

## **DESIGN OF APP SHEET FOR EXPLAINING NUTRITION IN NOODLE AS CULINARY HERITAGE IN ETHNIC PERCEPTIONS AMONG POST-MILLENNIAL GENERATIONS**

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### **Abstract**

This study aims to provide interactive information about the nutrition of kwetiau noodles as a culinary heritage, in order to shape ethnic perceptions and improve cultural understanding among the post-millennial generation through the AppSheet application. This study uses the Design-Based Research (DBR) method involving four stages, namely analysis, development, iterative, and reflection, to develop an AppSheet application that explains the nutrition of kwetiau interactively and evaluates its influence on the ethnic perception of the post-millennial generation, with validation by media experts. The results of the discussion of this article indicate that although the AppSheet application has succeeded in integrating modern technology to shape ethnic perceptions and improve the cultural understanding of the post-millennial generation about culinary heritage, the validity of the application's effectiveness cannot be measured in real terms because it has not been field tested on end users, so further testing is needed to ensure the application achieves its intended purpose.

Keywords: Culinary heritage, Design of AppSheet, Ethnic perception, Nutrition, Post-Millennial generation.

## 1. Introduction

Noodles, especially the kwetiau type, contain several nutrients, including 2.13% protein and 36.42% carbohydrate content [1]. Kwetiau noodles are a culinary heritage that has existed in Indonesia since the 18th-19th centuries. These noodles were introduced by Chinese immigrants from Guangdong and Fujian who migrated to Southeast Asia. Kwetiau is popular with Indonesian people, including the post-millennial generation group born from 1997 onwards. As a popular food, kwetiau gives the perception that there are no restrictions and acceptance of Chinese ethnic identity. Along with technological advances, the delivery of information about noodle nutrition and cultural heritage can use the AppSheet application. This application provides interactive explanations in shaping ethnic perceptions and strengthening cultural understanding for the community, especially the post-millennial generation.

Several studies discussing kwetiau have been conducted previously. Among those discussing kwetiau in terms of the mixture of ingredients, some are added with sorghum flour, aloe vera, secang extract, and snakehead fish flour [2]. Previous studies still focus on the composition content only and have not integrated with the use of modern applications such as AppSheet. To complete this study, the researcher added previous research data related to the use of AppSheet in information technology and development. Previous Research Data was obtained from the Scopus database as shown in Table 1.

**Table 1. Previous research based on bibliometrics.**

No.	Title	Ref.
1	The Effectiveness Study of DBS10012 Engineering Science Mobile Application Development.	[3]
2	Development of an order processing system using Google Sheets and AppSheet for a Malaysian automotive SME factory warehouse.	[4]
3	Development of daily stock status mobile application system.	[5]
4	Design of information, communication, and technology (ICT)-based Appsheet for collecting data in decision making: a case study of father's parenting in children's character education in female migrant worker families.	[6]
5	Development of school exam administration based on LCDP with scrum method: an innovation in administrative efficiency in education.	[7]

This study aims to develop the AppSheet application to provide interactive information about the nutrition of kwetiau noodles as a culinary heritage, in order to shape ethnic perceptions and improve cultural understanding among the post-millennial generation. This study has novelties, namely (i) integration of culinary with modern technology (ii) formation of ethnic perceptions through interactive applications (iii) use of AppSheet in the context of culinary and cultural identity. The results of the discussion showed that the AppSheet application successfully integrated modern technology to shape ethnic perceptions and improve cultural understanding, but its effectiveness has not been proven because it has not been tested on end users.

## 2.Literature Review

AppSheet is a digital service platform that allows someone to convert spreadsheets into functional applications [8]. AppSheet is real-time and can be accessed via the web. This platform works online, so users can manage and access data without the need for complicated coding. AppSheet is suitable for use in various work purposes, such as inventory tracking, project management, and others. In this study, AppSheet was used to explain noodle nutrition (kwetiau).

One type of noodle is Kwetiau, this food comes from China and is part of the culinary culture in Indonesia. The texture is soft, chewy, with a wide and flat appearance, rice flour is the basic ingredient in this [1]. Kwetiau is processed by boiling or frying, and some are added with vegetables, spices, and meat. Among Indonesian people, Kwetiau is very popular, making it one of the culinary icons that is widely enjoyed [2].

Kwetiau has undergone many innovation changes, including increasing its nutritional content to meet the health needs of today's modern society. Several studies have examined the substitution of basic rice flour ingredients with other ingredients that are richer in nutrients such as cassava so that there is an increase in the protein and dietary fiber content in kwetiau [9, 10]. Table 2 shows the nutritional value of kwetiau products with and without the addition of 30% cassava. Table 2 shows the change in nutritional content after the addition of 30% cassava, where cassava has a higher ash and carbohydrate content, but lower water and protein content compared to the control (without the addition of cassava).

**Table 2. Comparison of nutritional content of kwetiau with and without the addition of 30% cassava [1].**

<b>Component</b>	<b>Without Cassava Addition (Control)</b>	<b>Addition of 30% Cassava</b>
<b>Water content</b>	59.41%	57.89%
<b>Ash content</b>	0.39%	0.94%
<b>Protein content</b>	3.55%	2.13%
<b>Fat content</b>	2.63%	2.46%
<b>Carbohydrate content</b>	33.61%	36.42%

Kwetiau is popular with almost all age groups, one of which is the Post-Millennial generation. The post-millennial generation, or Gen Z, are individuals born after 1997. Figure 1 displays an image of the generation timeline, which shows the range of birth years of various generations, starting from the Lost Generation (1883–1900) to Generation Alpha (born after 2013). The post-millennial generation grew up with the rapid development of technology, the internet, and social media. Gen Z is the first generation to be fully formed in the digital era. which affects their social interactions, access to information and the formation of their identities [11].

Gen Z tends to multitask, rely on digital media, and care about global issues such as the environment and inclusivity [12]. They also have an orientation towards individual experiences. autonomy in learning and openness to different cultures and identities, making them potential in reducing prejudice through cross-cultural interactions in digital media [13].

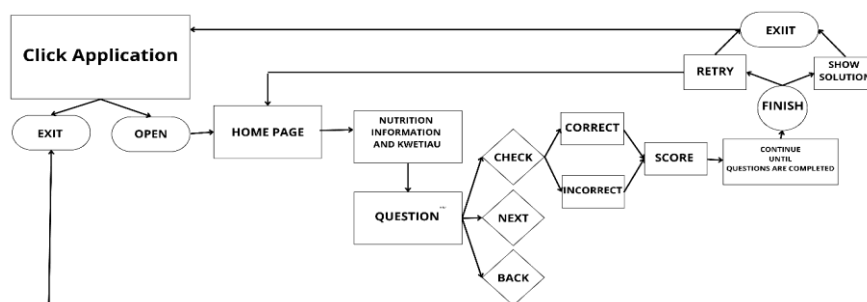
### 3. Method

The method applied in this study is Design-Based Research (DBR). The research was conducted through 4 stages, namely: analysis, development, iterative, and reflection. AppSheet is needed to explain the nutrition of Noodles (Kwetiau) with an interactive approach as part of culinary heritage, as well as its influence on ethnic perceptions in the post-millennial generation. Analysis was carried out to evaluate the data needed in application development, user needs when running the application, and the suitability of the results obtained to follow up on the conclusions produced. Then, the development stage is carried out with a validation test by media experts.

### 4. Results and Discussion

The results obtained from the AppSheet application using DBR activities on the explanation of kwetiau nutrition and ethnic perceptions in the post-millennial generation include analysis, development, interactive, and reflection. The results of the analysis that have been carried out include; (i) exploring Problems Related to Noodle Nutrition Information in the Post-Millennial Generation (ii) discussing the Right Solution by Considering Various Available Options. (iii) involving Media Experts and Application Developers to overcome the Problem of Public Perception of Culinary Heritage [14]. One development that can be done is to create an application that can get a lot of information from anyone and anywhere to be collected in one metadata simultaneously, even though it is obtained from different places [15].

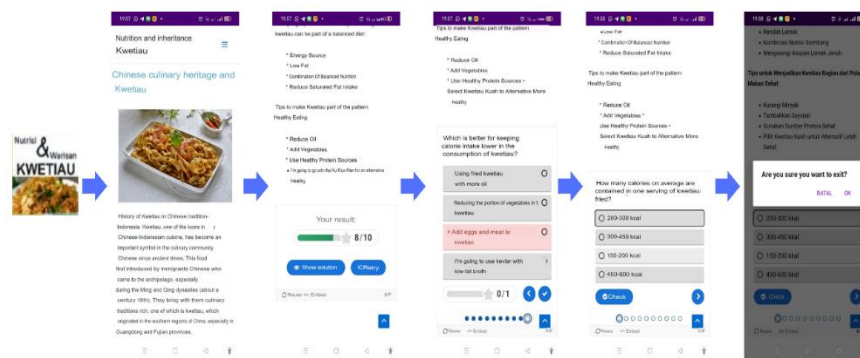
Some of the problems that are often found are the lack of public understanding of traditional food, especially regarding knowledge of nutritional value and the lack of awareness of culinary heritage, which results in differences in ethnic perceptions. The creation of AppSheet is needed to be a container and also a liaison that is able to provide and collect information related to noodle nutrition problems and the lack of awareness of culinary heritage to present ethnic perceptions [4]. The design designed in creating the AppSheet application can be seen in Fig. 1. The creation flow begins with downloading the application. without the need to log in, then filling in the monitored data. studying information related to kwetiau information, and evaluation.



**Fig. 1. Flowchart of noodle nutrition information application.**

AppSheet user admins can download the application by sharing the page on <https://drive.google.com/drive/folders/15ugKGnMD153UFCXHAuEoTKNxlPn>

pxF0?usp=sharing. After downloading the application, you can open the application directly without creating an account. Some components available in the application are home containing information about the history of kwetiau, the cultural meaning of kwetiau, nutritional information, the contribution of kwetiau to healthy eating patterns, and tips for making kwetiau part of a healthy eating pattern. then continue with a question and answer session to measure the results. The question score will appear after all questions are answered, and information on the wrong and right answers is provided. The appearance of the developed application can be seen in Fig. 2.



**Fig. 2. Nutritional applications and heritage of kwetiau.**

The development of the AppSheet application has been completed, but the research conducted has only reached the expert validation stage. Technology and media experts have provided a lot of valuable feedback and input on the development of the application, including design, filling in information about the nutrition of kwetiau, adjusting the layout to be more intuitive, making the visual display more attractive and easier to use, and improving more interactive features [16]. Unfortunately, due to the limited time for the research, this application has not yet reached the testing stage for the post-millennial generation, which is the main target of this study. The limited direct view of the end user is a shortcoming in this research stage, so the validity of the effectiveness of the application provided in improving understanding and changing the perception of the post-millennial generation cannot yet be measured in real terms [17, 18].

Validation carried out by experts helps in improving several aspects of the application developed by [19], but unfortunately, the lack of field trials is one of the shortcomings of this application. Because the end-user context has not been met, the application cannot be evaluated comprehensively and its effectiveness in shaping ethnic perceptions and increasing cultural understanding of the post-millennial generation so that further testing is still needed. Therefore, the next iterative process is to conduct direct testing on the post-millennial generation to ensure that the application is truly effective according to its purpose. Then further adjustments can be made after the field test.

Research using the AppSheet application has basically integrated modern technology in shaping ethnic perceptions and increasing the understanding of the

post-millennial generation about culinary heritage. Based on technological mediation and ethnic identity theory [20-27], this application is expected to be able to bridge information about nutrition and culture. while reducing prejudice against ethnic Chinese. Although the validation carried out by experts has shown that the application is very relevant and interactive. The needs of end users have not been fully met because field tests have not been carried out. Therefore, it is important to test the application directly so that its effectiveness in achieving goals can be seen. Finally, this study adds new information as reported elsewhere [28-32]. Finally, this study adds new information as reported elsewhere [33].

## 5. Conclusion

The AppSheet application was successfully developed to provide interactive information about the nutrition of kwetiau as a culinary heritage, with the aim of forming ethnic perceptions and increasing cultural understanding of the post-millennial generation. the DBR method includes analysis, development, iterative, and reflection. This application has been validated by media experts. But its effectiveness has not been fully proven because it has not been field tested on end users. Thus, further testing is needed to ensure the achievement of its objectives.

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