Development of Parijoto EthnoVlog Media to Explain the Scientific Reconstruction and Explanation of Parijoto (Medinilla javanensis) as Body Immunity

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Abstract. This research is a research and development of the ADDIE model to implement and evaluate the EthnoVlog learning media, namely at the Design and Development stage. This study aims to explain the scientific reconstruction and explanation of Parijoto (*Medinilla javanensis*) as body immunity. This research is located on the slopes of the Muria Mountains, Colo Village, Dawe District, Kudus Regency, with the research subject of Parijoto farmers. Data collection techniques were carried out by observation, interviews with selected sources, and validation by experts. Data analysis and scientific reconstruction refer to Sudarmin et al. (2020), consisting of four steps: verification, reduction, validation, and conceptualization. The scientific reconstruction and explanation of Parijoto (*Medinilla javanensis*) show Parijoto contains flavonoid compounds, tannins, saponins, alkaloids, and antioxidants that the body needs for the body's immune system. The literature-based scientific reconstruction and explanation results are used as a database to design engaging Parijoto EthnoVlog learning media. Based on data analysis, it can be concluded that the Parijoto EthnoVlog media is feasible to be applied directly in science learning as an alternative media during the Covid-19 pandemic.

Key words: ethnovlog; parijoto; reconstruction and scientific explanation.

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INTRODUCTION

Parijoto is a herbal plant that grows at an altitude of 1100 – 1500 meters above sea level on the Muria Mountains, Colo Village, Dawe District, Kudus Regency, Central Java. Parijoto plants in Java have ten types of Parijoto, but only two kinds of Parijoto are planted by residents around the Mount Muria area, namely Medinilla javanensis and Medinilla speciosa (Hanum et al., 2017). Parijoto fruit includes buni fruit, round, and the tip is lumpy with petals, 5-8 mm in diameter, and purplish-red (Kunarto & Iswoyo, 2020). The purplish-red colour indicates that Parijoto fruit contains anthocyanins, which are water-soluble pigments in plants and are found in most fruits, petals, and leaves (Sa'adah et al., 2017).

Women usually consume Parijoto fruit as a uterine fertilizer for those who do not have children or are pregnant because Parijoto is believed to maintain pregnancy (Wijayanti & Ardigurnita, 2019). The Muria community believes that by consuming Parijoto, they hope that the pregnant child will be perfect, handsome, and beautiful. Beautiful here, not only physically but also in character and attitude. Apart from being suitable for pregnant women, Parijoto can also be used as a medicine for diarrhea and cholesterol (Sa'adah et al., 2018).

The results of the phytochemical screening test show that qualitatively the active compounds contained in Parijoto Fruit include flavonoids, tannins, saponins, and alkaloids (Vifta & Advistasari, 2018). Other secondary compounds such as terpenoids, beta-carotene, and antioxidants are also contained in Parijoto fruit. Flavonoids have benefits, among others, to inhibit the spread of tumours, inhibit the growth of cancer cells, and inhibit the activity of enzymes that trigger inflammation and disease in the immune system (Hamidah et al., 2020). The

saponin content has antibacterial activity against Escherichia coli and Staphylococcus aureus bacteria in methanol and n-hexane extracts (Niswah, 2014).

The content of flavonoids and saponins shows that parijoto can play a role in the body's immunity. During the Covid-19 pandemic, it is essential to educate children about the importance of maintaining body immunity. One of the ways to educate children can be applied in learning at school. Learning in schools must be supported by media and learning resources that attract students' attention. Parijoto local wisdom (ethnoscience) has proper value to be used as a science learning resource. Parijoto ethnoscience can be used as a knowledge base to innovate in science learning in schools.

Parijoto ethnoscience can be used as a science learning resource because it carries value conservation and the preservation of natural resources that must be known, understood and preserved by the nation's generation through education, especially science learning in schools by teachers. Parijoto ethnoscience can be used as a science learning resource by carrying out the reconstruction and explanation of parijoto scientific science to be adapted to the essential competencies in science material. Science learning based on ethnoscience can activate students' cognitive structures to analyze problems in the surrounding environment critically and creatively find solutions to problems based on the values in local wisdom used as learning resources (Alimah, 2019).

Parijoto EthnoVlog media is one of the alternative media that can be used as a science learning resource that contains local wisdom values . The Parijoto EthnoVlog media collaborates between education (Parijoto ethnoscience) and entertainment (Vlog). Parijoto's EthnoVlog media will be the most popular media for students because Vlogs have become viral content on YouTube in recent years. Research conducted by Irwandani et al. (2019), a Youtube channel vlog with a STEM approach is suitable as an alternative media for online learning for high school students.

The Parijoto EthnoVlog media was developed to explain the reconstruction and explanation of Parijoto scientific science as body immunity during the Covid-19 pandemic. Researchers developed the media based on an analysis of student needs conducted at MTs Al Uswah Bergas. The study results of student needs indicate that students need media that can visualize science material that is difficult to imagine and contextual. Students are also more enthusiastic and understand science material when using media such as video shows to clear the steps. Based on this background, the Parijoto EthnoVlog Media was developed to explain the reconstruction and explanation of Parijoto scientific science as body immunity in science learning in SMP/MTs.

LITERATURE REVIEW

Based on the literature study, Vlog media positively affects learning, increases learning motivation, self-confidence, speaking skills, understanding concepts, critical thinking skills, and innovative, creative to an entrepreneurial character. Ethnoscience in the form of Vlogs is also interesting because it gives a fun and culturally insightful effect (Lestari et al., 2021).

Pre-research conducted by Lestari, Sudarmin, & Ellianawati (2021) analyzed students' needs and their responses if the ethnoscience integrated Vlog learning media was developed. The results of the pre-research are that students need media that can visualize material that is difficult for students to imagine and is contextual. Students are more enthusiastic and understand the material when using media such as video shows to clear the steps. Students welcomed the development of the EthnoVlog media, with 58.6% of students in need, 24.7% in dire need, and 14% less in condition.

METHOD

Research Goal

This research is part of the research and development of the ADDIE model. This research is the design and development stage of the ADDIE model R&D approach in the development of EthnoVlog learning media during the Covid-19 pandemic. This study aims to explain the reconstruction and explanation of Parijoto scientific science as body immunity in science learning in Junior High School.

Sample and Data Collection

Data was collected through interviews and observations made at CV. Seleksi Alam Muria and Parijoto Gardens are located at 1100 meters above sea level on the Muria Mountains, Colo Village, Dawe District, Kudus Regency. The research subject is Mr Triyanto Soetardjo as a parijoto farmer and owner of CV. Seleksi Alam Muria. In the interview, parijoto processed products were introduced. The types and

characteristics of the plant, their properties and content, fruit selection and processing techniques, creative ideas to life principles and mottos, and economic aspects were introduced. The following data collected is the Parijoto EthnoVlog media feasibility test by three experts: media experts, material experts, and YouTube experts.

Analyzing of Data

Then the data obtained were analyzed by performing reconstruction and scientific explanation of Parijoto. Data from interviews are used as data sources as community science data. Then the discovered science of society is translated into scientific science. Reconstruction and scientific explanation using procedures adopted from the reconstruction design of Sudarmin et al. (2020), which consists of four steps, namely verification, reduction, validation, and conceptualization. This reconstruction and explanation will later be compiled to design the Parijoto EthnoVlog learning media before being tested for feasibility by experts. The feasibility test by the expert was analyzed using the formula:

$$\% \text{ Parijoto EthnoVlog media feasibility} = \frac{Score\ obtained}{Maximum\ score} \text{ X } 100\%$$

RESULTS AND DISCUSSION

Design

The product specifications that will be developed are learning media in the form of video blogs (Vlogs) uploaded on the YouTube channel to visualize additives in food and beverages that are difficult for students to imagine and integrate Parijoto ethnoscience (Medinilla javanensis) so that it is contextual. The following are the stages in designing the development of the Parijoto EthnoVlog media (1) making a learning video scenario in the form of an EthnoVlog script, (2) preparing tools and materials for making EthnoVlog media by conducting environmental observations in the Parijoto garden, precisely on the slopes of the Muria Mountains and interviews with Parijoto farmers, (3) then take/create a video according to the scenario that has been made, (4) reconstruct and explain the scientific science of Parijoto as body immunity, (5) then edit the video using the Wondershare Filmora X application and then upload it to the Indah Beti YouTube channel.

Table 1. EthnoVlog script

Part	Duration	EthnoVlog Narration
 **Figure 1.** Part 1	06.37 minutes	Part 1 of the EthnoVlog introduces the resource person, namely Mr Triyanto Soetardjo as a parijoto farmer and owner of CV. Seleksi Alam Muria. This section also introduces various kinds of processed products from parijoto fruit and the informants' background of innovating parijoto processed products even though parijoto can be sold directly per stalk.
 **Figure 2.** Part 2	07.35 minutes	The EthnoVlog displayed is still an interview with a resource person who explains making tea and parijoto syrup, which turns out to be a process that does not use dyes because parijoto has given a distinctive colour appearance. Then the speakers also explained how to market the processed parijoto products so that they are known throughout Indonesia.
 **Figure 3.** Part 3	05.44 minutes	The resource person explained his life's principles and motto, teachings from Mbah Sunan Muria (Raden Umar Said), a member of Walisongo whose grave is located in the Muria Mountains. The focus is topo ngeli and pager mangkok. Topo ngeli is that we have to follow the era but don't let it get out of hand (don't be tempted by this era itself), and pager mangkok is that we have to share in the form of energy or thought.
 **Figure 4.** Part 4	09.09 minutes	Part 4 explains the scientific study of parijoto tea as a result of scientific reconstruction and explanation. The first minute shows the Food Vlogger enjoying parijoto tea and examining it from its colour and taste. Then the next minute showed the journey to the parijoto garden. When they arrived at the parijoto park, the resource person explained based on the morphological structure of the parijoto plant from leaves, fruit, flowers, and parijoto content so that parijoto can be used as body immunity.

Scientific Reconstruction and Explanation of Parijoto (Medinilla javanensis) as Body Immunity

Analysis of the reconstruction and scientific explanation of Parijoto refers to Sudarmin et al. (2020), which consists of four steps, namely verification, reduction, validation, and conceptualization. Data from observations and interviews are used as data sources as community science data. Then the truth of the scientific community data is traced through a literature review and separated from data that is considered unnecessary. The results of the reconstruction and scientific explanation of Parijoto are described in Table 2.

Table 2. Parijoto Scientific Reconstruction and Explanation

Society Science	Scientific Science
Parijoto began to be planted in 1998 by nine farmers with a land area of about 3 hectares at an altitude of 1100 meters above sea level in the Muria mountains. This parijoto fruit has small round sizes that are clustered on each stalk. Before fruiting, the parijoto will initially appear short green trunks when it is about one month old. After that, it will change colour to white slightly pink when the pink colour is more dominant than white, and then the flowers will start to bloom, then when the parijoto changes colour to dark red ready for harvest.	Parijoto is a shrub with a height of 1-2 m, round stems, skin with a layer of cork when old, single leaves, crossed facing the curved leaf bones, compound flowers, purplish red, many round seeds, and fibrous roots. Parijoto plant classification (Wachidah, 2013) is as follows: Kingdom : *Plantae* Subkingdom : *Tracheobionta* Super Divisi : *Spermatophyta* (Produce seeds) Divisi : *Magnoliophyta* (Flowering plants) Kelas : *Magnoliopsida* (dicotyledon) Sub Kelas : *Rosidae* Ordo : *Myrtales* Famili : *Melastomataceae* Genus : *Medinilla* Spesies : *Medinilla javanensis*
The ripe parijoto fruit is purplish red, and when it is processed into tea, the colour of the brewed tea becomes pink due to the addition of water. Meanwhile, the syrup turns orange because of the addition of sugar. So sugar is from sugar cane. If you mix yellow and red, the colour will turn orange.	Parijoto turned out to contain high levels of antioxidants and beta-carotene. Parijoto contains red anthocyanin pigments. Anthocyanins can be used as natural food colouring by extracting using an acid solvent. Anthocyanins meet the requirements as colourants because they do not cause damage to food ingredients or their packaging and are not toxic to the body. Besides being a dye, anthocyanins are also antioxidants because they belong to the flavonoid group, effective for inactivating free radicals and peroxyl.
Parijoto fruit has a *sepet* taste (sour fresh), and people usually consume it as a salad mixture, or the fruit extract is used for gargling.	Parijoto fruit has a high vitamin C content, so it is efficacious to prevent canker sores. It is also one of the solutions that can be used to boost the immune system. Because it contains antioxidants that can help prevent the body from being susceptible to disease.
Parijotho is believed to be suitable for pregnant women or those who have not had children for a long time. By consuming parijotho, hope that the pregnant child is perfect, handsome, and beautiful. Beautiful here, not only physically but also in character and attitude. Or those who have not had children for a long time hope that they will soon be blessed with offspring.	Parijoto fruit has many benefits, one of which is believed to overcome a problematic pregnancy. Parijoto can be used as an alternative medicine because the fruit and leaves contain saponins, cardenolines, flavonoids, and tannins. Flavonoids also have benefits, among others, to inhibit the spread of tumours, inhibit the growth of cancer cells, and inhibit the activity of enzymes that trigger inflammation and disease in the immune system. Saponins can reduce the risk of cancer, cholesterol, increase immunity by parasites, and reduce the loss of the body.
It was making parijoto tea by drying in the sun for seven days if it is scalding.	Sun-drying or traditional drying is drying using heat from the sun with an allocation of 7-9 days. The purpose of drying is to reduce the water content of the material to a certain extent so that it is safe to store until further use.
The process of making parijoto syrup is by grinding and taking parijoto juice and adding sugar.	Extraction - filtration is carried out in the process of making parijoto syrup. Extraction – filtration is done by adding water solvent by heating at a specific temperature and then filtering to get the parijoto fruit extract.

Validation of Parijoto EthnoVlog Media

a) Media expert validation

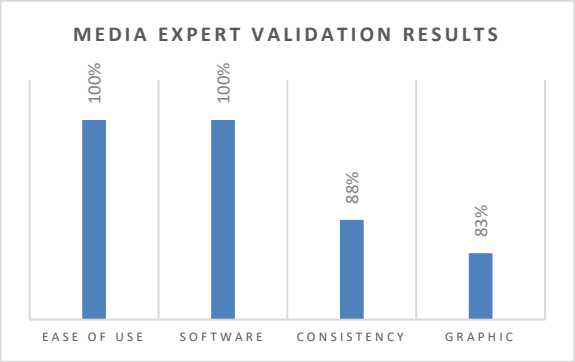

Figure 5. Diagram of Media Expert Validation Results

In the diagram above is the value obtained from media experts who then the researcher calculates the percentage of feasibility scores from each aspect using a Likert scale formula with an assessment result of 100% for ease of use, 100% for software aspects, 88% for consistency aspects and graphic aspects. %. So that the average assessment for all aspects of the Parijoto EthnoVlog media is 92.75%. According to media experts, this shows that the EthnoVlog media is included in the "Very Good" category.

b) Validation of material experts

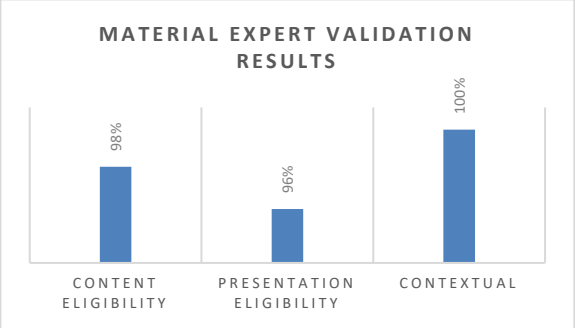

Figure 6. Diagram of Material Expert Validation Results

In the diagram above is the value obtained from the material expert who then the researcher calculates the percentage of the feasibility score from each aspect with an assessment result of 98% for the feasibility of the content, 96% for the element of the feasibility of the presentation, 100% for the contextual aspect. So that the average assessment for all aspects of the Parijoto EthnoVlog media is 98%. According to material experts, this shows that the EthnoVlog media is included in the "Very Good" category.

c) YouTube Expert Validation

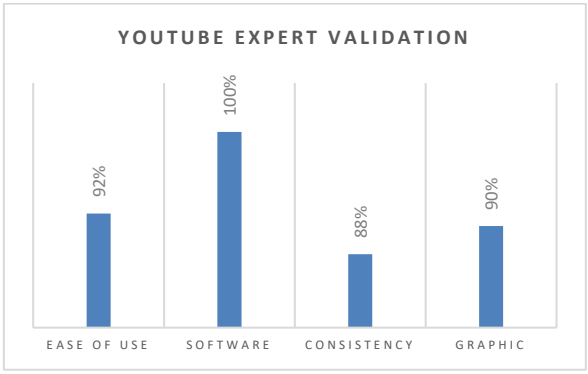

Figure 6. Diagram of YouTube Expert Validation

In the diagram above is the value obtained from YouTube experts. The researcher then calculates the percentage of the feasibility score from each aspect with an assessment result of 92% for ease of use, 100% for software aspects, 88% for consistency, and 90% for graphic elements. So that the average assessment for all aspects of the Parijoto EthnoVlog media is 92%. According to YouTube experts, this shows that the EthnoVlog media is included in the "Very Good" category.

Discussion

The initial design of the Parijoto EthnoVlog media was designed by compiling the material's creation. Next, create a learning video scenario/script, prepare tools to make videos, take/make videos according to the scenarios that have been made, reconstruct and explain the Parijoto scientific science, then edit the video using the Wondershare Filmora application and upload it to YouTube. EthnoVlog Parijoto is expected to be the basis for developing learning media in the form of EthnoVlog. EthnoVlog Parijoto is one learning media that teachers and students can use to help facilitate learning activities.

After taking videos on the slopes of the Muria mountains together with parijoto farmers, the researchers reconstructed and explained the scientific science of parijoto, which demonstrated that parijoto is a plant with round purplish-red fruit that grows in high altitudes. Parijoto Muria has the scientific name Medinilla javanensis from the seed plant group (Spermatophyta). Parijoto contains high levels of anthocyanin and beta carotene pigments so that it can be used as a natural dye that is safe to add to food and beverages. Anthocyanins also act as effective

antioxidants for free radical inactivation. Parijoto has also been shown to contain phenolic compounds and antioxidants (Hasbullah et al., 2020).

The content of parijoto fruit in addition to anthocyanins qualitatively, namely flavonoids, saponins, tannins whose fruit is believed by the public to increase fertility and cure various diseases (Wijayanti & Ardigurnita, 2020). Parijoto Fruit extracts and fractions contain flavonoid compounds that have been proven through qualitative testing, thin layer chromatography, and quantitative determination of levels (Vifta & Advistasari, 2018). Flavonoids have the benefit of inhibiting the spread of tumours, hindering the growth of cancer cells, as well as inhibiting the activity of enzymes that trigger inflammation and disease in the immune system, so they are suitable for consumption during the Covid-19 pandemic, and students need to know the importance of parijoto. Saponins can reduce the risk of cancer, cholesterol, increase immunity by parasites, and reduce the loss of the body.

Processing parijoto into tea and parijoto syrup can also be used as learning materials because students can learn mixture separation techniques such as extraction and filtration. There is also drying with traditional methods. It is exciting to be designed to be a learning media that is of interest to students. Because students not only imagine but also see and observe. With the observation process through the Parijoto EthnoVlog media, students can build their learning knowledge.

Several experts then validate the Parijoto EthnoVlog media that has been developed. Validation is done by media experts, content experts, and YouTube experts. The validation results by media experts cover four aspects of the assessment, namely ease of use, software, consistency, and graphics. The assessment results from media experts get an average value of the percentage of eligibility of 92.75%. The results of material expert validation include three aspects of the assessment: the feasibility of content, presentation, and contextual. The average rating for all aspects by material experts is 98%. Meanwhile, the validation results by YouTube experts covering four elements, namely ease of use, software, consistency, and graphics, obtained an average rating of 92%. The assessment category of the three validators is "Very Good", which means that the Parijoto EthnoVlog media is suitable for learning.

CONCLUSION

Reconstruction and scientific explanation of Parijoto (Medinilla javanensis) show Parijoto contains flavonoid compounds, tannins, saponins, beta-carotene, and antioxidants that the body needs to inhibit various diseases, especially those that attack the immune system. This scientific reconstruction and explanation results are used as a database to design engaging Parijoto EthnoVlog learning media. Parijoto's EthnoVlog learning media design was then tested for feasibility by media experts, material experts, and YouTube experts. Based on data analysis, it can be concluded that the Parijoto EthnoVlog media is feasible to be applied in science learning as an alternative media during the Covid-19 pandemic.

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