

Tapis Lampung in Science Learning Perspective

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ABSTRACT

The importance of preserving the noble values of national culture as self-identity in the demands of competence in the 21st century is a challenge to the world of education. However, there are not many implementations of learning using local wisdom as a concept of learning with culture in various disciplines in schools. This article is an analysis descriptive about the manufacturing process Tapis Lampung in cloth review learning science. Science learning is culturally integrated in it to foster the character of cultural love and meaningful learning in students.

Keywords: Local Wisdom, Tapis Lampung, Science

INTRODUCTION

The progress of all aspects of human life will be greatly influenced by the progress of science. The development of science will certainly provide many benefits and conveniences for human life. This situation will have a competitive effect on everyone, because those who cannot keep up with the development of science and technology will be excluded by themselves. This applies to everyday life and the world of work. Thus, the school as one of the managers of human resources has an important role. Education has important characteristics (Sukmadinata, 2011) including education directed at people's lives and the implementation of

education will be influenced and supported by the environment. All aspects must work together in preserving culture in education, not only the government, the private sector and all elements of society are important elements in the successful application of culture to children's education (Cheng, 2002; Maryono, 2016; Pornpimon, Wallapha, & Prayuth, 2014; Raj & Devi, 2014; Sandiasa & Supriyono, 2015).

In everyday life, education and culture cannot be separated, this is because education is a need that must be met by each individual as a provision, while culture is a unit that exists and applies in society. Education is a learning process from not knowing to knowing, where there is a process of giving and receiving by teachers and students, so that cultural elements can continue to be preserved from generation to generation through education in schools (Suchart, Burirat; Penkae, Thamsenamupop & Sonton, 2010; Syarif, Fatchan, & Astina, 2016). Education and culture are the basis for character formation based on the noble values of the nation (Adilah & Saputra, 2013; Agung, 2015; Hartini & Dewantara, 2017; Kurniawati, Wahyuni, & Putra, 2017; Lee & Chiang, 2016; S, 2017).

Integrating education and culture is one way to create meaningful learning in the learning process. One that plays an important role is

the teacher, where a teacher must be able to integrate the knowledge that will be conveyed to students by combining it with the local culture that exists in the environment (Pornpimon et al., 2014). 21st century competence is the basis for the development of the 2013 curriculum (ie

curriculum in Indonesia), where the characteristics of 21st century learning are learning that creates a meaningful and valuable atmosphere so as to provide learning conditions in real situations and actual contexts (Hosnan, 2014).

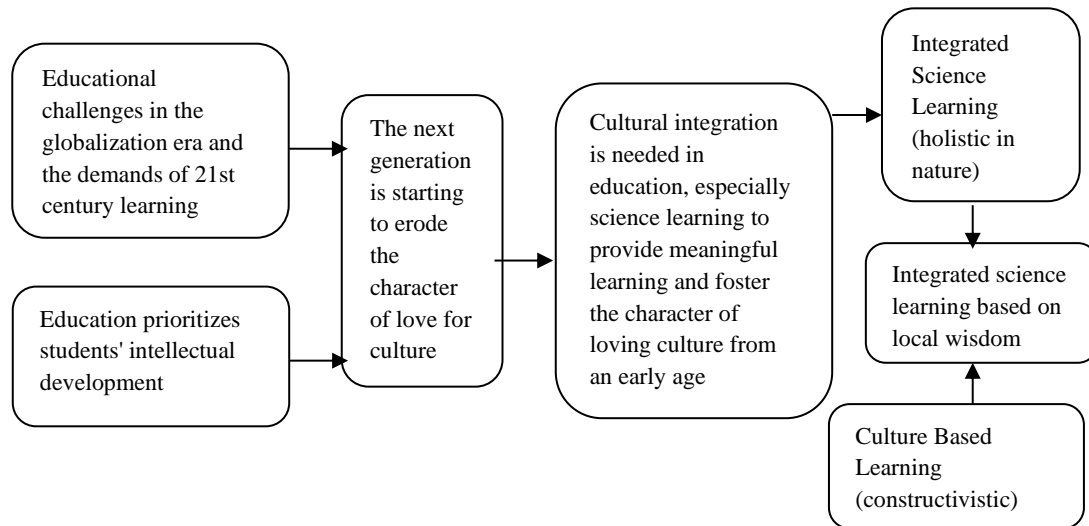


Figure 1. Flow of Thought on Education and Local Wisdom Issues

LITERATURE REVIEW

Local wisdom is an event or object that is well-known in an area, sometimes even across regions and countries. This is due to a distinctive characteristic of a local culture. Cultural degradation is currently happening a lot due to developments in science and technology (Mungmachon, 2013). The decline in moral and socio-cultural values is currently happening in society (Arday, Ardi, Hala, Supu & Dirawan, 2015). There are several factors that cause this to happen, including the influx of foreign cultures that are not in line with the nation's cultural values, accompanied by the fading character of love for native culture by future generations who are rich in noble values and the lack of community support in preserving and maintaining this local knowledge. (Suastra 2010; Wagiran, 2011). Community participation can help a meaningful learning process and can motivate and encourage every student in school to be able to solve life's problems wisely (Santrock 2011: 177). Local wisdom can be in the form of local

knowledge, language, knowledge systems, religion, livelihood systems, arts, social organizations, and living system equipment and technology, local skills, local intelligence, local resources, local social processes, local values or norms and habits. local area (Adilah & Saputra, 2013). Indonesia has many values and culture in each region, local wisdom which is rarely implemented in learning activities (Agung, 2015; Hermawan, nd; Maryono, 2016; Novitasari, Agustina, Sukesti, Nazri, & Handhika, 2017; Salem et al., 2013; Si, Sri, & Pujiastuti, 2015; Sugiyo & Purwastuti, 2017; Syarif et al., 2016; Toharudin & Setia, 2017). The tradition of the people in Lampung in preserving Lampung tapis woven cloth which is one of the local wisdoms characteristic of Lampung culture. However, in reality, the next generation rarely or it can be said that almost no one has the desire to know the process of making the typical Lampung woven cloth itself. In the process of making Tapis Lampung woven cloth there are many scientific processes that

occur and should be raised and linked to the process of learning science. As a result of a lack of love for local culture and curiosity about Lampung's tapis. This shows that the community has not been able to develop a caring attitude that Lampung's tapis is part of the local wisdom values that must be maintained and preserved.

The learning process of children should not only be in the school environment (Maunah, 2015), but schools are a source and provision for children to gain knowledge. Learning at school, especially learning science will be very enjoyable if it is presented in a real context like a real situation. This can be realized by using local local wisdom (Judiani, 2010; Maunah, 2015) so that the learning process will be more enjoyable. Knowledge that is known is often considered as complicated material because it contains many symbols, equations and mathematical and scientific concepts that are not foreign to students. It is very appropriate when associated with local wisdom. This will have an impact on students' experiences and thinking patterns, when local wisdom is inserted in the learning process, not only the learning material is conveyed but also the dimensions of life and social issues. The

importance of integrating local wisdom into science learning, especially in Lampung, Indonesia. One of them is by developing innovative learning models that can not only improve 21st century competencies, but also to maintain the nation's cultural values. Local wisdom is not an obstacle or an obstacle in the learning process, instead it can be used as an innovation in the current learning process. A natural phenomenon that can be explained scientifically by collecting data, observing and experimenting as a basis for knowledge can be called science (Wo, Chang & Guo, 2009; Baker & Taylor, 1995; Gerald & Okey, 1980; Nix, Frase & Ledbetter, 2005; Webb*, 2005; Su, 2008). Science is a systematic knowledge and universally applicable. Integrated science learning is a model that is recommended for implementation at the elementary and secondary levels (Nisak & Susasntini, 2013; Widiana, 2016). In the implementation of integrated science learning, the professional ability of teachers is very necessary. Adequate ability and sufficient knowledge to convey science learning in an integrated, whole and integrated manner (Dewi, Sadia & Ristiati, 2013; Pujiastuti, Raharjo & Widodo, 2012) .

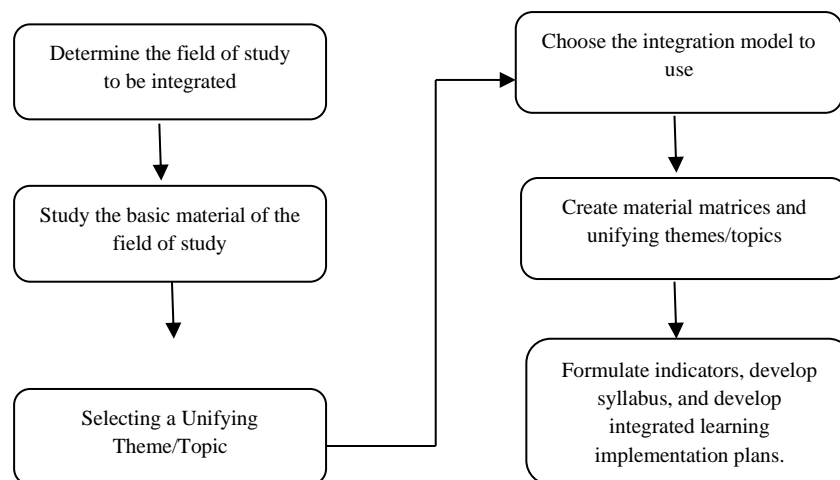


Figure 2. Integrated Learning Development Flow

Science education in developing student competence is emphasized on giving direct experience, this can be done by understanding the natural surroundings from

a scientific point of view. In order to have meaningful experiences for students, the approach to the teaching and learning process must involve several fields of study. So that

with integrated learning, science can be understood by students with other concepts they already have and understand. Usually integrated learning begins with a theme or subject which is then linked to other subjects according to the theme raised. integrated learning includes the complete science of physics, biology and chemistry. In integrated science learning, a theme is discussed from a point of view or study, both biology, physics and chemistry, so that students can learn science as a whole from a theme.

The success of a classroom lesson is largely determined by the professionalism of a teacher in mastering the class and leading students to achieve optimal learning outcomes. The success of learning is determined more by a teacher, because in essence the teacher is a person who plays a role in transferring knowledge. The teacher acts as a "mastermind" in learning, determining the direction in which the learner will go (Pujiastuti, Raharjo & Widodo, 2012; Dewi, Sadia & Ristiani, 2013; Sudarmiani, 2013; Rachmadyanti, 2017).

Teachers as professional workers must also equip themselves with various experiences, skills and qualified knowledge (Pujiastuti, Raharjo & Widodo, 2012). How can a teacher be maximal in delivering material during the learning process, providing real situations to students so that learning is meaningful. One of the offers that can be used is culture-based learning (PBB). PBB is not a new learning model, but recently it is being developed in many countries. Indonesia is a country rich in culture. Almost every region has its own local culture. This can be a good gap for teachers to integrate local culture in learning (Rachmadyanti, 2017). This will provide a new nuance in the learning process, students can learn with culture. Where this culture is close to student

life, this will certainly provide more meaningfulness to students and of course learning will occur like a real atmosphere.

So far, learning based on local culture has not become a prima donna for educational actors in the learning process. In culture-based learning, the learning environment allows teachers and students to play an active role based on the local culture which each of them already knows so that it is hoped that learning will provide optimal results (Sudarmiani, 2013). Culture-based learning also does not emphasize learning assessments in the form of tests, students can be asked to make posters, poems, diaries, scientific reports, paintings, carvings, or in any form as an effort to realize success in learning by creating meaning and integrated understanding (Pujiastuti, Raharjo & Widodo, 2012; Sudarmiani, 2013; Maunah 2015).

METHODS

This study uses methods of literature and field survey. Literature review was done to obtain information through journals and books about Lampung culture about making Tapis cloth, analyze IPA material that can be integrated in learning. Survey conducted to obtain information about the manufacturing process Tapis cloth.

RESULT & DISCUSSION

Tapis cloth is usually made by women, both housewives and girls in their free time. The making of this cloth aims to fulfill the demands of customs that are considered sacred. Currently, Tapis Cloth is made by professional weavers in weaving production houses, and is used to meet market demand. The earliest stages of making Tapis Cloth are spinning cotton (khambak) into cotton thread, and spinning silkworm cocoons into gold thread. Then the threads are preserved

by soaking them in water mixed with citronella root. After the curing process is complete, the next step is the thread coloring process using natural ingredients. To get brown thread, for example, cotton thread is soaked in water mixed with powdered mahogany bark or durian kalit wood. After the color of the thread matches the desired color, the thread is soaked in water mixed with betel leaves. Soaking is intended so that the color of the thread does not fade easily. After the threads needed are ready, the next step is knitting the threads into cloth. After

the fabric is formed, the next step is to make motifs, such as nature, flora and fauna motifs, using colored threads. Furthermore, the motif is embroidered (cuk system) with gold thread and silver thread. After being followed by gold and silver threads, a piece of Tapis Cloth is finished.

Lampung Tapis is a local culture that must be maintained and preserved. One of them is by integrating the introduction of Tapis in subjects at school, one of which is Science. Lampung Tapis in a scientific perspective can be analyzed in table 1 below:

Table 1. Scientific Perspective in Tapis Fabric Making.

Tapis Making Process	Science studies
spinning cotton (<i>khambak</i>) into cotton yarn spinning silkworm cocoons into golden threads	<ul style="list-style-type: none"> - Butterfly metamorphosis - Definition of fiber - Fiber types and characteristics (plant fiber: fiber from seeds, stems, leaves and fruit) (animal fiber: from animal hair, or fiber from insect animals)
the threads are preserved by soaking them in water mixed with citronella root	<ul style="list-style-type: none"> - Preservation with lemongrass root
thread dyeing process using natural ingredients. To get brown thread, for example, cotton thread is soaked in water mixed with powdered mahogany bark or durian kalit wood	<ul style="list-style-type: none"> - capillarity - Solution (mixtures, colloids, suspensions) - Reaction rate (powder use) - Material changes
After the color of the thread matches the desired color, the thread is soaked in water mixed with betel leaves. Soaking is intended so that the color of the thread does not fade easily.	<ul style="list-style-type: none"> - The function of lime leaves in coloring - Mixing colors with lime leaves as a color preservative
knit yarn into cloth and provide motifs. The majesty of the symbolic values of tapis cloth is usually taken from elements of flora, fauna, nature, objects and human motifs. These symbols are interpreted as mutual life between humans and nature, humans and other humans and humans and God the Creator of the universe. Likewise with the traditional ship or junk motifs in Lampung's tapis cloth, which symbolizes the maritime aspect of Indonesia which is rich in natural resources.	<ul style="list-style-type: none"> - Diversity of flora and fauna

CONCLUSION

Study results show on the manufacturing process Lampung Tapis cloth got used in a number of material science learning, including the process of metamorphosis of butterflies, types and characteristics fiber, solution, change material, preservation as well as diversity of flora and fauna. Culture-based learning is designed to integrate local wisdom into the learning process. A culture-

based learning model based on local wisdom through Tapis cloth found in the Lampung community is expected to foster a character of love for local culture and provide meaningful learning to students. Where Tapis Lampung can be discussed in science learning in accordance with the competencies needed by students. Suggestions for further research are the local wisdom-based learning of Tapis Lampung

which is still being developed theoretically, so it needs to be tested and implemented in real terms in class.

Declaration by Authors

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REFERENCES

- Adilah, G., & Saputra, S. (2013). Enhancing Local Wisdom Through Local Content Of Elementary School In Java, Indonesia. *Proceedings of the Global Summit on Education (GSE2013)* , 2013 (March), 614–620.
- Agung, L. (2015). The Development of Local Wisdom-Based Social Science Learning Model with Bengawan Solo as the Learning Source Leo Agung S Historical Education Study Program of Social Science Department of Teacher Training and Education. *American International Journal of Social Science* , 4 (4), 51–58.
- Ardan, S, A., Ardi, M., Hala, Y., Supu, A., & Dirawan, GD (2015). Need Assessment to Development of Biology Textbook for High School Class X-Based the Local Wisdom of Timor . *International Education Studies*. Vol 8 No 4
- Baker, D., & Taylor, PC (1995). The effect of culture on the learning of science in non - western countries: the results of an integrated research review. *International Journal of Science Education* , 17 (6), 695-704.
- Cheng, YC (2002). Fostering Local Knowledge and Wisdom in Globalized Education : Multiple Theories Fostering Local Knowledge and Wisdom in Globalized Education : Multiple Theories. *Center for Research and International Collaboration Hong Kong Institute of Education* .
- Dewi, K., Sadia, W., & Ristiati, NP (2013). Development of integrated science learning tools with guided inquiry settings to improve students' scientific understanding and scientific performance. *Science Education Journal* , 3 (1).
- Gerald Dillashaw, F., & Okey, JR (1980). Test of the integrated science process skills for secondary science students. *Science Education* , 64 (5), 601-608.
- Hartini, S., & Dewantara, D. (2017). The Effectiveness of Physical Learning Material Based on South Kalimantan Local Wisdom. *The 4th International Conference on Research, Implementation, and Education of Mathematics and Science (4th ICRIEMS) AIP* , 70006 , 1–7. <https://doi.org/10.1063/1.4995182>
- Hermawan, I. (nd). Sundanese local wisdom in education.
- Hosnan, M. 2014. *Scientific and Contextual Approaches in 21st Century Learning* . Jakarta: Indonesian Gauls.
- Judiani, S. (2010). Implementation of Character Education in Elementary Schools through Strengthening Curriculum Implementation. *Journal of Education and Culture* , 16 (9), 280-289.
- Kurniawati, AA, Wahyuni, S., & Putra, PDA (2017). Utilizing Comic and Jember's Local Wisdom as Integrated Science Learning Materials. *International Journal of Social Science and Humanity* , 7 (1), 47–50. <https://doi.org/10.18178/ijssh.2017.7.1.793>
- Lee, H., & Chiang, C. (2016). Sense of Place and Science Achievement in the Place-Based Science Curriculum. *International Journal of Information and Education Technology* , 6 (9). <https://doi.org/10.7763/IJiet.2016.V6.777>
- Maryono. (2016). The implementation of schools' policy in the development of the local content curriculum in primary schools in Pacitan, Indonesia. *Educational Research and Reviews, Academic Journals* , 11 (8), 891–906. <https://doi.org/10.5897/ERR2016.2660>
- Maunah, B. (2015). Implementation of Character Education in Forming Students' Holistic Personality. *Journal of Character Education* , (1).
- Mungmachon, R (2013). Knowledge and Local Wisdom: Community Treasure. *International Journal of Humanities and Social Science* .Vol 2 No.13 July 2012 174-181.
- Nisak, K., & Susantini, E. (2013). Development of an integrated science learning device of the connected type on the excretory system subject matter for class IX in junior high school. *Journal of Science Education e-Pensa* , 1 (1).
- Nix, RK, Fraser, BJ, & Ledbetter, CE (2005). Evaluating an integrated science learning environment using the Constructivist

- Learning Environment Survey. *Learning Environments Research* , 8 (2), 109-133.
19. Novitasari, L., Agustina, PA, Sukesti, R., Nazri, MF, & Handhika, J. (2017). Physics, Ethnoscience, and Local Wisdom in Learning Science. *NATIONAL PHYSICS EDUCATION SEMINAR III 2017* , 81–88.
 20. Pujiastuti, E., Raharjo, TJ, & Widodo, AT (2012). Professional competence, science teacher pedagogy, students' perceptions of the learning process, and their contribution to science learning outcomes in SMP/MTs Banjarbaru City. *Innovative Journal of Curriculum and Educational Technology* , 1 (1).
 21. Pornpimon, C., Wallapha, A., & Prayuth, C. (2014). Strategy Challenges the Local Wisdom Applications Sustainability in Schools. *Procedia - Social and Behavioral Sciences* , 112 (Icepsy 2013), 626–634. <https://doi.org/10.1016/j.sbspro.2014.01.1210>
 22. Rachmadyanti, P. (2017). Strengthening Character Education for Elementary School Students Through Local Wisdom. *Journal of Elementary School Education* , 3 (2), 201-214.
 23. Raj, RG, & Devi, SN (2014). Science Process Skills and Achievement in Science Among High School Students, 2435–2443.
 24. S, LA (2017). Local Wisdom-Based Social Science Learning. *Proceedings Ictess Unisri* , 1 (1), 154–162.
 25. Salem, F., Sumba, S., Flores, E., South, TT, Manggarai, E., Sumba, W., & Raijua, S. (2013).
 26. Local Wisdom as Basis of Social Capital in Strengthening Community Resilience at Reroroja Village , East Nusa Tenggara , Indonesia, (April).
 27. Sandiasa, G., & Supriyono, B. (2015). The Implementation Study of Irrigation System Policy Based on Local Wisdom at Buleleng , Bali , Indonesia. *International Journal of Applied Sociology* , 5 (3), 139–143. <https://doi.org/10.5923/j.ijas.20150503.04>
 28. Santrock, JW (2011). *Educational Psychology* . New York: McGraw Hill.
 29. Si, M., Sri, R., & Pujiastuti, E. (2015). Scientific Knowledge Based Culture and Local Wisdom in Karimunjawa for Growing Soft Skills Conservation. *International Journal of Science and Research (IJSR)* , 4 (9), 598–604.
 30. Su, KD (2008). An integrated science course designed with information communication technologies to enhance university students' learning performance. *Computers & Education* , 51 (3), 1365-1374.
 31. Suastra, I W. (2010). Reconstructing Indigenous Science in the Framework of Developing Local Culture-Based Science Education in Schools. *Education Journal and Teaching* 38(3); 377-396.
 32. Suchart, Burirat; Penkae, Thamsenamupop & Sideshow, K. (2010). A Study of Local Wisdom in Management of the Community Forest in Ban Nong Hua Khon, Tambon Nong Muen Than, At Samat District, Roi-Et Province. *Pakistan Journal of Social Sciences* , 7 (2), 123–128.
 33. Sudarmiani, S. (2013). Building Children's Character With Local Wisdom Culture In The Learning Process At School. *Equilibrium: Journal of Economics and Learning* , 1 (1).
 34. Sugiyo, R., & Purwastuti, LA (2017). Local Wisdom-Based Character Education Model in Elementary School in Bantul Yogyakarta Indonesia *. *Sino-US English Teaching, David Publishing* , 14 (5), 299–308. <https://doi.org/10.17265/1539-8072/2017.05.003>.
 35. Sukmadinata, Nana Syaodih. 2011. *The Foundation of Educational Process Psychology* . Bandung: PT Juvenile Rosdakarya Offset.
 36. Syarif, E., Fatchan, A., & Astina, IK (2016). Conservation Values of Local Wisdom Traditional Ceremony Rambu Solo Toraja's Tribe South Sulawesi as Efforts the Establishment of Character Education. *EFL Journal* , 1 (1), 17–23. Retrieved from www.efljournal.org%0AConservation
 37. Toharudin, U., & Setia, I. (2017). Sundanese Cultural Values of Local Wisdom : Integrated to Develop a Model of Learning Biology. *International Journal of Sciences: Basic and Applied Research (IJSBAR)* , 32 (1), 29–49. Retrieved from <http://gssrr.org/index.php?journal=JournalOfBasicAndApplied>
 38. Wagiran. (2011). Development of a Local Wisdom Education Model in Supporting the 2020 Vision of the Development of the Province of the Special Region of Yogyakarta. *Journal of Research and Development, Volume III, Number 3. Year 2011*, 85-100.

39. Webb*, ME (2005). Affordances of ICT in science learning: implications for an integrated pedagogy. *International journal of science education* , 27 (6), 705-735.
40. Widiani, IW (2016). Development of Project Assessment in Learning Science in Elementary Schools. *JPI (Indonesian Education Journal)* , 5 (2).
41. Wu, W., Chang, HP, & Guo, CJ (2009). The development of an instrument for a technology-integrated science learning environment. *International Journal of*

Science and Mathematics Education , 7 (1), 207-233.

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