

*Ilhami et al., 2019*

*Volume 3 Issue 1, pp. 173-180*

*Date of Publication: 10<sup>th</sup> April 2019*

*DOI-<https://dx.doi.org/10.20319/pijtel.2019.31.173180>*

*This paper can be cited as: Ilhami, A., Riandi, & Sovia, S. U., (2019). A Profile of Biology and Science Teacher's Knowledge about Local Wisdom Ikan Larangan in West Sumatera. PUPIL: International Journal of Teaching, Education and Learning, 3(1), 173-180.*

*This work is licensed under the Creative Commons Attribution-Non Commercial 4.0 International License. To view a copy of this license, visit <http://creativecommons.org/licenses/by-nc/4.0/> or send a letter to Creative Commons, PO Box 1866, Mountain View, CA 94042, USA.*

## **A PROFILE OF BIOLOGY AND SCIENCE TEACHER'S KNOWLEDGE ABOUT LOCAL WISDOM IKAN LARANGAN IN WEST SUMATERA**

**Aldeva Ilhami**

*Universitas Pendidikan Indonesia, Bandung, Indonesia*  
[aldevailhami2@gmail.com](mailto:aldevailhami2@gmail.com)

**Riandi**

*Universitas Pendidikan Indonesia, Bandung, Indonesia*  
[rian@gmail.com](mailto:rian@gmail.com)

**Siska Umi Sovia**

*Integrated Boarding School Fajar Hidayah, Limapuluh Kota, Indonesia*  
[siskaumi515@gmail.com](mailto:siskaumi515@gmail.com)

---

### **Abstract**

*Indonesia has many cultures such as Ikan larangan in West Sumatra. Ikan larangan area is a local wisdom of Minangkabau community that has conservation value of aquatic resources. More than 80% areas of West Sumatra have ikan larangan areas that are still preserved by the local community. Science and Biology subjects have environmental and conservation learning materials. The aims of this research are to find out about the knowledge of Science and Biology teachers about the local wisdom of ikan larangan and to find out about the extent of the use of the local wisdom in Science and Biology teaching and learning process. Respondents in this research are Biology teachers in Senior High School, Science teachers in Junior High School, and Science teachers in Primary School. The number of respondents is 31. The sampling technique used is purposive sampling. The research method used the questionnaire as the data*

collecting instrument. The results show that the knowledge of Science and Biology teachers about the local wisdom of *ikan larangan* is 81%. However, the level of using of the local wisdom in Science and Biology teaching and learning process is still relatively low at 29%.

### Keywords

Local Wisdom, Science Teacher, Biology Teacher, *Ikan larangan*, West Sumatera

---

## 1. Introduction

Local wisdom is an ancestral heritage having values of life integrated with the form of religion, culture, customs (Sukmawati, Sugeng, Singgih, 2015). It is still preserved by local people because it is believed to have good values. The characteristics of local wisdom are: (1) can survive from influence of outside culture; (2) have the ability to accommodate elements of outside cultural elements; (3) have the ability to integrate the outside culture with the original culture; (4) can give direction to the development of culture (Ayatrohaedi, 1986).

Education and culture are something cannot be separated from each other. Education is supported by the environment where the educational process takes place. Society as a social community can influence the educational process at schools. In socio-cultural realities, societies such as feudal and democratic have modern mentality or otherwise which have effects on the educational process at schools (Hasbullah, 2003). The environment plays an important role in shaping students' experience before going to schools. They have spent their time in the environment where they live through interaction both in a family and in a community. Teachers have important roles in teaching and learning process to build the knowledge of students. One of the ways that teachers can do is to understand the culture of the local community to make it easier for students to understand the lessons. Learning will be more meaningful if the teachers can relate to what the students learn with their experiences. Therefore, teachers need to teach with a contextual approach.

Every region in Indonesia has many cultures. One of them is *ikan larangan* in West Sumatra. *Ikan larangan* area is one of the local wisdom of Minangkabau community in the province of West Sumatra. More than 80% areas of West Sumatra have *ikan larangan* areas that are still preserved by the local community (Ilhami & Riandi, 2017). The local wisdom preserves river areas, reservoirs or lakes within certain limits and certain rules (Susilowati, 2000; Ilhami & Riandi, 2018). In general, communities made parts of a river area into a forbidden area to catch and consume its fish commanded by elders. The elder has important role to manage the local

wisdom as well as in Yoruba culture, Nigeria (Rotimi, 2016). In *ikan larangan* area located in Dharmasraya Regency, the community limits an area of 1 km of Pangian River as *ikan larangan* area (Pawarti, Hartuti, Didi, 2012). Another area is located in Kapur IX district, Limapuluh Kota Regency, the community limits an area of 700 m of Kapur River as *ikan larangan* area (Yuliati & Fatriyandi, 2014). The community of Barung-Barung Balantai located Pesisir Selatan Regency creates *ikan larangan* area on Tarusan River (Firdaus & Hakim, 2015)

Teaching and learning process cannot be separated from the existence of teachers who have crucial roles in teaching and learning process. Students will have difficulties in understanding the materials if they only rely on learning resources without teachers' guidance. According to Sardiman (2011), teachers have important roles as organizers, motivators, directors, initiators, transmitters, facilitators, mediators, and evaluators. Teachers are obliged to guide students in order to understand the materials well.

Science and Biology subjects in Primary School, Junior High School, and Senior High School have learning indicators to understand the conservation efforts of living things in the environment. The context of *ikan larangan* should be used by Biology and Science teachers in West Sumatra to be integrated in teaching and learning process. Based on the background, the researchers conducted ethnopedagogical analysis of Science and Biology teachers in West Sumatra in using the local context of *ikan larangan* in teaching and learning process.

## 2. Research Objectives

The research aim

- 1) To determine the knowledge of Science/Biology teachers about local wisdom of *ikan larangan*?
- 2) To determine the using of the local wisdom of *ikan larangan* in science and Biology teaching and learning process.

## 3. Literature Review

Culture is the whole system of ideas, actions and the work of human beings. According to Koentjaraningrat in Warsito (2012), the forms of culture can be divided into 3, namely: (a) a complex of ideas, values, norms and rules, (b) a complex of activities and actions patterned from humans in society (c) objects of human works. Culture can be inherited from one generation to the next generation. Cultural inheritance can be vertical and horizontal. The vertical inheritance

is the inheritance of culture from the older generation to the younger generation of parents to their children. The horizontal inheritance is the inheritance of culture that occurs within the social community which is from friends or other people (Warsito, 2012).

Local wisdom is a part of traditional cultures that have a dimension of knowledge where people have knowledge about their environment (Suparmini & Dyah, 2013). A tradition passed down from one generation to another generation is still believed by the local people because they see and experience it themselves for many years, and therefore is passed from one generation to the next (Khusniati, M. 2014). Local wisdom in the form of knowledge, skills, and values as a culture that develops in society can affect education. This is because students have been formed first by local culture before being affected by a theory of education (Sudiatmika, 2013).

Three things that teachers should do for students related to local culture are: (a) develop broader cultural understanding and have high awareness, (b) use culturally relevant pedagogy which enable teachers to relate the world of students and their culture with world of school, (c) relate students' previous knowledge and help them to relate between what they already know and what they learn (Arends, I., A. 2008).

#### 4. Methodology

This research is a qualitative research using survey method. Qualitative research is a research approach that reveals a particular social situation by accurately describing reality, forming words based on data collection, and analyzing relevant data obtained from natural situations (Satori, 2014). According to Wimmer in Morissan (2012), descriptive survey research is a survey that tries to explain and record the conditions or attitudes that exist. Data collection technique used is questionnaires. Respondents involved in this research are Biology teachers in Senior High School, Science teachers in Junior High School, and Science teachers in Primary School with a number of 31 respondents. The purposively chosen respondent are teachers in West Sumatera.

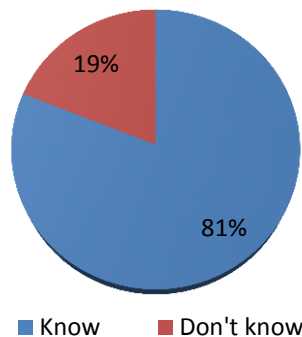
**Table 1:** *The Table of Data Interpretation Criteria used is as follows*

Scale (%)	Category
< 20	Very low
$20 \leq x < 40$	Low
$40 \leq x < 60$	Medium
$60 \leq x < 80$	High

$\geq 80$	Very high
-----------	-----------

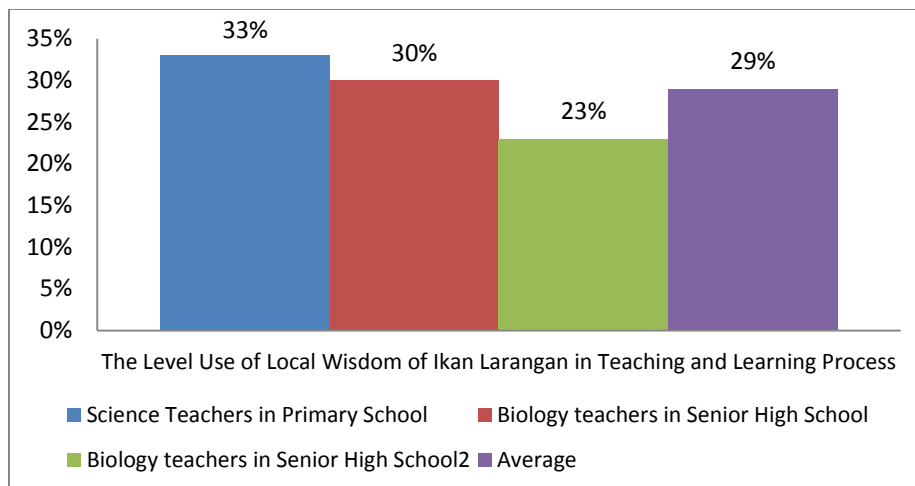
## 5. Result and Discussion

The use of *ikan larangan* context is in accordance with the basic competence of subjects at each level. In Biology subject of Senior High School, there is a learning material about efforts to conserve biodiversity. In Science subjects of Junior High School, there is a learning material about the interaction between living things and the environment. In Science subject of Primary School, there is a learning material about the conservation of living things in the environment. The result of the survey on teachers' knowledge about local wisdom of *ikan larangan* is presented in the figure 1.



**Figure 1:** Teachers' Knowledge about Local Wisdom of Ikan Larangan

Most of Science and Biology teachers know the local wisdom of *ikan larangan*. This is proved by the survey results that show that 81% of teachers know about *ikan larangan*. They know about it based on the information from the community and direct observation. As part of the local community, teachers should know and understand the local culture around them. This shows that teachers have local cultural literacy. Then, based on the use level of the local wisdom context in Science and Biology teaching and learning process based on education level can see in the diagram below.



**Figure 2:** Using Local Wisdom Context in Science and Biology Teaching and Learning Process based on Education Level

In general, the use of *ikan larangan* context in Science and Biology subject is still low, showing only 29%. Based on level of education, the percentage of use of *ikan larangan* context in Biology subject (33%) is higher than Science subject in Junior High School (30%) and Science subject in Primary School (23%). The research limited science and biology teacher in West Sumatera.

Teachers have important roles in determining the success of students. Teachers have the responsibility in guiding and developing the potential of students. As stated in the Act. No. 20 of 2003 on the National Education System, it is said that education is conscious and planned efforts to create an atmosphere of learning and learning process so that learners actively develop their potentials. Therefore, in order to guide students, teachers must have four basic competencies which are professional, pedagogy, social and personality (Sadulloh, U. 2015).

Teachers can use a cultural context in learning, known as ethnopedagogy, a learning approach that uses local wisdom values in learning. According to Alwasilah (2009), Etnopedagogic is a practice of education based on local wisdom as a source of innovation and skills in teaching and learning process. Through ethnopedagogical approach, Science teachers can use the local cultural context as a learning resource that makes learning more meaningful.

## 6. Conclusion

Science and biology teachers in West Sumatra know the local wisdom of *ikan larangan* at 81%. However, the level of using of the local wisdom in science and biology study is still

relatively low at 29%. The next research will implemented science learning with etnopedagogy approach in schools surrounding *ikan larangan*.

## References

- Arends, I., A. (2008). *Learning to teach Seventh edition*. New York: McGraw Hills Companies
- Ayatrohaedi. (1986). *Kepribadian Budaya Bangsa (local Genius)*. Pustaka Jaya. Jakarta.
- Alwasilah. (2009). *Etnopedagogi: Landasan Praktik Pendidikan Guru*. Bandung: PT Kiblat Buku Utama
- Firdaus, M & Hakim, M., H.(2015). Pengelolaan Sumberdaya Ikan Di Sungai (Studi Kasus: Di Kabupaten Pesisir Selatan, Provinsi Sumatera Barat). *Buletin Ilmiah "MARINA" Sosial Ekonomi Kelautan dan Perikanan Vol. 1 No. 1 Tahun 2015: 41-47* <http://ejournal-balitbang.kkp.go.id/index.php>
- Ilhami & Riandi. (2017). "Inventory of *Ikan larangan*: Local Wisdom From West Sumatera Supporting Contextual Science Learning in Indonesia". *Proceeding International Conference Education and Learning, Tokyo 16 -18 August 2017* (unpublished)
- Ilhami, A., & Riandi. (2018). Management Of Aquatic Ecosystem Based Local Society's Knowledge : A Case Study Of *Ikan larangan* In Pandam Gadang , West Sumatera. *People International Journal of Social Science*, 4(1), 405– 414  
<https://dx.doi.org/10.20319/pijss.2018.41.405414>
- Hasbullah. (2003). *Dasar dasar Ilmu Pendidikan*. Jakarta: PT Raja Grafindo Persada
- Khusniati, M. (2014). "Model Pembelajaran Sains Berbasis Kearifan Lokal dalam Menumbuhkan Karakter Observasi". *Indonesian Journal of Conservation Vol 3 No 1 pp. 67-74*. <https://journal.unnes.ac.id/nju/index.php/ijc/article>
- Morissan, dkk. (2012). *Metode Penelitian Survei*. Jakarta: Kencana Prenada Media Group
- Pawarti, A., Hartuti, P., Didi, D., A. (2012). Nilai Pelestarian Lingkungan dalam Kearifan Lokal Lubuk Larangan Ngalau Agung di Kampuang Surau Kabupaten Dharmasraya Provinsi Sumatera Barat. *Prosiding Seminar Nasional Pengelolaan Sumberdaya Alam dan Lingkungan Semarang, 11 September 2012*. (unpublished)
- Rotimi. 2016. Sociological Observation of African Cultural Values In The Light Of Modernity: The Experience of Yoruba in Nigeria. *PEOPLE: International Journal of Social Science* Vol.2 No.1 pp.62-72 <http://dx.doi.org/10.20319/pijss.2016.21.6272>
- Sadirman. (2011). *Interaksi dan Motivasi Belajar Mengajar*. Jakarta: Rajawali



- Satori, D. (2014). *Metodologi Penelitian Kualitatif*. Bandung: Alfabeta
- Sadulloh, U. (2015). *Pedagogik*, Bandung: Alfabeta
- Sukmawati, Sugeng, U., Singgih, S. (2015). “Kearifan Lokal Masyarakat Adat Dalam Pelestarian Hutan Sebagai Sumber Belajar Geografi”. *Jurnal Pendidikan Humaniora Vol 3 No 3 Hal 202-2018* <http://journal.um.ac.id/index.php/jph>
- Susilowati, I. (2000). An Analysis of Co-Management Fisheries in West Sumatra Province Indonesia : a Case Study of *Ikan larangan*. In *Proceeding of International Workshop on Fisheries Co-management*.
- Suparmini, S. W, Dyah, R. S. (2013). “Pelestarian Lingkungan Masyarakat Baduy Berbasis Kearifan Lokal”. *Jurnal Penelitian Humaniora, Vol. 18, No.1, April 2013: 8-22*.  
<https://journal.uny.ac.id/index.php/humaniora>
- Sudiatmika. (2013). “Pendidikan Sains berlandaskan budaya lokal Tri Kaya Parasudha”. *Prosiding Seminar Nasional Fisika dan Pendidikan Fisika 14 september 2013* (unpublished)
- Warsito. (2012). *Antropologi Budaya*. Yogyakarta: Penerbit Ombak
- Yuliati, C & Fatriyandi, N., P. (2014). “Lubuk Larangan: Dinamika Pengetahuan Lokal Masyarakat Dalam Pengelolaan Sumber Daya Perikanan Perairan Sungai Di Kabupaten Lima Puluh Kota”. *Jurnal Sosek KP Vol. 9 No. 1 Tahun 2014* <http://ejournal-balitbang.kkp.go.id/index.php>