the result of study on developing social studies learning model at junior high school based on the *subak* local wisdom. The objectives of the first part are to analyze the character values in *subak*, to describe knowledge and understanding of social studies teachers about *subak* local wisdom, and to know teachers' attitude toward the use of *subak* as sources and model for social studies learning.

II. METHODS

The method used to reach the objectives of the study was a survey method of the descriptive qualitative type. The main data were in the form of qualitative data related to the realization of the implementation of the THK philosophy and character values in *subak*, the teachers' knowledge, and understanding of *subak*, and the teachers' attitude toward the idea of developing a social study learning model based on *subak*. Research subjects were 40 social studies teachers in 18 junior high schools in Buleleng Regency and three administrators of the Subak Sambangan as key informants that determined purposively. The instruments used were semi-structured questionnaire, knowledge and understanding test, attitude questionnaire that uses Likert scale. The data were collected by using an observation technique, interview, and document analysis. The data analysis was done following the stages of data description, data reduction, categorization, and interpretation and construction.

III. RESULTS AND DISCUSSION

A. Character Values in SUBAK Local Wisdom

Subak is basically an organization or an association of farmers who manage irrigation water and planting system based on the philosophy of *Tri Hita Karana*. THK is Balinese philosophy that originated from the Hindu teaching. The Hindu Balinese community believes that happiness or welfare in life can be reached by creating a harmony and balance in relation between human beings and God (*parhyangan*), relation among human beings (*pawongan*), and between human beings and the natural environment (*palemahan*). The character values in *subak* can be dug by analyzing the realization of the implementation and function of the three components of the THK (*parhyangan*, *pawongan*, and *palemahan*).

The realization of the implementation of the *parhyangan* component in *subak* is seen from the presence of religious rituals and holy places (temples) that has a hierarchical pattern. The ritual meaning, basically, is the expression of thankfulness to God for the bounties given by him in the form of fertilized soil, water and crops. While the holy place or *subak* temple has the function as the place that connects the *subak* members to God the Creator. In addition, the ritual activities and *subak* temple have a social function (as the reinforcer of strength /

unifier of collective life and as something that prevents conflicts), and the ecological function (as the controller against pests and plant diseases, and the preserver of the ecosystem [12,13]. *Subak* temples also have a function as a spiritual-control mechanism (God) for irrigation management carried out by *subak* [14]. This function always makes *subak* members behave honestly because they are afraid of God's punishment (*karmaphala* law) if they do bad in irrigation water management. *Karmaphala* law is a punishment from God against humans according to their actions.

The realization of the implementation of the *pawongan* is apparent through collective activities that are realized through social communications and interactions. Collective activities in *subak* cover the aspects of organization, attending meetings, using rights and responsibilities, using sanctions, mutual work to make the *subak* programs successful and internal and external conflicts managements. In addition to social activities, there are also social infrastructure/ facilities such as a bale /*subak* office, *subak* road, and tools that belong to *subak*. The social activities in *subak* are regulated through *awig-awig* and the principle of *paras paras sarpanaya sagilik saguluk selunglung sebayantaka*.

Awig-awig is one of the cultural capitals and social capitals that are very important to create order/ peace in *subak*. *Awig-awig* *subak* is strictly obeyed by *subak* members because it is a rule that is directly applied (rule in use) and contains socio-religious sanctions and material sanctions that are quite heavy. The principle of *parasparas sarpanaya sagilik saguluk selunglung sebayantaka* has two meanings, first, *parasparas sarpanaya*, which means we are part of others, and others are part of us (the same in meaning as helping each other, trusting each other, and respecting each other). *Sagilik saguluk selunglung sabayantaka* means good or bad, alive or dead we shoulder the responsibility together (the same in meaning as having one fate). Comprehensively, *paras-paros sarpanaya sagilik saguluk selunglung sebayantaka* is the principle that respecting the spirit of mutual help, helping each other, trusting each other, and the feeling of one fate. This principle is almost the same as the meaning of a popular expression in Indonesia, that is: "*berat sama dipikul, ringan sama dijinjing, berdirinya sama tinggi dan duduk sama rendah*". The obligations of *subak* members are regulated based on the right to irrigation water and its position in the *subak* organization. The form of obligation among *subak* members must be present in *subak* activities called *ngayah*, pay routine fees at the end of the year called *sarin tahun*, and pay management fees when needed (incidental) called *pepesuan*.

The component of *pawongan* is implemented in the form of the activities of maintenance and management of *subak* infrastructure/facilities, such as irrigation ditches, water division and distribution, regulating the planting schedule, and maintenance of plants based on the principle of justice and togetherness. Irrigation water division is done by using the *tektek* system which reflects justice based on the area of the rice field and the system in which more water is allotted to farmers in the location away from the water source. The water distribution uses the queuing system according to location,

planting schedule, and season. Maintenance of plants and pest control are done by using a religious approach called *nangkhluk merana* (driving the pest away) using the natural cycle system called *kerta masa* (growing one type of plant at the same time in the *subak* region). The structure of the irrigation water distribution building (called *tembuku*) is made with a *numbak* system that reflects justice in the right to get water. *Subak* also adopts a *pelampias* system, namely:

providing irrigation water assistance for members of the *subak* whose location in the downstream rice fields. In every rice field block the inlet must be made and outlets to make it possible to borrow and borrow water to overcome water scarcity.

Based on the analysis of the forms of the implementation of each of the THK components in *subak*, major character values that are contained in them can be identified. The character values are presented in Table I.

TABLE I. CHARACTER VALUES IN THE SUBAK THK PHILOSOPHY

THK	Forms of THK Implementation	Character Values
	1. Water and land are creation of God, and human is obliged to keep and respect them	Religious
	2. <i>Subak</i> Temples and ritual are belief expressions of gratitude on God creation.	Religious
	3. Temples function as control mechanism of God on behalf of honesty due to the belief of <i>karmaphala</i> law	Honesty
	4. Every empty land in every damp and water division construction is used to build temples	Togetherness and peacefulness (love peace)
	5. The <i>nangkhluk merana</i> ritual to address the problem of mice attacks of the plants	Religious and environment conservation.
	6. Pattern and crop rotation schedule are agreed at the moment of ritual ceremony in <i>subak</i> temples witnessed by God	Integrity Unifier and care of environment conservation
	1. The existence of <i>awig-awig</i> or <i>subak</i> law is applied directly and openly (rule in use)	Law-abiding, openness, discipline
	2. Principles of <i>paras paras sarpanaya sagilik saguluk selunglung sebayantaka</i> .	Tolerance (mutual respect and trust), social care (mutual help, mutual cooperation)
	3. Organization structure based on <i>subak</i> environment is autonomous so the decision and agreement are taken in <i>subak</i> meeting	Flexible, adaptive, democratic, and independent
	4. Obligations of member are considered on the base of equal right to water and position of members as <i>ayahan, sarin tahun, and pepesuan</i> .	Responsibility
	1. The allocation of water irrigation is referred to a system called <i>tektek</i> .	Justice
	2. Water division construction (<i>tembuku</i>) is made by a <i>numbak</i> system.	Justice
	3. There is a system called <i>pelampias</i> that is by giving more water to those whose rice field is in downstream	togetherness, mutual help,
	4. Applying crop planting pattern or mechanism called <i>kertamasa</i> .	Environment conservation
	5. Applying the system of water loan agreement and rotation system	Mutual help to cover water scarcity (environment conservation) cooperative.
	6. Applying water flow controlling system (one-inlet/ <i>pengalapan</i>) and removal system (one-outlet/ <i>pengutangan</i>) of water on each block of farmer's land.	Mutual help to cover water scarcity (environment conservation).

Source: [15,16].

B. Teachers' Knowledge About SUBAK

The teachers' knowledge and understanding are measured from their abilities to define something on *subak*, describing the types of religious ritual in *subak*, types of *subak* temples, drawing a sketch of the *subak* region, digging down the meaning and functions of the *subak* religious rituals, understanding in depth the life values contained in the *pawongan* activities contained in the *palemahan* activities.

The results showed that 47.50% of the teachers have a low level of knowledge and understanding; 32.50% are categorized as average and 20.0% high. This shows that most of the teachers have not yet known and understood things about *subak*. The teachers can only describe the types of temples and *subak* rituals, while the low level of knowledge and understanding are located in three aspects *First*, not yet able to formulate the concept of *subak* correctly; *secondly*, not yet able to draw a sketch map of *subak* regions; *thirdly*, not yet able to dig down or interpret the meaning and functions of life behind the activities and artefacts that exist in *subak*.

Ten percent of the teachers are able to formulate the definition of *subak* correctly, while 80% of them formulated the definition of *subak* wrongly. The definition of *subak* that

was evaluated as correct if it contains the three aspects: religious aspect (the *parhyangan component*), social economical aspect (the *pawongan component*), and the environmental aspect (the *palemahan component*). Table 2 shows the examples of comparison in the formulation of definition of *subak* given by the teachers that is correct and the one that is wrong.

TABLE II. WRONG AND CORRECT EXAMPLES OF THE DEFINITION OF SUBAK FROM THE RESULT OF THE SOCIAL STUDIES TEACHERS' WORK

Wrong Formulation of Definition	Correct Formulation of Definition
<i>Subak</i> is (1) a water division in the agricultural environment, (2) an organization whose members are all farmers from a certain village, (3) a region with rice fields that a group of people have, (4) an organization that consists of farmers, both the owners and the workers.	(1) <i>Subak</i> is a traditional organization that is based on <i>uger-uger</i> or regulations based on the <i>Tri Hita Karana</i> . (2) <i>Subak</i> is a legal community that has a socio-religious characteristic that historically has grown and developed as an agricultural water use system organization.

Source: [16].

On table II is seen that the correct definition (the first definition) has the expression *Tri Hita Karana* that reflects the religious, socio-economic and ecological aspects. So is in the second definition there is a socio-religious aspect and a water use system as representations of the *Tri Hita Karana* philosophy. In the wrong formulation of the definition there are no complete religious, socio-economic and ecological aspects. For example, in the first definition, it is only stressing the environmental aspect; the second definition and the fourth definition only puts an emphasis on the social aspect.

Secondly, the lack of knowledge and understanding on the part of the teachers is shown by the inability to draw a sketch map of *subak* region with its complete elements. The correct sketch should contain a *subak* temple (the *parhyangan* component), rice field area and irrigation ditches (the *palemahan* component) and farmers (the *pawongan* component). It was observed the sketch made by teachers only contains the *subak* area that does not have the *parhyangan* component the *pawongan* component and the *palemahan* component. A *subak* map can be used as one of the teaching material resources for social science that is contextual and factual. The ability to draw a sketch map of a *subak* region correctly consists of the sub-components of ability in knowledge, understanding, analysis and evaluation.

In a *subak* culture-based learning various forms material such as in the form of poster, landscape map, *subak* region landscape, video, photo, narration, cross cultural module, and cross-cultural book. A *subak* based learning that takes the form of various learning materials is very meaningful in developing the ability in knowledge, understanding, analysis, application and creation [6].

The third problem in knowledge and understanding is the fact that most of the teachers have not been able to understand in depth or interpret the meanings and functions of the forms of application of each of the components of the *Tri Hita Karana* in *subak*. The ability to catch the meaning behind the symbols that *subak* has is very important since the meaning can be used as a model in living a daily life to create a harmonious community life. Like what is expressed by [12], that the activities and artefact of *subak* that is full of symbols have very positive meanings in life. It is explained that the ritual activities and the network of *subak* temples have the social function (as the reinforcer / unifier of collective life and something for preventing conflicts) and an ecological function (as the control of pest and plant diseases, and it conserves the ecosystem (the ecological function).

C. The Teachers' Attitude toward the Development of Social Studies Learning Model Based on SUBAK Local Wisdom

Although the teachers' knowledge and understanding of *subak* was limited, they gave their response to the idea of developing social studies learning model based on *subak* local wisdom. Almost all teachers (39 teachers/ 97.50%) said that they agree, while there was only 1 teacher (2.50%) expressed that he less agreed, while none disagreed. The positive teachers' attitude can be interpreted that basically they had a commitment and desire to integrate it into social science teaching in which *subak* system serves as a learning resource.

However, because of their limited insight and understanding about *subak*, they had difficulty in implementing it in the teaching. The limited insight and understanding about *subak* system caused among other things by the scarcity of information sources about *subak* that can be accessed by the teachers. Especially in the form of learning materials such as handout, textbook, video about *subak* life, study reports, and other sources of information. The result of this study brings the implication about the stakeholders, including universities to give experiences in the form of collaborative studies and training that are related to developing a social science teaching model and teaching materials based on *subak* local wisdom.

In its implementation, the teachers were aware that there were some constraints that needed to be addressed. According to the teachers, the constraints faced when using the *subak* system in social studies learning are: (1) schools are far from the *subak* location, especially the schools in town, (2) the lesson period is limited, while there is a need to learn directly from the *subak*, (3) the knowledge and understanding about *subak* is limited, (4) sources of references about *subak* are rare, and (5) it is difficult to find resource persons on *subak*. If these constraints are considered carefully, the constraints told by the teachers are empirically realistic, the solution to the constraints can be found. For example, by making a video or film about *subak*, the provision of teaching materials about *subak*, and once or twice in a semester the students are asked to do an outdoor study to the nearest *subak*. Schools in the villages that are close to a *subak* can run the outdoor study more often.

The result of this study also notes the teachers' opinions about activities that need to be done before learning with *subak* learning resources. Based on a brainstorming it was found that basically there are five stages of the main activities that need to be done. *First*, to make a preparation in the form of teaching materials (syllabus, lesson plans, student worksheet), preparing *subak* teaching material, media about *subak* (by prioritizing multimedia or video/film) *Secondly*, to run a worship on an in-depth study about *subak* by inviting resource persons (*subak* expert or *subak* organizer). *Thirdly*, the classroom teaching by using *subak* as the learning resources. *Fourthly*, to ask students to make observation, interview, and documentation in the *subak* location that is the closest to the school. *Fifthly*, to do an evaluation of the learning.

IV. CONCLUSION

Subak local wisdom that has been declared a world cultural heritage is very relevant to be selected as learning resources and the model for social science teaching at junior high schools for developing the nation's character. In it, there are 17 characters' values: religiosity, honesty, solidarity, love for peace, integrity, care for the environment, social concern, openness, adherence to laws, discipline, tolerance, mutual help, democracy, flexibility, adaptiveness, responsibility and justice.

The knowledge and understanding of the social science teachers about *subak* is still low. It was noted that there were 47.50% of the teachers had a low level of knowledge and understanding, falling into the medium category (32.50%), and only 20% of them had a high category. The low level of the knowledge and understanding about *subak* system is found in

three aspects of the material: inability to formulate a *subak* definition correctly, inability to draw a sketch map of a *subak* region, and not knowing the functions and meanings of life behind the forms of the *Tri Hita Karana* components of the system. The low level of knowledge and understanding on the part of the teachers about *subak* is not caused by a lack of commitment and desire but it is affected more by the scarcity of the information sources and training that they can get.

The teachers' attitude toward the idea of developing a social science teaching model based on *subak* local wisdom can be categorized as very positive. Almost all teachers (39/97.50%) stated that they agreed with the idea, while those that gave a less agreement was only 1 person (2.50%), and none disagreed with the idea. In the learning model development, the teachers proposed five stages of main activities. *First*, to make a preparation in the form of learning materials (syllabus, lesson plans, student worksheet), to prepare *subak* learning material, media about *subak* (by prioritizing multimedia or video/film). *Secondly*, to run a workshop on the in-depth study about *subak* by inviting *subak* resource persons (*subak* expert or *subak* organizer). *Thirdly*, the classroom learning by using *subak* as learning resources. *Fourthly*, to ask students to do observation, interview and documentation in a *subak* closest to the school. *Fifth*, to do an evaluation of the learning.

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