



Dumbeg Production Scientification in Rembang, Central Java, Indonesia: Local Culture Integration Efforts in Science Learning

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Article Info

Article History :
Received
February 2022
Accepted
May 2022
Published
August 2022

Keywords:
Dumbeg, Science Learning, Community Knowledge, Scientific Knowledge

Abstract

The purpose of this study was to reconstruct community science into scientific science in dumbeg production in Polandak village, Pancur District, Rembang Regency. The expected benefits in this study are to be used as an alternative source of contextual learning in schools, within the scope of science. The method used is descriptive qualitative through in-depth interviews, direct observation, and study of dumbeg production documentation. The focus of the research is the dumbeg production process from the preparation stage of the material to the processing of materials. Data processing techniques in this study include analysis, verification, and the process of reconstructing community science into scientific science. The results of the study show that the scientific concepts contained in dumbeg production can be used as learning resources for science learning both at the elementary, middle, and high school levels.

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p-ISSN 2252-6412
e-ISSN 2502-4523

INTRODUCTION

The rapid development of science and technology in western countries encourages the development of science that is taught in Indonesian and other developing countries schools that refer to material that promotes western knowledge, or which is often called Western Modern Science (WMS). This western knowledge contains a set of facts, concepts, principles and scientific knowledge that are abstract and tiered from simple to complex, so that most students find it difficult to learn and understand them. To be able to understand WMS students spend time with books and increase hours of study outside of school, so they do not have enough time to realize that the western science concepts taught in school have actually been applied in the community in the form of public knowledge.

Community knowledge is built in the form of symbolic, customary and socio-cultural messages. This knowledge is a hereditary inheritance from ancestors which contained a holistic understanding of traditional societies in daily practice in accordance with their interactions with nature for centuries. Knowledge of the community often contains concepts, principles, or scientific knowledge that have not been formalized (Duit, 2007). Unfortunately, public knowledge is gradually forgotten as a result of a lack of understanding of the importance of preserving traditional knowledge (Halim et al., 2013).

Learning by linking what is in the environment has a positive impact on students. The positive impact can be in the form of cognitive and

affective development (Yavuz Topaloglu & Balkan Kiyici, 2015). In learning science, learning from the environment needs to be applied to build harmony between knowledge itself with a scientific attitude, which will later develop the values of local wisdom in the community. This is supported by the contents of the 2013 curriculum which is being implemented in Indonesia which states that learning can take advantage of culture (Kemendikbud, 2013).

This was confirmed by Irez & cakil (2006) stating that educators can provide opportunities for students to develop their own understanding so that it allows them to critically analyze the relationship between science, technology and society as scientific literacy. By learning through local culture, students not only learn about science that comes from the universal west (Chaudhuri, 2015), but also learn about their own original knowledge that is contextual in nature, and has characteristics as their cultural heritage as easterners (Irizik, 2001).

Learning science by developing local culture will foster a strong attitude of nationalism (Michell, et al., 2008), can improve student achievement (Jegade & Okebukola, 1989), strengthen students' perspectives on the universe, and produce inculturation (Aikenhead & Elliott, 2010) which make students think ability will increase. In other words, the success of the science learning process in schools is strongly influenced by the cultural background that students have, or the community in which the school is placed (Sudarmin et al., 2009). Some examples of Javanese knowledge can be used as an alternative to contextual learning in learning chemical science, as shown in Table 1.

Table 1. Research Areas (Etnosains) and Scientific Science in Chemical Science Learning

NO	Community Knowledge	Content and Context on Chemical Science Learning
1	Production of traditional herbal medicine	Chemical solution: Separation and purification of substances / solutions, evaporation, filtration, catalysis reactions, and substance activity
2	Traditional salt production in the pantura region of Java (Pati and Rembang)	Chemical solutions and mixtures: Evaporation, filtration and recrystallization
3	Grow tobacco in Temanggung	Environmental pollution, chemical solutions, and chemical bonds

Rembang is a district in Central Java Province, Indonesia which has a strong local wisdom, both in terms of language arts, religion, traditional ceremonies, natural potential and special foods that can provide economic contributions to the community in succession. One of the local wisdom of Rembang Regency is dumbeg. Dumbeg is a typical food of the developing district which contains cultural values in each of its existence. Dumbeg is always available in earth charity and wedding ceremonies. Dumbeg is believed to be a symbol of fertility. According to Edi Winarno, a cultural observer from Rembang on tribunwisata.com (11/05/2018) dumbeg is a male symbol called linga. In the Old Javanese tradition, the dumbeg pair was jadah or sticky rice which became a symbol of women. So that, dumbeg and jadah symbolize fertility, as a pillar of human civilization.

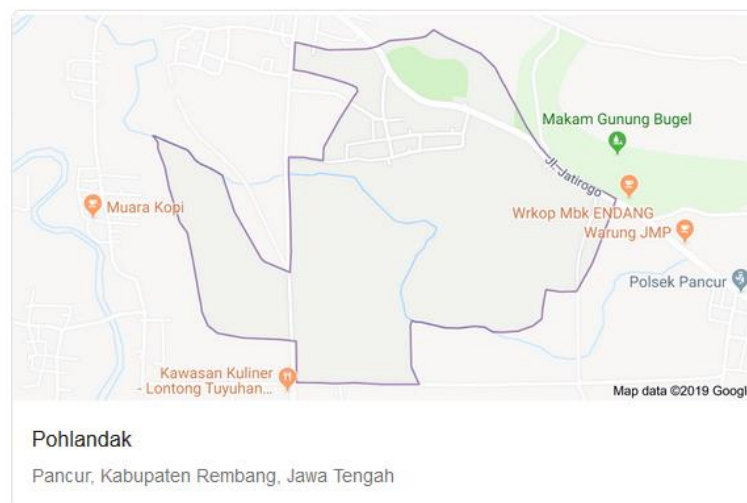
Dumbeg is made from rice flour, tapioca and Javanese sugar which has a legitimate taste. Dumbeg is often found in Lasem, one of which is in the village of Polandak, Pancur District. In the past, there were a lot of dumbeg producers in this village, but along with the progress of the dumbeg producer era, only 6-7 families were still running dumbeg

production. This happened because the next generation could not master the business which had been downgraded by their ancestors, starting from the stage of making the esophagus to the processing stage.

Referring to the background, the researcher wanted to preserve the culture of dumbeg making by bringing it into the classroom through science learning, so the purpose of this study was to identify the knowledge of the community that had not been formalized in making dumbeg and saintifikasi community knowledge so that it could be used as a contextual learning resource.

METHODS

This research is a qualitative research about a system of knowledge organized from the culture that exists in society (Battiste, 2005). The community culture organized in this study is the culture of dumbeg making in Rembang Regency. In this study the respondents used by the researchers were 2 people (W1, and W2) residents of the Village of Polandak RT 03 RW 01, District of Pancur, Rembang regency, Central Java, Indonesia.



Source:<https://www.google.com/maps/place/Pohlandak,+Pancur,+Kabupaten+Rembang,+Jawa+Tengah/ah/data=!4m2!3m1!1s0x2e77225d4dfe7ff1:0xf77791b4e26f949f?ved=2ahUKEwigg829eDgAhUGb30KH XUGDFUQ8gEwAHoECAIQAAQ>

Figure 1. District of Pancur, Rembang regency, Central Java, Indonesia

The data collection technique in this study adopted from the research conducted by Sumarmi (2017). During the data collection the researchers directly observed the activity of dumbeg production. Primary data collection using observation, in-depth interviews, and discussions in the field. While secondary data was collected through literature studies related to dumbeg production culture. In this study, researchers became the main actors in collecting data, in carrying out verification, reconstruction, formulation, and conceptualization of dumbeg production processes to become scientific knowledge.

RESULTS AND DISCUSSION

From observations and in-depth interviews with 2 respondents (W1 and W2) traditional dumbeg makers in Polandak Village RT 03 RW 01, Pancur Subdistrict, Rembang district, Central Java, Indonesia obtained information that respondents' knowledge of making dumbeg was obtained from knowledge that was taught for generations by their ancestors.

Activities carried out during the observation of the dumbeg making process can be seen in Figure 2 to 5 below:



Figure 2. Dumbeg and one of the respondents is Tutik's mother



Figure 3. The process of making dumbeg esophagus



Figure 4. The process of stirring and filtering dumbeg dough



Figure 5. The process of filling dumbek dough into the vacuum and steaming process

The results of indigenous people's exploration of science about dumbeg production are then reconstructed into scientific knowledge as shown in Table 2.

Table 2. Original Community Science Reconstruction to Scientific Science in the Dumbeg Production Process

NO	QUESTION	SCIENCE ORIGINAL COMMUNITY (SCIENCE)	SCIENTIFIC SCIENCE
		RESPONDENT 1 (W1)	RESPONDENT 2 (W2)
1	What does dumbeg mean?	<p>Dumbeg kuwi nyamikan kas Rembang, Biasane paling akeh ono Lasem lan sakupenge. Dumbeg digawe soko gelepung beras, tepung kanji, lan gula jawa (biasane ditambahi irisan kelopo cikalan utawa irisan nangka). Panganan iki biasane kanggo nyamikan nalika ana sedekah bumi.</p> <p>In English : Dumbeg is the most typical food of the city of Rembang in the Lasem area and its surroundings. Dumbeg is made from rice flour, starch and Java sugar (usually added with sliced coconut or sliced jackfruit). This food is usually used as a snack in the earth charity event)</p>	<p>Pakanan khas rembang, sing biasane dingo sarat nalika sedekah bumi.</p> <p>In English: The typical Rembang food used as a condition when giving alms to the earth</p> <p>Alms earth or clean village is a cultural ritual inherited from ancestors since hundreds of years ago. During the Hindu ritual it is called the earth offering. During Islam, during the Walisongo rituals of the earth offerings were not removed, but were used as a means to broadcast Islamic teachings about faith and piety. To broadcast the teachings the guardians boarded the rituals of the earth offerings by replacing Hindu prayers with Arabic readings listed in the Qur'an. Then as a form of gratitude in the ritual food is distributed to the poor, regardless of religion, ethnicity, race, or class. And as a symbol of fertility, dumbeg is provided.</p> <p>Cikalan = Coconut Classification of Coconut plants: Kerajaan : <i>Plantae</i> Devisi : <i>Magnoliophyta</i> Ordo : <i>Arecales</i> Famili : <i>Areaceae</i> Genus : <i>Cocos</i></p>

				Species : <i>C. Nucifera</i>
				Repository.usu.ac.id
2	What are the tools and ingredients for making dumbeg?	<p>Alat : Pisau Saringan Dandang kukus Ember gede 2 Ciduk Torong</p> <p>Bahan : Tepung beras 1 kg Tepung kanji ¾ kg 1 kg gulo jowo 1 kg gulo pasir Banyu 5 liter Godong Lontar</p> <p>In English Tools: 1. Knife 2. Filter 3. Steamed cage 4. Large bucket 2 5. Dipper 6. Funnel</p> <p>Material : 1. 1 kg of rice flour 2. Starch ¾ kg 3. 1 kg of Javanese sugar 4. 1 kg of sugar 5. 5 liters of water 6. Lontar leaves</p>	<p>Alat : Pisau Saringan Dandang kukus Ember gede 2 Ciduk</p> <p>Bahan : Tepung beras 1 kg 1 kg gulo jowo 1 centong sayur banyu njet Banyu 5 liter Godong Lontar Santen</p> <p>In English Tools: 1. Knife 2. Filter 3. Steamed cage 4. Large bucket 2 5. Dipper</p> <p>Material : 1. 1 kg of rice flour 2. 1 kg of Javanese sugar 3. 1 vegetable bowl njet water 4. 5 liters of water 5. Lontar Leaves 6. Coconut milk</p>	<p>Palm leaves</p> <p>Palm leaves are leaves of the siwalan tree (<i>Borassus flabellifer</i>). Classification of siwalan plants as follows: Kerajaan : <i>Plantae</i> Devisio: <i>Angiospermae</i> Ordo : <i>Arecales</i> Familia : <i>Arecaceae</i> Genus : <i>Borassus</i> Spesies : <i>Borassus flabellifer</i></p> <p>(Sudarminto, 2015) Darsatop.lecture.ub.ac.id</p> <p>Njet Water Njet is a Javanese language from betel lime or in chemistry called calcium hydroxide or $\text{Ca}(\text{OH})_2$</p> <p>(Nurrudin et al., 2015)</p> <p>Coconut Milk Coconut milk is an unstable oil in water system, where the composition of water is more dominant than oil. The oil in water emulsion system in coconut milk is not too stable because it easily changes due to the influence of PH, heat, and enzyme activity.</p> <p>(Ansori, 2009)</p>
3	How to make dumbeg?	<p>Gawe klongkongan dumbeg sing bentuke koyok terompet, carane godong lontar dibagi dadi loro (sodone diilangi) banjur diplinter mubeng koyok terompet.</p>	<p>Gawe adahe dumbeg sing bentuke koyok terompet, carane godong lontar diplinter mubeng koyok terompet.</p>	<p>Ajer = Solution The solution consists of solutes and solvents. The solution here consists of sugar (solute) and water (solvent). There are 2 mixtures, namely homogeneous mixtures and heterogeneous mixtures. Homogeneous mixture is a</p>

In English

For a dumbeg skin that is shaped like a trumpet, the way the palm leaves are divided into two (the bones of the leaves are removed) and then twisted to rotate like a trumpet

Gawe ulenan dumbeg. Sing pertama gulo jowo gulo pasir digodog sampek mateng lan **ajer**, ojolali **tambahano uyah sitik ben gureh**. Banjur didemno nganti manget-manget.

In English

Make dumbeg mixture. The first is Javanese sugar, sugar is boiled until cooked and becomes a solution, then don't forget to add salt a little so it is tasty. Then left to not so hot)

Ngenteni manget-manget campurno gelepung beras sing bubar **ditumbuk** mau kiro-kiro 1 kg lan tepung kanji $\frac{3}{4}$ kg ono ember gede sing wis dicepakno.

In English

Waiting for the sugar solution not so hot, the 1

In English

Make a dumbeg shaped like a trumpet, how a crossed a diplomat's lever looks like a trumpet

Gawe ulenan dumbeg. Gulo jowo gulo pasir digodog sampek mateng lan **ajer**, njur **santen dilebokno karo diadok-adok supoyo santen ora pecah**, ojolali tambahano uyah sitik ben gureh. banjur didemno nganti manget-manget.

In English

Make dumbeg mixture. Javanese sugar, sugar is boiled until cooked and becomes a solution, then the coconut milk is put into a sugar solution a little while stirring so that the coconut milk does not break, then do not forget to add salt slightly so that it is tasty, then let it sit until it is not too hot)

Ngenteni manget-manget cawisno gelepung beras ono ing ember

mixture of two or more substances where all substances have a uniform arrangement so that, it is difficult to separate. While heterogeneous mixtures are a mixture of two or more substances where all substances do not have a uniform arrangement, so they can still be separated between constituent particles. In this case, java sugar and water are samples of a homogeneous mixture.

Heating and Stirring Function in Coconut Milk

Coconut milk is an oil emulsion system in water, and the second system of the liquid does not dissolve each other. Basically the coconut emulsion is unstable because if left for a while the separation between the dispersed phase and the dispersing medium. Especially when subjected to heating above 80°C, the coconut milk will coagulated/lumpy (Sembiring, 1990). So that in heating coconut milk is expected to use medium heat and always stirring.

Salt Addition To Be Tasty

The process of adding salt (natural food ingredients) to enhance the taste of the cuisine.

Manget-manget = Not too hot

The cooling function of sugar before it is put into a mixture of rice flour and starch

Starch starch has functional properties that can be gelatinized. Glatinization is the process of swelling starch glutinous when heated in aqueous media. Starch granules do not dissolve in cold

kg of rice flour that had been ground before was mixed with 3/4 kg starch on one large bucket

Naliko gulane wis **manget-manget** sokno alon-alon ono ember sing isine campuan gelepung karo kanji mau. Ulenano nganti kalis lan pisan pindo di **geblok-geblok** supoyo kenyal

In English

When the sugar solution is not so hot, slowly put the sugar solution into a bucket that already contains a mixture of rice flour and starch, then stir it until smooth by hand and occasionally beaten so that it is chewy

Naliko ulenan wis dadi kalis **saringo** ulenan mau ono ember liyo supoyo ulenan alus ora ono regetan, banjur ulenan mau agek lebokno ono wadahe mau nganggo torong supoyo ora beluber-bluber, menowo wis lincah yo ora perlu nanggo torong. Ngisine adonan ora usah kebak mundak luber naliko dikukus. Menowo wis, lebokno ono dandang iki. Banjur kukus kurang luweh 45 menit. **Saben 10 menit dibukak supoyo**

In English

Waiting for the sugar solution to not be so hot, prepare rice flour in a large bucket

Naliko gulane wis **manget-manget** sokno alon-alon ono ember sing isine gelepung beras. Ulenano nganti kalis lan pisan pindo di **geblok-geblok** supoyo kenyal lan menowo uwis roto lebokno banyu njet mau sitik-stik lan ratakno.

In English

When the sugar solution is not so hot, slowly put the sugar solution into a bucket filled with rice flour and then stir until smooth by hand and occasionally beaten so that it is chewy and then put a little njet water into the dough that has been dull

Naliko ulenan wis dadi kalis **saringo** ulenan mau ono ember liyo banjur ulenan mau agek lebokno ono wadahe mau alon-alon. Ora usah beg. Mundak luber. Menowo wis, lebokno ono dandang. Banjur kukus kurang luweh 50 menit. Saben 10 menit dibukak.

In English

When the mixture has become smooth, the

water media, but starch granules can expand in hot water. (Nur, 2013)

Geblok-geblok = beating on the dough.

That is for the process of homogenizing particles (avoiding the presence of clumps of starch and rice flour in the dough)

Saringo = Filtration Process

The process of separating the mixture from impurities from java sugar or rice flour and starch

The steam opening process every 10 minutes

The point here is to reduce the pressure in the steam due to the increase in temperature from the heating process. The strong pressure in the steamer can make the dumbeg mixture in the steamer expand, if it is filled too full and does not do pressure pressure by opening the steam lid then the mixture will overflow or spill.

Cooling poses by opening the lid of dumbeg steaming and using cloth in the process of draining it.

The process of opening the dumbeg steamer lid is intended so that the heat in the system (steam) can be reduced or released into the environment so that dumbeg can be drained.

The process of wetting hands with water before draining dumbeg means, so that the hands do not overheat when holding the dumbeg to drain.

The next process in draining the dumbeg using a cloth is intended, so that the hands do not feel hot and to remove moisture from the dumbeg wall as a result of the

**adonan sing mumbul
biso angslup meneh,
utawo ora kutah.
Sakwise mateng, demno
sakuntoro, tutup
dandang dibukak supoyo
kanginan banjur dumbeg
dientas siji-siji. Carane
sakdurunge ngentas
tangan celupno ono
banyu supoyo adem
banjur entas siji-siji
dumbeg lan lap nganggo
gombal supoyo banyu
sing ono sak kupenge
wungkus dumbeg iso
ilang.**

In English

When the mixture is smooth then filtered so that the mixture is smooth in texture, there is no dirt and no dough is still clumping. After filtering, the dough is put into the dumbeg skin using a funnel so that it does not spill, but when it is smooth it can be directly loaded into the dumbeg skin without using a funnel. After ready steam dumbeg up to 45 minutes. Every 10 minutes the steamer lid is opened so that the expanding mixture does not spill or come out of the dumbeg skin. After the mature dumbeg leave it for a moment. Then the dumbeg is drained in a way, before draining dumbeg, the hands are dipped in water, meaning that the hands exposed to water can reduce the heat from the dumbeg. then so

mixture is filtered
diember differently,
then the mixture is put
into the skin dumbeg
slowly and not to full,
so as not to spill over.
After finishing
entering into the cage
then steam for 50
minutes and every 10
minutes is opened

water vapor produced in the
heating process

**The process of mixing
ingredients gradually can be
translated into the process of
introducing simple elements,
compounds, and mixtures**

		that the dumbeg is not wet cleaned using a dry cloth		
4	Why use palm leaves? Can you use coconut leaves?	Nganggo godong janur yo iso, nanging godong lontar luweh Gampang golekane, Luwih kengkeng godonge, menowo dikukus godonge ora liyut-liyut koyok godong janur menowo di kukus. Rasane yo enak menowo go godong lontar.	Nganggo godong janur yo iso, nanging godong lontar luweh Gampang golekane, Luwih kengkeng godonge, menowo dikukus godonge ora liyut-liyut koyok godong janur menowo di kukus. Rasane yo enak menowo go godong lontar.	In terms of morphology the leaf shape is the same but the texture is different, the leaf is more flexible than the palm leaf. This is because the content of silica in lontar leaves is greater than that of coconut leaves, so that in the process of steaming lontar leaves are stronger and not easily flexible or weak.
		In English You can also use coconut leaves, but palm leaves are easier to find, stronger leaves, although steamed lontar leaves are not soft the texture is like coconut leaves. it also tastes better using palm leaves	In English You can also use coconut leaves, but palm leaves are easier to find, stronger leaves, although steamed lontar leaves are not soft the texture is like coconut leaves. it also tastes better using palm leaves	
6	How long can dumbeg last?	Dumbeg betah nganti 2 dino, amargo ora nganggo santen	Dumbeg mung iso betah sedino, amargo ono santene	The oil in water emulsion system in coconut milk is not too stable because it easily changes due to the influence of PH, heat, and enzyme activity. (Ansori, 2009)
		In English Dumbeg lasts up to 2 days because it doesn't use coconut milk	In English Dumbeg lasted only a day because there was coconut milk	

From Table 2, it can be seen that in the dumbeg production process there is public knowledge that can be reconstructed into scientific knowledge. This scientific knowledge can be translated into the content and context of learning science in schools, both in the content and context

of learning in elementary school (SD), junior high school (SMP) and high school (SMA). Content and context of dumbeg production in elementary, junior high and high school science learning which can be seen in Table 3, Table 4, and Table 5.

Table 3. Relationship between Dumbeg Making and SD Competency Standards

No	Science Learning Competency Standards	Content and science context
1	3.6 Applying the concept of heat transfer in everyday life. (Heat and displacement)	1. Demonstrate activities to distinguish temperature and heat through the process of making dumbeg.

		<ol style="list-style-type: none"> 2. Conduct experiments on heat transfer by convection, conduction and radiation through the dumbeg steaming process. 3. Discuss the importance of heat transfer and its relation to occupational safety and security in daily life through the process of dumbeg draining.
2	3.7 Understanding the effects of heat on changes in temperature and the appearance of objects in everyday life.	<ol style="list-style-type: none"> 1. Discuss the resolution of daily problems using heat through the dumbeg process. 2. Conduct an experiment on the effect of heat on changes in temperature and shape of objects through the dumbeg steaming process.
3	3.9 Understanding the classification of material in everyday life based on its components of compilation (Single and mixed substances)	Conducting observations and grouping materials into mixtures or single substances in the surrounding environment through the process of making dumbeg dough to obtain information on the properties of a single substance and mixed properties

In Table 3, information is obtained that the knowledge of the 2 respondents (W1 and W2) in the dumbeg making process from the preparation, batter and imitation stages can be related to the content and context of science learning in Indonesia at the

elementary school level. The content and context of science learning can be related to the material or competency standards of learning science points 3.6, 3.7, and 3.9

Table 4. Relationship between Dumbeg Making and Middle School Competency Standards

No	Science Learning Competency Standards	Content and science context
1	3.2 Classifying living things and objects based on observed characteristics. 4.2 Presenting the results of classifying living things and objects in the surrounding environment based on observed characteristics	Classification of living things Classification of living things (plants) based on the similarity of identifiable characteristics, which includes kingdom, species, species, genus, class, family through observation of materials to make dumbeg clumps.
2	3.3 Describe the concepts of mixtures and single substances (elements, and compounds), physical and chemical properties, physical and chemical changes in everyday life.	Substances and Characteristics Solids, liquids and gases; elements, compounds and mixtures. Observe the dumbeg making process to investigate the characteristics of substances (solid, liquid and gas) and collect information on elements, compounds and mixtures.
3	4.3 Presents the results of investigations or works about the nature of solutions, changes in physics and chemical changes or mixture separation	Substances and Characteristics Perform a process of separating the mixture (filtration) in the process of making dumbeg
4	3.4 Analyzing the concept of temperature, expansion, heat heat transfer, and its role in daily life including mechanisms to maintain the stability of human and animal body temperature	<ol style="list-style-type: none"> 1. Investigate the effect of heat on changes in the temperature of objects and heat transfer by convection, conduction and radiation through observation of the dumbeg making process. 2. Gathering information on various efforts to maintain the stability of body temperature of living things in daily life through observing the dumbeg process.
5	3.6 Describe various additives in food and beverages, addictive substances and their effects on health.	Identify additives in the production of dumbeg making and their impact on food tastes and their impact on health

In Table 4, information is obtained that the knowledge of the 2 respondents (W1 and W2) in the dumbeg making process from the preparation, batter and imitation stages can be related to the content and context of science learning in Indonesia at the

junior high school level. The content and context of science learning can be related to the material or competency standards for learning science points 3.2 and 4.2, 3.3, 4.3, 3.4, and 3.6

Table 5. Relationship between Dumbeg Making and High School Competency Standards

No	Science Learning Standards	Competency	Content and science context
1	3.9 Identify reduction and oxidation reactions using the concept of elemental oxidation numbers. (Oxidation and reduction reactions as well as compound nomenclature).		1. Discuss the application of the rules for the name of simple organic and inorganic compounds according to IUPAC rules 2. Find the names of several compounds in the material used in the dumbeg making process according to IUPAC rules
2	3.14 Group various types of colloidal systems, and explain the usefulness of colloids in life based on their properties		Colloid System Identify what is meant by solution, suspension and colloid through observation of dumbeg making. Identifying the type of colloid based on the dispersed phase and its dispersing medium through observation of dumbeg making Linking the nature of colloids (coagulation) in the process of making dumbeg Discuss materials / substances in the form of colloids in the food industry.

In Table 5, information is obtained that the knowledge of the 2 respondents (W1 and W2) in the dumbeg making process from the preparation, batter and imitation stages can be related to the content and context of science learning in Indonesia at the high school level. The content and context of science learning can be related to the material or competency standards of learning points 3.9 and 3.14

Based on the results of dumbeg production certifications written in Tables 3, 4, and 5, it shows that in the dumbeg production process as one of the local cultures in the city of Rembang, it has the potential to be integrated into local culture-based science learning. This local culture if applied in learning is considered as the right source of learning in science learning to build students' creative thinking by using the natural and socio-cultural environment in addition to learning books, audio visuals, and the internet (Sussastra, IW, 2010).

CONCLUSION

Based on the results of the study it can be concluded that the saintification of community knowledge of the dumbeg production process in Desan Polandak, Pancur Subdistrict, Rembang Regency is an ancestral heritage that can be used as a contextual science learning resource, both by elementary, junior high and high school students. With this research, it is expected that educators can utilize the potential of local culture in society to be connected with existing concepts, processes and contexts (western science) so that meaningful learning will be created.

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