Infographics as a campaign medium for goat milk drinking culture in Sragen regency, Central Java, Indonesia

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Abstract. Milk is a dairy product that contains excellent nutritional value for human health and growth. In addition to having a strategic selling value, milk can be processed into various products such as UHT milk, milk candy, milk soap and etc. Cow milk and goat milk are types of milk that are often consumed daily by people. Although cow milk is more popular than goat milk, there are many advantages and benefits of consuming goat milk. The "Taruna Mukti" Goat Farmer Group in Sragen Regency, Central Java, in collaboration with the Visual Communication Design Undergraduate Study Program, the Faculty of Fine Arts and Design of Universitas Sebelas Maret, designed infographics that were distributed through social media platforms to campaign for the culture of drinking goat milk. Research and Development method and ADDIE model were used in the media development. The expected results of this research are an effective message delivery about the importance of consuming goat milk and a positive response from the community.

1. Introduction

Milk is a food product of animal origin. Milk contains nutrients that are very good for human health and growth. Milk also has a very strategic selling value because it can be processed into various processed products such as UHT milk, milk candy, milk soap and others. If it is not immediately processed into other products with high selling value, milk is categorized as perishable food because it contains enzymes that can break down several nutritional components (protein, fat), which causes it to spoil quickly.

There are two popular milk types in the community, namely cow's milk and goat's milk. Milk is a white liquid that comes from mammals and contains chemical elements needed by human body such as calcium, phosphorus, vitamin A, vitamin B and riboflavin. Milk also has a high content of protein, minerals and vitamins that are easy to digest. This makes milk a flexible source of food ingredients that its fat content can be adjusted [1]. In addition to protein, the fat content in milk is the most important component. The nutritional contents in milk thus affects the selling price of milk [2].

The comparison ratio between goat's milk and cow's milk tested using the length of kefir ratio had a very significant effect (P<0.01) on lactic acid, fat, alcohol, protein, taste and aroma, but was not significantly different (P<0.05) on taste and aroma test. Based on the quality and hedonic test of kefir, the S1W3 treatment (100% goat's milk 96 hours) was the chosen treatment with values of lactic acid...
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(1.0193), fat (5.90), protein (4.69), taste (4.111), and aroma (4.2667). Meanwhile, the alcohol content test was carried out with S1W1 (100% goat's milk + 48 hours), (0.22%) and S3W1 (100% cow's milk + 48 hours) treatments, (0.24%) [3]. In addition, the comparison of the physiochemical quality of kefir made from goat's milk and cow's milk, showed that different types of milk had a significant effect (P<0.05) on the parameters of pH, lactic acid percentage, and ethanol content of kefir, but had no significant effect (P>0.05) to the value of PBBK. It can be concluded that the best kefir is made from goat's milk with the characteristics of kefir pH 3.89, lactic acid percentage 0.14; PBBK 26.61%; and 0.72% ethanol content [4].

One of goat's milk advantages from cow's milk is the high proportion of small fat granules (short and medium chains) which makes goat's milk more homogeneous, easy to digest and does not cause digestive problems for those who are allergic to cow's milk. Thus, goat's milk can be said to be as good as mother's milk and better than cow's milk in meeting human nutrition [5]. Some of the advantages of goat's milk are; 1) not causing diarrhea; 2) having finer fat granules that are easy to digest and do not increase cholesterol; 3) having finer protein grains that are easy to digest and good for intelligence development; 4) having the most balanced composition of calcium and phosphorus compared to other milk which is good for children's bone growth and can prevent tooth decay for adults; 5) having properties to prevent various diseases; 6) having very high calcium levels; 7) helping facilitate the digestive system [6]. In medical and health fields, consuming goat's milk regularly has medicinal benefits for several diseases such as tuberculosis, asthma, gout, and lung spots [7].

With the benefits of milk being better than the more popular cow's milk, dairy goat farming is gaining popularity in Indonesia. One of the areas that has dairy goat breeders is Purworejo Village, Gemolong, Sragen. The goat dairy farms in the village is carried out by the Taruna Mukti Dairy Goat farmer Group and the Ngudi Rahayu Women Farmer Group. However, the efforts made by the two farmer groups are still experiencing obstacles, namely the lack of enthusiasm and public knowledge about goat's milk. Goat's milk is less popular than cow's milk. This encourages researchers to create alternative media that can provide education to the public to recognize and consume goat's milk products. The alternative educational media chosen was infographics containing knowledge content about goat's milk.

Infographics are visualizations of data, ideas, information or knowledge through charts, graphics, timetables and others, so that data, ideas, information, or knowledge can be presented as something more than just text and have a stronger and more interesting visual impact [8]. In general, infographics are divided into two types, namely informative graphics and visual graphics. Informative graphics are graphics that describe events, processes, research results and facts artistically. Meanwhile, visual graphics are graphics that are illustrative of the entire content of news and opinions that are depicted analogously, symbolically, metaphorically, and artistically [9]. Communication using images can make it easier for people to understand the information that the maker wants to convey [10].

Research on the benefits of goat's milk has been widely carried out in the fields of animal husbandry, science, and health. However, there are still few studies that discuss the benefits of goat's milk in terms of dissemination and education efforts to the community. This study aims to create an alternative educational media to the public in the form of infographics. The expected result is that people know about goat's milk in general and its benefits. This is expected to have an impact on the revenue generating of both farmer groups and the communities in their villages.

2. Research methods
This qualitative research aims to create and develop a media that serves to educate the public about the benefits of consuming goat's milk. The method used in this research is ADDIE. ADDIE model is a term used to describe a systematic approach to instructional development, which is almost identical to instructional systems development (ISD) which refers to the main process, consisting of generic ISD processes, namely Analysis, Design, Development, Implementation, and Evaluation [11].

The stages of the development process carried out [12] were (1) collecting data from the field related to the needs of farmer groups and the condition of the community that requires education about goat's milk; (2) Designing and creating media; (3) Applying the model as a concrete step in educating the
(4) An evaluation was conducted to see if the infographic had a significant impact on the community's consumption of goat's milk.

3. Results and discussion

3.1. Creation of infographics

The process of creating infographic media with educational content about goat's milk began with a condition analysis based on the description given by the two farmer groups regarding the benefits of goat's milk which is equal to or even better than cow's milk. This better benefit was not yet known by the community, so it had an impact on the income of the farmer group. This problem required a solution that was inexpensive but effective and easy to disseminate, namely infographics.

The next effort was to find and collect data to be used as content in infographics, and look for aesthetic references as an effort to attract the attention of the target audience. The presentation of the contents on the infographic will attract the attention of the infographic readers through the display of attractive colors and images. A good infographic can be seen from the aspect of clarity and ease. The information presented in infographic content must provide clarity to the reader through the appearance of the letters and the suitability of the images used. In terms of ease, the information in infographics should be easy to understand, so that readers can understand the meaning of the message and interpret it [13,14].

![Educational infographic design regarding the benefits of consuming goat's milk](image)

**Figure 1.** Educational infographic design regarding the benefits of consuming goat's milk.
The goat's milk infographic design was created by combining informative and graphic elements. The informative side emphasizes the seven benefits of goat's milk on the health of the body (Figure 1). Meanwhile, the graphic side seeks to approach the public through the current preferred visual style, which is using Pop-style visual elements with an emphasis on graphic ornaments. The target audience for this infographic is those who are in their teens to productive adults, because that age range still has a high possibility of passing on information to the next generation. This age range also has the potential to become consumers with high purchasing power than the older and younger age groups. In addition, this generation is close to the visual style used in the infographic, so it will be easier for them to understand the exposure and message in it.

Most of the distribution of infographics was done using mobile phone applications and social media. This was done to educate more people outside the dairy farm area. The breadth of the media distribution is expected to be able to disseminate information about goat's milk, thereby increasing opportunities for increasing the income of farmers and villages.

As an evaluation step of the infographic, it is necessary to create a similar infographic that describes technical problems at the household level. Some of these technical problems include storage methods, alternative ways of consumption, and a variety of derivative products that can be eaten or drunk directly. In addition, at the entrepreneur level, information about the types of goats that produce milk, a description of the costs to be incurred, the variety of packaging, and the variety of derivative products are also needed.

Public interest and enthusiasm began to increase after the infographic was created and distributed. This is evidenced by the messages received by the farmers regarding price information, products, and information to become product re-sellers. This is an indication of an increase in public attention to goat's milk.

3.2. Goat's milk and public consumption
The problem of low goat's milk consumption in the community is basically caused by the low level of public education about goat's milk. The COVID-19 pandemic has made people more concerned about information about health. Currently, if a product has a positive impact on human health, the product has the opportunity to become a popular product. Information exposure is important to disseminate that a product contains health benefits. Clarity of information is very influential on the decisions made by potential consumers.

The benefits of goat's milk which is better than cow's milk will certainly be a consideration for consumers. The downside of goat's milk is that sometimes it smells bad. This can be reduced or even eliminated by making the right formula for dairy goat feed with concentrates and foods containing omega 3.

In addition, the real comparison between cow and goat dairy farms is the costs incurred. The cost of dairy cows is certainly more expensive than dairy goats in terms of the prices of livestock, feed and cages. So that the business opportunity of raising dairy goats is more profitable.

4. Conclusion
Goat's milk has health benefits that are not inferior to cow's milk. In addition, the low fat content in goat's milk can stabilize the body's pH level. These benefits can be disseminated using infographic media that contains educational content about the benefits of goat's milk. The advantages of this infographic media are low production costs and easy distribution using mobile phone applications and social media. The impact of the infographic is an increase in public enthusiasm for further information about goat's milk.

Further information on goat's milk needs to be created in an effort to provide correct and sufficient information to the public. In addition, exploration of other information media needs to be done to increase public confidence in goat's milk products and their derivatives.
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