Kasetsart Journal of Social Sciences 44 (2023) 1115–1126

Kasetsart Journal of Social Sciences

journal homepage: http://kjss.kasetsart.org

The effect of utilizing Betawi local food in the implementation of Pancasila student profile strengthening project on increasing ecoliteracy of elementary school students

Niken Vioreza[a,b,*], Nana Supriatna[c], Kama Abdul Hakam[d]

[a] *School of Postgraduate Studies, Universitas Pendidikan Indonesia, West Java 40154, Indonesia*
[b] *Primary Education Study Program, STKIP Kusuma Negara, DKI Jakarta 13770, Indonesia*
[c] *History Education Study Program, Faculty of Social Science Education, Universitas Pendidikan Indonesia, West Java 40154, Indonesia*
[d] *Department of Character and General Education, Faculty of Social Science Education, Universitas Pendidikan Indonesia, West Java 40154, Indonesia*

Article Info

Article history:
Received 22 September 2022
Revised 7 January 2023
Accepted 1 February 2023
Available online 17 November 2023

Keywords:
ecoliteracy,
Betawi local food,
local wisdom,
Pancasila Student Profile Strengthening Project

Abstract

Students' awareness to consume local food to live a healthy life while preserving the environment is part of ecoliteracy. This awareness can be developed pedagogically through the learning process in the classroom. This study aims to analyze the effect of utilizing Betawi local food on increasing students ecoliteracy during the implementation of Pancasila Student Profile Strengthening Project. It involved 120 fourth-grade students from four state elementary schools in East Jakarta with an age range of 9–11 years within the period of two months. The sampling technique used was purposive random sampling. This is pre-experimental research which employed a mixed-method approach consisting of quantitative and qualitative approaches to assess the increase in students' ecoliteracy in three aspects (knowledge, attitudes, and skills). The quantitative approach was used to measure the aspect of knowledge and attitudes using tests and questionnaires, respectively. The qualitative approach was used to assess the skills aspect using documentation studies and interviews. The findings revealed that the implementations of Pancasila Student Profile Strengthening Project with utilizing Betawi local food can increase ecoliteracy of elementary school students in the aspects of knowledge and attitudes. These findings are supported by qualitative results for the aspect of skills. The recommendation for this study is that teachers can utilize local food as a form of local wisdom in the surrounding area to effectively increase the ecoliteracy of elementary school students.

* Corresponding author.
E-mail address: niken.19@upi.edu (N. Vioreza).

https://doi.org/10.34044/j.kjss.2023.44.4.16
2452–3151/© 2023 Kasetsart University.

Introduction

In today's modern era, the advancements of technology have changed many aspects of people's lives, including in food consumption. Using technology such as the Internet, food can be advertised attractively through various media to reach various levels of consumers including children. Qiaohua and Qiuye (2018) mentioned that advertisements can promote a hedonistic lifestyle for consumers (i.e., consumerism). If advertisements are distributed massively, it will propagate into overconsumption ideology (Stuart et al., 2020) and false need (Marcuse, 2013).

Supriatna (2016a) in his book entitled "Ecopedagogy" describes false needs as artificial needs created by corporations who control the media to get people buy things that they do not need. Consumption becomes a symbol. It no longer functions to fulfill needs. Among school-aged children, this often occurs in consuming foods. Children are easily attracted and provoked into consuming advertised foods regardless of whether they are beneficial for the body (Fitriyah, 2015). Nutritional imbalances are often found in advertised instant foods such as noodles which are easily obtained by children (Mink et al., 2010; Norman et al., 2018; Stuart et al., 2020; Vioreza & Supriatna, 2020). An analysis from Korea National Health and Nutrition Examination Survey (KNHANES) III in 2005 regarding diet revealed that a person who consumes instant noodles has a high intake of energy, fat, sodium, but has a low intake of protein, calcium, phosphorus, iron, potassium, and vitamins, when compared to people who do not eat instant noodles (Park et al., 2011).

There is a saying 'mens sana in corpore sano' which means 'a healthy mind in a healthy body'. In education, the health of students at primary school age will determine their success in the future. A healthy body will form a healthy mind and foster a passion for learning, which in turn will make a major contribution to the future of students. Conversely, an unhealthy body will affect the mind and enthusiasm for learning and can harm student success in the future.

Consuming instant foods also has negative impacts not only on one's health, but also on the environment. Many instant foods and drinks are not friendly to the environment because they are packaged and shipped in plastics, aluminum cans, or styrofoam. These wastes are hazardous to the environment since they are difficult to decompose in nature. Hence, a good understanding regarding consumption needs to be pursued early on at elementary school level so that the environment is protected from damage and can preserve its beauty (Igbokwe, 2012; Lian et al., 2020; Timm & Barth, 2021).

Students who have a good understanding about food consumption have an awareness to choose local healthy food over instant food. They indirectly save themselves from health problems and take a small role to save the environment from damage. Supriatna (2016b) further explains that local wisdom-based learning, such as local food, can be used as a tool to ward off issues related to false need. Teachers can deconstruct students' minds, actions, and lifestyles to become ecologically literate consumers. Ecological literacy, or ecoliteracy in short, can be fostered in school-aged children as academic movement by utilizing local food. Learning about local food consumption is part of an effort to foster ecoliteracy in elementary school students, and can be implemented in classroom learning activities such as with Merdeka Curriculum.

The Merdeka (Freedom/Independent) Curriculum, launched by the government of Indonesia in 2022, covers not only intracurricular and extracurricular activities, but also project-based activities to strengthen student profile based on the foundational philosophical theory of the country, which is Pancasila. Pancasila Student Profile Strengthening Project provides opportunities for students to learn important themes or issues about the environment and take concrete actions in responding to these issues. This project also provides opportunity to create learning that can integrate aspects of knowledge, attitudes, and skills in the same manner to the study of ecoliteracy, which also integrate these aspects.

Research on ecoliteracy has been carried out by previous researchers. Putri et al. (2019) examined increasing ecoliteracy and student creativity in utilizing waste using a project-based learning model. The results of the study show that ecoliteracy and student creativity can be improved through a project-based learning model. Furthermore, Daesusi and Asy'ari (2019) examined the implementation of ecoliteracy learning designs at Adiwiyata schools to build a society that has environmental awareness. They show that the application of ecoliteracy learning designs affects students' environmental awareness.

In this study, we attempt to utilize Betawi local food on increasing ecoliteracy of students within the framework of Pancasila Student Profile Strengthening Project. The main themes of the Pancasila Student Profile Strengthening Project are sustainability, local wisdom, Bhinneka Tunggal Ika, awakening of souls and body, technology engineering, and entrepreneurship. This study aims to

analyze the effect of utilizing Betawi local food on increasing the ecoliteracy of elementary school students. Specifically, the objectives are to analyze student ecoliteracy in terms of knowledge, attitudes, and skills.

Literature Review

Ecoliteracy

Ecoliteracy is a person's ability to adapt to the surrounding environment based on knowledge, awareness, and skills to live in harmony with nature (Goleman, 2010; Hempel, 2014). The term ecoliteracy was coined by David W. Orr to describe someone in understanding the complex natural systems that support life on earth (Hempel, 2014). The primary pedagogical goals of ecoliteracy are cognitive and experimental. With ecoliteracy, everyone will have a concern for nature conservation and respect for nature (Oktapyanto, 2017). When nature is conserved and respected, it will respect us back.

In the next few decades, the survival of mankind will depend on ecoliteracy in which case the role of education becomes very important to grow this ability (Capra, 2003). Of all levels of education, elementary school is one of the most appropriate levels to foster ecoliteracy by intervening students with measurable, targeted, and systematic activities in accordance with ecological principles (Laurie et al., 2016). Ecoliteracy in students can be fostered through teaching and learning process with the principles of organizing, head (knowledge), heart (attitudes), hand (skills), and spirit (connectedness) (Capra & Luisi, 2014; Center for Ecoliteracy, 2013).

Local Wisdom

Local wisdom is the wealth of a region in the form of knowledge, beliefs, norms, customs, culture, and values (Abas et al., 2022; Setiadi and SE, 2019; Utari et al., 2017). Local wisdom is practiced by the community for generations and is used as a way of life (Aritonang et al., 2015; Septinaningrum et al., 2022; Vioreza et al., 2022). Local wisdom as a way of life will guide society in an ecological community (Keraf, 2010). The essential characteristics of local wisdom are the ability to: withstand the outside world because local values are strongly attached to the community; accommodate external cultural elements and integrate them into the existing indigenous culture; and provide direction for cultural development (Bas & Senturk, 2019; Marfai, 2019).

The values of local wisdom in the region where students live should be integrated into the learning process (Dwianto et al., 2017). By integrating local wisdom into the learning process, it can serve as a means of transforming cultural values for students to solve new problems in the era of globalization (Dahliani, 2010).

Pancasila Student Profile Strengthening Project

Pancasila Student Profile Strengthening Project (Proyek Penguatan Profil Pelajar Pancasila) or P5 in short, is a cross-disciplinary project that is contextual in nature and based on community needs or problems within the education unit (Kemdikbud, 2022). As part of the Merdeka Curriculum, this project prepares students to become democratic and excellent citizens, who are capable to participate in global development that is sustainable and resilient in facing various challenges of the 21st century. In this report, we refer to Pancasila Student Profile Strengthening Project as P5, or simply as project.

P5 can be implemented through habituation, coaching, and online learning (Sherly et al., 2021). The implementation of the project is carried out flexibly in terms of content, activities, and implementation time. This project is designed separately from the intracurricular. Integrating materials about the environment into education program is expected to produce learners with characters that have high awareness about the environment (Rosidah et al., 2022).

Methodology

This study is pre-experimental research with pre-post one group design. A mixed-method approach is used for collecting and analyzing data by mixing quantitative and qualitative methods to understand the research problem in a precise and principled way (Creswell, 2014). Quantitative approach is used to obtain student ecoliteracy data on the aspect of knowledge and attitudes before and after being given treatment, while qualitative approach is used to obtain information about student ecoliteracy on the aspect of skills. The treatment is given by utilizing Betawi local food within the implementation of Pancasila Student Profile Strengthening Project. The time spent to implement this project is 2 months consisting of 50 meeting hours, where each hour is 35 minutes. These hours are divided into 18 meetings.

Participants

This study involved 120 fourth-grade students from four elementary schools in East Jakarta City, DKI Jakarta, Indonesia. Respondents in this study consisted of 58 percent girls and 42 percent boys with an age range of 9–10 years. Respondents were selected using a non-probability sampling technique with purposive sampling. They were selected considerably based on certain reasons to achieve the research objectives.

Data Collection

In this research, data were collected with tests, questionnaires, documentation, and interviews. These instruments are developed in reference to the Center for Ecoliteracy (2013). Ecoliteracy indicators used in this study are shown in Table 1.

Based on the indicators in Table 1, the instruments are developed into 25 multiple-choice questions for the knowledge aspect, and 19 Likert-scale statement items for the attitude aspect. For the skills aspect, indicators are used as interview guide.

To validate the instruments, content validity test and criterion validity test were carried out. The content validity test was carried out based on expert judgment, while the criterion validity test was carried out by testing the instruments in a limited fashion on elementary school students who were not involved as research respondents but were expected to have the same background and ability as the actual respondents. The criterion validity test was used to determine the validity of ecoliteracy instruments in the aspect of knowledge and attitudes. Data analysis technique for validity tests utilizes product moment correlation using software SPSS 20.

Criterion validity tests were carried out using one shot method, by distributing questionnaires only once to respondents, then analyzing the responses. Statement items in indicators are declared valid if the value of the correlation coefficient (r-value) > r-table or p value < .05. For n = 30, r-table is 0.361. After the results of validity tests are obtained, the number of items used to describe student ecoliteracy in the knowledge aspect is reduced to 19 question items, and for attitude aspect16 statement items.

Table 1 Research Instruments from the Center for Ecoliteracy (2013)

Set of Core Competencies from the Center for Ecoliteracy	Achievement Indicator
Head (Knowledge) • Approach issues and situations from a systems perspective • Understand fundamental ecological principles • Think critically, solve problems creatively, and apply knowledge to new situations • Assess the impacts and ethical effects of human technologies and actions • Envision the long-term consequences of decisions	1. Students can identify various types of Betawi food. 2. Students can identify food ingredients used to make Betawi cuisine. 3. Students can identify unhealthy foods as well as healthy food alternatives. 4. Students can differentiate between healthy and unhealthy foods consumed by them and their families. 5. Students understand the advantages of eating healthy local foods for their health and the environment. 6. Students can explain the environmental and health risks of using synthetic materials. 7. Students can explain why it's important to eat healthy local food. 8. Students understand the risks of consuming unhealthy food (i.e., instant food) to their health and the environment.
Heart (Attitudes) • Feeling concern, empathy, and respect for other people and living things • See from and appreciate multiple perspectives, work with and value others with different backgrounds, motivations, and intentions. • Commit to equity, justice, inclusivity, and respect for all people	1. Students are aware not to consume instant food 2. Students are aware of consuming local food 3. Students have a commitment to have breakfast before leaving for school 4. Students bring food and water to school 5. Students have a commitment to not consuming instant food that contains sweeteners, preservatives, dyes that can harm their health.
Hand (Skills) • Create and use tools, objects, and procedures required by sustainable communities • Turn convictions into practical and effective action, and apply ecological knowledge to the practice of ecological design • Assess and adjust uses of energy and resources	1. Students can practice how to choose healthy local food in their neighborhood. 2. Students demonstrate environmentally friendly behavior by bringing bottled drinking water and healthy food from home. 3. Students invite their friends, relatives, family to consume local healthy food. 4. Students realize the dangers of consuming foods that contain high sugar, high salt, dyes, and preservatives for a long period of time. 5. Students remind friends and family about the effects of consuming local food for the body and the environment

Furthermore, reliability tests were carried out to describe the actual score or ability of an instrument. The reliability tests in this study used Cronbach's alpha. Based on the results of the reliability test, the Cronbach's alpha value for the knowledge aspect test was 0.910, and for the attitude aspect questionnaire was 0.916. It can be interpreted that reliability results for both test and questionnaire are in a very good category so that they are trusted to be used as a data collection tool.

Qualitative data in this study were collected through interviews and documentation (Creswell, 2014; Onwuegbuzie et al., 2010; Polkinghorne, 2005). The interview guideline was prepared based on the ecoliteracy indicator on the skills aspect. Interviews were conducted with five female students and five male students who were selected based on the quota sampling technique. The quota sampling technique is a type of non-probability sampling method in which the researcher can determine how many samples to take to represent the population due to several considerations such as time constraints, budget, or when the population being studied is difficult to identify (Acharya et al., 2013; Yang & Banamah, 2014).

Research Procedure

This study aims to analyze the effect of using Betawi local food on increasing ecoliteracy of elementary school students within P5 activities. The contextual theme is "Consumption of Healthy Local Food While Maintaining Environmental Sustainability." The project flow is depicted in Figure 1.

As illustrated in Figure 1, the project flow consists of three stages, namely Understand (*Pahami*), Respond (*Tanggapi*), and Share (*Bagikan*). During the *Understand* stage, learning is divided into two substages, introduction, and contextualization. The introduction substage aims to recognize and build students' awareness of the topic. Students are introduced to healthy food, types of healthy food, and its benefits if consumed. Students are also introduced to unhealthy foods, in particular instant food, its examples, and the impact of consuming these foods in large quantities. These impacts are not only on the body, but also on the environment.

The teacher began the lesson with a few starting questions and students take turns expressing their answers. An example of a question is "what do you know about healthy food?". After the students answered, the teacher then explained about healthy food in a simple and easy-to-understand way for students and explained why living things need to eat healthy food.

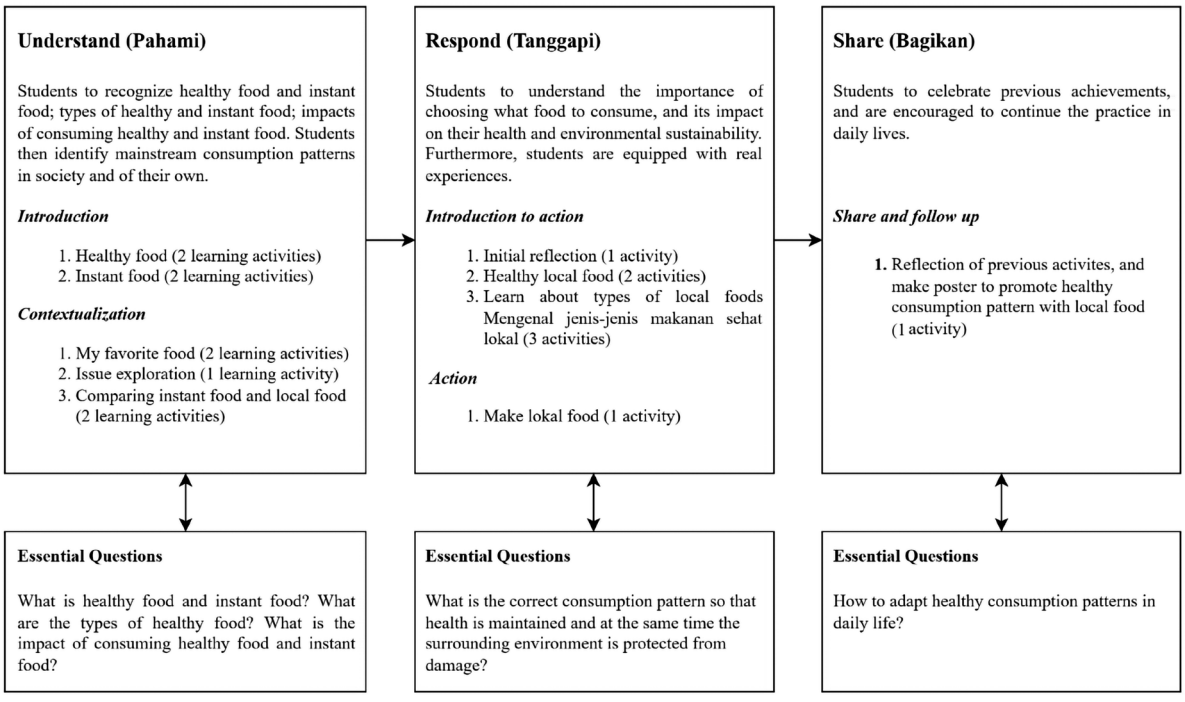

Figure 1 Flowchart of pancasila student profile strengthening project with the theme of local wisdom

Students were invited to watch learning videos that are relevant to the topic being discussed. In the first session of the project, the teacher played a video about "healthy eating". The video showed an animation of a fourth-grade elementary school student having a healthy breakfast before going to school. After watching the video together, students expressed their conclusions orally and wrote in their respective project journals during the closing activity. In this closing activity, the teacher did not forget to familiarize students with "one minute clean from garbage", reminding students to bring drinks with refill bottles and bring healthy food from home.

At contextualization substage, students were asked to identify favorite foods, explored issues, compared instant food and local food, and looked for various sources about the impact of consuming instant food. Students were directed to study at home using a mobile application called Akademi Ecofood (https://play.google.com/store/apps/details?id=id.apnv.disertasi.ecofood) which contains multimedia related to the topics discussed. Students were also asked to interview family members on the topic and collect news or information from newspapers, electronic media, and social media about the impact of consuming instant food on the body and the environment due to the plastic waste they produced.

Furthermore, the learning activities during contextualization substage in the classroom were equipped with worksheets that students had to complete in groups. Students conducted group discussions about the answers to the tasks they had done at home and provided alternative solutions related to the context of the problems raised. In other words, students formulated roles that they can do through real actions to always be healthy and preserve the environment.

In Respond stage, activities were divided into two substages, introduction to action, and action. In the introduction to action substage, students were invited to do initial reflection by filling a worksheet about "reflection on favorite food." After that, the teacher started a focus group discussion to identify what foods are most often consumed by students. The teacher also showed a video related to the consumption of instant food which causes health problems and even death before relating it with alternative traditional food in the neighborhood.

After a series of introduction to actions activities were completed, we then proceeded with *action*. Here, students made local food, and wrote a simple report about the process of making the food. Students were allowed to make reports either in video or written form. In class, selected videos were played and watched together.

The final stage of the project is Share. At this stage, students made posters which contain either of three themes: a poster to invite people around to consume healthy food; a poster to invite others to reduce the use of plastic and reduce the consumption of instant food packaged in plastic; or a poster to invite others to consume local food. The theme of the poster made by each student was determined based on students' ID number. Finished posters were hung on the classroom wall as well as on school wall magazine by the students themselves (Figure 2).

Figure 2 Posters made by students

Data Analysis

Quantitative data obtained from pre-test and post-test were analyzed using SPSS 20. First, a descriptive analysis was carried out to provide an overview of students' ecoliteracy in terms of knowledge and attitudes based on data obtained before and after being given treatment. Then, data normality test was carried out using Shapiro Wilk test with a significance level (α) of 0.05. If the *p* value obtained is greater than α, it can be concluded that the data are normally distributed. If so, then a paired sample *t*-test is performed to assess changes in measurements between the pre-test and post-test of students' ecoliteracy on the aspects of knowledge and attitudes. The significance levels are 5 percent and 1 percent ($\alpha = 0.05$ and $\alpha = 0.01$).

Qualitative data were obtained based on the results of interviews and research documentation. The data were analyzed using narrative analysis. Narrative analysis in the context of interviews involves analyzing the stories and experiences shared by the interviewees (Bamberg, 2012; Earthy & Cronin, 2008; Smith, 2000). In this study, data were analyzed using ATLAS.ti software.

Results

The results of this study are divided into two parts, quantitative and qualitative results. Quantitative results describe the differences in students' ecoliteracy in the aspect of knowledge and attitudes before and after P5 activities containing Betawi local food. Qualitative results, on the other hand, describe students' ecoliteracy in the aspect of skills.

Data Description

Data description results are summarized in Table 2. The results show the post-test scores were higher than pre-test scores for both aspects. After data description, requirements analysis test was performed by determining the normality of the data.

Normality Test

Normality test was conducted to determine the distribution of research scores. The normality test in this study used the Shapiro Wilk test. The results of normality test for knowledge and attitudes aspects are shown in Table 3.

Based on the output of the data normality test (Saphiro Wilk) in Table 3, the probability (p) for pre-test and post-test for both aspects are greater than 0.05. Hence, the data population is normally distributed. A paired sample t-test is then performed.

Paired Sample T-test

Paired sample t-test was used to determine whether there were differences in students' ecoliteracy in the aspect of knowledge and attitudes before and after treatment. The results are shown in Table 4.

Table 4 shows the significance (2-tailed) value is less than 0.001, implying that implementation of P5 with the theme of local wisdom has an effect on elementary school students' ecoliteracy. For both aspects, the t-values are greater than t-table (3.160). Thus, the null hypothesis can be rejected, and it can be concluded that the implementation of the project utilizing Betawi local food is effective in increasing ecoliteracy of elementary school students.

Qualitative Result

Activities during the implementation of P5 are documented at each stage (refer to Figure 1). For example, during *contextualization* substage, we found that students abilities to take care of themselves physically, mentally, and spiritually, are starting to develop. Students demonstrated the ability to identify harmful consumption patterns but have not yet implemented a healthy lifestyle according to ecological principles. Students are active in groups and do assignments according to their roles. Students also understand the problems that occur in their surrounding environment and are willing to share with others without being asked.

Table 2 Research result data

Ecoliteracy Aspect		Mean	*n*	*SD*	*SE* Mean
Knowledge aspect	Pre-Test	54.48	120	9.593	0.876
	Post-Test	78.50	120	9.619	0.878
Attitudes aspect	Pre-Test	46.16	120	5.355	0.489
	Post-Test	79.23	120	4.777	0.436

Table 3 Saphiro Wilk Test

	Tests of Normality		
	Shapiro-Wilk		
	Statistic	*df*	*p*
Knowledge aspect			
Pre-Test	.986	120	.234
Post-Test	.983	120	.148
Attitudes aspect			
Pre-Test	.982	120	.111
Post-Test	.984	120	.170

Table 4 Paired samples t-test

Ecoliteracy Aspect		Paired Differences		*t*	*df*	*p* (2-tailed)
		95% Confidence Interval of the Difference				
		Lower	Upper			
Knowledge aspect	Pre-Test – Post-Test	-26.201	-21.833	-21.775	119	.000
Attitudes aspect	Pre-Test – Post-Test	-34.213	-31.937	-57.564	119	.000

In the *introduction to action* substage, students learned the types of local healthy foods through videos, texts, images, and interviews. The teacher also provided worksheets to assess student understanding. At this point, students' ability in critical thinking is highly developed.

At *Share* stage, students made posters with groups and select among themselves which poster is the best in each group. At this stage, the students' *gotong royong* skill is highly developed.

Qualitative data were also collected from interviews on students about certain activities in the aspect of skills. For example, students were asked about cooking food with family. Most answered that they often cook with their mothers as well as selecting healthy food ingredients in a traditional market. On another question from the interview, students were asked about bringing food to school. Most varied in their answers, but they had all brought food from home, although not every day. Figure 3 depicts students bringing food and bottled water from home.

Interview responses are coded using ATLAS.ti software to identify the skills of ecoliteracy. Table 5 describes the findings.

Figure 3 (A) Students bringing food, and (B) bottled water to school

The table above shows ecoliteracy in the skills aspect. There are 13 student activities that demonstrate skills in ecoliteracy. Among the activities, the one that is mostly done is to enjoy local food and drink. As stated by respondent (R05), "The pletok beer that I tried at school, at first felt a little strange, but I tried it again and started to like it because it made my body warm". Another answer as stated by the informant (R08), "I asked (my parent) to buy Betawi *uduk rice* for breakfast before going to school".

Ecoliteracy skills are also widely practiced by students by taking part in selecting ingredients. As answered by respondent (R02), "I help my parents in choosing food ingredients that are still stored in the refrigerator". Another respondent (R03) wrote, "I helped to get complementary spices for cooking in the yard".

Discussion

Utilizing local food as one of the Betawi local wisdoms in the implementations of Pancasila Student Profile Strengthening Project can increase elementary school students' ecoliteracy in the aspects of knowledge, attitudes, and skills. This project can facilitate the formation of students' living habits that are in accordance with ecological principles. This finding is in line with previous research which found that utilizing local wisdom in the area where students live can increase students' ecoliteracy (Desfandi et al., 2017; Kim et al., 2017; Kurniasari et al., 2020). By integrating local wisdom into learning activities, students can develop a better understanding of the relationship between humans and their surroundings (Kim et al., 2017). Students can develop better attitudes towards the environment by

Table 5 Skills code identified from interview

Codes	Density (%)
Shop for supplies	2.6
The result of cooking from local food	2.6
Take part in selecting ingredients	11.3
Healthy snacks at school	8.7
Be able to distinguish between fresh and non-fresh food	6.1
Be able to distinguish between healthy and unhealthy foods	4.3
Cooking with parents	11.3
Bring food to school	7.0
Bring drinks with refillable bottles	8.7
Invite others to consume local food	12.2
Enjoy local food and drink	1.7
Healthy lifestyle	16.5
A place to buy cooking needs from the surrounding environment	7.0

utilizing resources in a more responsible manner (Hungerford and Volk, 1990; Porter and Kramer, 2006; Will, 1986). Integrating local wisdom into student learning is facilitated by learning attitudes to respect biodiversity, as well as developing practical skills in maintaining natural sustainability (Sumarmi, 2015; Supriatna, 2016b).

A series of long learning activities that are carried out consistently can instill more optimal habits (Hakam and Nurdin, 2016; Jones, 2008; Lally et al., 2010; Sharan, 2010). The same is true in improving student ecoliteracy in aspects of knowledge, attitudes, and skills. Ecoliteracy is ultimately expected to become a skill for every student and become the most important part of all learning sequences at every level of education (Orr et al., 2005). The use of Betawi local food to improve ecoliteracy of elementary school students in P5 is carried out in three stages, namely, Understand, Respond, and Share. These stages follow the organizing principle between knowledge, attitudes, and skills (Center for Ecoliteracy, 2013; Orr, 1992). Learning not only gives students knowledge about local healthy food, but also introduces students to how to make local food so that it can raise their awareness in consuming local food.

The *Understand* stage consists of two substages, namely, introduction and contextualization. Introduction substage is to provide basic knowledge to students related to project topics (Laurie et al., 2016; Pauw et al., 2015). Students learn about healthy food, unhealthy food, types of unhealthy food, and the impact of consuming it on the body. Materials for this introduction are not only from teacher but also through learning videos that have been prepared before learning begins. Introduction is followed by contextualization, where students learn to identify their favorite foods and know whether these foods are healthy or not. Students explore issues to learn about the impact of instant food on the body and on the environment. Students are then able to compare instant food and local food.

Students must have ecological intelligence to become environmentally conscious consumers. This is important because ecologically smart students will choose local food over instant food or packaged food that is produced far from where they live (Supriatna, 2016a; Vioreza et al., 2022). Fostering ecological intelligence must be based on the knowledge that every action taken will have an impact on oneself and the environment (Goleman, 2010; Sholihah et al., 2021). People will choose organic food and use less plastic if they are aware of reduced water sources, processed foods that are harmful to health, and the negative environmental impact of plastic packaging (Supriatna, 2016a).

The second stage is *Respond* which consists of two substages, namely, introduction to action, and action. At this stage, students learn about the local food in the area where they live. It is important to understand and emphasize that local food can use quality, fresh, and safe ingredients purchased or obtained from local traders (Sharif et al., 2016; Weking et al., 2020). If students buy food from local vendors, they must still be taught to choose hygienic and safe options. And, most importantly, students do not consume processed foods containing chemical substances manufactured by the factories.

The third or the last stage of the project is Share. Students make local food and make invitation posters to consume local healthy food and to reduce the consumption of instant foods that cause plastic wastes. Activities that practically involve students directly will provide meaningful experiences and more optimal value transfer (Dominici, 2017; Muslicha, 2015). In this context, it is possible for students to love the local food where they live. For students who are used to consuming instant food, local food can be a much healthier alternative (Nour et al., 2017).

Although the findings in this study were that there was an increase in students' ecoliteracy in the aspects of knowledge and attitudes after being given treatment, there were several research limitations that must be considered. The limitations, among others, are related to the interpretation of the findings data because it does not use a control group, and that the qualitative approach used to obtain information about student ecoliteracy in the skills aspect comes from limited participants. Future research can use a control class and measure the aspect of skills by involving more participants. Another limitation is that this research only examines the impact of using Betawi local food on the Pancasila Student Profile Strengthening Project on student ecoliteracy variables, so it cannot conclude whether these results apply to other variables. Research on other variables related to ecoliteracy such as green behavior or Educational Sustainable Development (ESD) can become new variables that can be researched.

Conclusion and Recommendation

After conducting research on elementary school students participating in the Pancasila Student Profile Strengthening Project by integrating the use of Betawi local food, it can be concluded that there was an increase in ecoliteracy among students participating in the project. Improving student ecoliteracy includes aspects of

knowledge, attitudes, and skills after participating in the three stages of the project, namely, Understand, Respond, and Share. The findings of this study are proof that the use of local food as a form of local wisdom and implementing it in learning activities that organize the aspects of head (knowledge), heart (attitudes), and hand (skills) are effective in increasing student ecoliteracy. Based on the results of this study, it is hoped that the Pancasila Student Profile Strengthening Project, which integrates the use of Betawi local food as a form of local wisdom, can be adopted by other schools that have implemented the curriculum, or by schools that have implemented other curricula such as the 2013 Curriculum. In addition, it is also hoped that there will be school collaboration with the local government or related parties to introduce local food from the surrounding area to students.

Conflict of Interest

The authors declare that there is no conflict of interest.

Acknowledgments

This work was supported by the Ministry of Education, Culture, Research, and Technology of the Republic of Indonesia, through Postgraduate Research-Doctoral Dissertation Research for Fiscal Year 2022.

References

Abas, A., Aziz, A., & Awang, A. (2022). A systematic review on the local wisdom of indigenous people in nature conservation. *Sustainability*, *14*(6), 3415. https://doi.org/10.3390/su14063415

Acharya, A. S., Prakash, A., Saxena, P., & Nigam, A. (2013). Sampling: Why and how of it. *Indian Journal of Medical Specialties*, *4*(2), 330–333. https://www.researchgate.net/publication/256446902_Sampling_Why_and_How_of_it_Anita_S_Acharya_Anupam_Prakash_Pikee_Saxena_Aruna_Nigam

Aritonang, E., Naria, E., & Rohana, A. (2015). Energy and protein consumption of Manggadong rice as local wisdom and effort of staple food diversification. *International Journal on Advanced Science, Engineering and Information Technology*, *5*(3), 170–173. https://www.researchgate.net/publication/289495446_Energy_and_Protein_Consumption_of_Manggadong_Rice_as_Local_Wisdom_and_Effort_of_Staple_Food_Diversification

Kemdikbud. (2022). *Panduan pengembangan projek penguatan profil pelajar Pancasila* [Guide to developing the Pancasila student profile strengthening project]. Badan Standar, Kurikulum, Dan Asesmen Pendidiakan Kementrian Pendidikan, Kebudayaan, Riset, Dan Teknologi Republik Indonesia. https://kurikulum.kemdikbud.go.id/wp-content/uploads/2022/06/Panduan-Penguatan-Projek-Profil-Pancasila.pdf [in Indonesian]

Bamberg, M. (2012). Narrative analysis. In H. Cooper, P. M. Camic, D. L. Long, A. T. Panter, D. Rindskopf, & K. J. Sher (Eds.), *APA handbook of research methods in psychology, Vol 2: Research designs: Quantitative, qualitative, neuropsychological, and biological.* (pp. 85–102). American Psychological Association. https://doi.org/10.1037/13620-006

Bappenas. (2021). *Peta Jalan SDGs Indonesia Menuju 2030* [Indonesia's SDGs road map towards 2030]. https://sdgs.bappenas.go.id/website/wp-content/uploads/2021/02/Roadmap_Bahasa-Indonesia_File-Upload.pdf

Bas, G., & Senturk, C. (2019). Teachers' educational beliefs and curriculum orientations: A relational research. *Teachers and Curriculum*, *19*(1), 45–53. https://doi.org/10.15663/tandc.v19i1.336

Capra, F. (2003). *The hidden connections: A science for sustainable living*. Harper Perennial GB.

Capra, F., & Luisi, P. L. (2014). *The systems view of life: A unifying vision*. Cambridge University Press.

Center for Ecoliteracy. (2013). *Discover: Competencies. Center for ecoliteracy, berkeley, California, USA*. https://web.archive.org/web/20130309021047/http://www.ecoliteracy.org/taxonomy/term/84

Creswell, J. W. (2014). *Qualitative, quantitative and mixed methods approaches*. Sage.

Daesusi, R., & Asy'ari. (2019). Implementation of ecoleteracy learning design at Adiwiyata School as an effort formation society in Alam Insan Mulia School of Surabaya. *Humanities & Social Sciences Reviews*, *7*(3), 454–459. https://doi.org/10.18510/hssr.2019.7366

Dahliani, D. (2010). Local wisdom inbuilt environment in globalization era. *International Journal of Education and Research*, *3*(6), 157–166. https://ijern.com/journal/2015/June-2015/13.pdf

Desfandi, M., Maryani, E., & Disman, D. (2017). Building ecoliteracy through Adiwiyata program (study at Adiwiyata School in Banda Aceh). *The Indonesian Journal of Geography*, *49*(1), 51–56. http://dx.doi.org/10.22146/ijg.11230

Dominici, L. (2017). Theoretical studies and practical tools for a systemic design educational paradigm. Applications of systems thinking principles to design education. *The Design Journal*, *20*(1), S1448–S1458. https://doi.org/10.1080/14606925.2017.1352669

Dwianto, A., Wilujeng, I., Prasetyo, Z. K., & Suryadarma, I. G. P. (2017). The development of science domain based learning tool which is integrated with local wisdom to improve science process skill and scientific attitude. *Jurnal Pendidikan IPA Indonesia*, *6*(1), 23–31. https://journal.unnes.ac.id/nju/index.php/jpii/article/view/7205

Earthy, S., & Cronin, A. (2008). Narrative analysis. In N. Gilbert (Ed.), *Researching social life* (3rd ed, pp. 461–484). Sage.

Fitriyah, N. (2015). Iklan televisi dan perilaku konsumtif anak-anak (Studi kasus pada siswa SDN 13 Serang) [Television advertising and children's consumptive behavior (Case study of students at SDN 13 Serang)]. *Jurnal AL-AZHAR INDONESIA SERI PRANATA SOSIAL*, *2*(1), 110–118.

Goleman, D. (2010). *Ecological Intelligence: Mengungkap Rahasia Di Balik Produk-Produk Yang Kita Beli* [Ecological Intelligence: Revealing the Secrets Behind the Products We Buy]. PT Gramedia Pustaka Utama. [in Indonesian]

Hakam, K. A., & Nurdin, H. E. S. (2016). *Metode Internalisasi Nilai-Nilai: Untuk Memodifikasi Perilaku Berkarakter* [Methods of Internalizing Values: To Modify Characteristic Behavior]. Maulana Media Grafika. [In Indonesian]

Hempel, M. (2014). *Ecoliteracy: Knowledge is not enough. In state of the world, state of the World* (pp. 41–52). Island Press.

Hungerford, H. R., & Volk, T. L. (1990). Changing learner behavior through environmental education. *The Journal of Environmental Education*, *21*(3), 8–21. https://doi.org/10.1080/00958964.1990.10753743

Igbokwe, A. B. (2012). Environmental literacy assessment: Exploring the potential for the assessment of environmental education/programs in Ontario schools. *International Journal for Cross-Disciplinary Subjects in Education*, *3*(1), 648–656. https://www.scirp.org/(S(351jmbntv-nsjt1aadkposzje))/reference/referencespapers.aspx?referenceid=2989573

Jones, R. D. (2008). Strengthening student engagement. *International Center for Leadership in Education*, *53*(1), 1–15. https://www.scirp.org/(S(lz5mqp453edsnp55rrgjct55.))/reference/referencespapers.aspx?referenceid=2439601

Keraf, A. (2010). *Etika lingkungan hidup* [Environmental ethics]. Buku Kompis.

Kim, G., Vaswani, R. T., & Lee, D. (2017). Social-ecological memory in an autobiographical novel: Ecoliteracy, place attachment, and identity related to the Korean traditional village landscape. *Ecology and Society*, *22*(2), 27. https://doi.org/10.5751/ES-09284-220227

Kurniasari, N. D. R., Sigit, D. V., & Komala, R. (2020). Correlation between local wisdom knowledge with ecoliteracy and green behavior of students of Adiwiyata School, Bandung, West Java. *International Journal of Multicultural and Multireligious Understanding*, *7*(4), 411–416. https://ijmmu.com/index.php/ijmmu/article/view/1627

Lally, P., van Jaarsveld, C. H. M., Potts, H. W. W., & Wardle, J. (2010). How are habits formed: Modelling habit formation in the real World. *European Journal of Social Psychology*, *40*(6), 998–1009. https://doi.org/10.1002/ejsp.674

Laurie, R., Nonoyama-Tarumi, Y., Mckeown, R., & Hopkins, C. (2016). Contributions of education for sustainable development (ESD) to quality education: A synthesis of research. *Journal of Education for Sustainable Development*, *10*(2), 226–242. https://doi.org/10.1177/0973408216661442

Lian, B., Kristiawan, M., Primasari, D. A. G., & Prasetyo, M. A. M. (2020). Teachers' model in building students' character. *Journal of Critical Reviews*, *7*(14), 927–932. https://www.researchgate.net/publication/344658387_Teachers'_Model_In_Building_Students'_Character

Marcuse, H. (2013). *One-dimensional man: Studies in the ideology of advanced industrial society*. Routledge.

Marfai, Muh. A. (2019). *Pengantar etika lingkungan dan Kearifan local* [Introduction to environmental ethics and local wisdom]. UGM Press.

Mink, M., Evans, A., Moore, C. G., Calderon, K. S., & Deger, S. (2010). Nutritional imbalance endorsed by televised food advertisements. *Journal of the American Dietetic Association*, *110*(6), 904–910. https://doi.org/10.1016/j.jada.2010.03.020

Muslicha, A. (2015). Metode pengajaran dalam pendidikan lingkungan hidup pada siswa sekolah dasar (Studi pada sekolah Adiwiyata di DKI Jakarta) [Teaching methods in environmental education for elementary school students (Study at an Adiwiyata school in DKI Jakarta)]. *Jurnal Pendidikan*, *16*(2), 110–126. https://doi.org/10.33830/jp.v16i2.342.2015

Norman, J., Kelly, B., McMahon, A.-T., Boyland, E., Baur, L. A., Chapman, K., King, L., Hughes, C., & Bauman, A. (2018). Sustained impact of energy-dense TV and online food advertising on children's dietary intake: A within-subject, randomised, crossover, counter-balanced trial. *International Journal of Behavioral Nutrition and Physical Activity*, *15*(1), 37. https://doi.org/10.1186/s12966-018-0672-6

Nour, M., Yeung, S. H., Partridge, S., & Allman-Farinelli, M. (2017). A narrative review of social media and game-based nutrition interventions targeted at young adults. *Journal of the Academy of Nutrition and Dietetics*, *117*(5), 735–752. https://doi.org/10.1016/j.jand.2016.12.014

Oktapyanto, R. R. (2017). *Ecoliteracy: Literasi dasar yang terlupakan* [Ecoliteracy: The forgotten basic literacy]. Billread.

Onwuegbuzie, A. J., Leech, N. L., & Collins, K. M. T. (2010). Innovative data collection strategies in qualitative research. *Qualitative Report*, *15*(3), 696–726. https://doi.org/10.46743/2160-3715/2010.1171

Orr, D. W. (1992). *Ecological literacy: Education and the transition to a postmodern world*. Suny Press.

Orr, D. W., Stone, M. K., Barlow, Z., & Capra, F. (2005). *Ecological literacy: Educating our children for a sustainable world (Bioneers)*. Sierra Club Books.

Park, J., Lee, J.-S., Jang, Y. A., Chung, H. R., & Kim, J. (2011). A comparison of food and nutrient intake between instant noodle consumers and non-instant noodle consumers in Korean adults. *Nutrition Research and Practice*, *5*(5), 443–449. https://doi.org/10.4162/nrp.2011.5.5.443

Pauw, J. B., Gericke, N., Olsson, D., & Berglund, T. (2015). The effectiveness of education for sustainable development. *Sustainability*, *7*(11), 15693–15717. https://doi.org/10.3390/su71115693

Polkinghorne, D. E. (2005). Language and meaning: Data collection in qualitative research. *Journal of Counseling Psychology*, *52*(2), 137–145. https://doi.org/10.1037/0022-0167.52.2.137

Porter, M. E., & Kramer, M. R. (2006). The link between competitive advantage and corporate social responsibility. *Harvard Business Review*, *84*(12), 78–92. https://www.researchgate.net/publication/6616248_Strategy_and_Society_The_Link_Between_Competitive_Advantage_and_Corporate_Social_Responsibility

Putri, S. S., Japar, M., & Bagaskorowati, R. (2019). Increasing ecoliteracy and student creativity in waste utilization. *International Journal of Evaluation and Research in Education*, *8*(2), 255–264. https://doi.org/10.11591/ijere.v8i2.18901

Qiaohua, R., & Qiuye, L. (2018). A comparative study of the alienation theory of marx and that of marcuse. *Proceedings of the 2018 2nd International Conference on Management, Education and Social Science*, *176*, 127–131. https://doi.org/10.2991/icmess-18.2018.28

Rosidah, C. T., Putrayasa, I. B., Wesnawa, I. G. A., & Candiasa, I. M. (2022). Thematic comic to cultivate eco-literacy for young learners. *Kasetsart Journal of Social Sciences*, *43*(3), 735–740. https://doi.org/10.34044/j.kjss.2022.43.3.27

Septinaningrum, Hakam, K. A., Setiawan, W., & Agustin, M. (2022). Developing of augmented reality media containing Grebeg Pancasila for character learning in elementary school. *Ingénierie Des Systèmes d'Information*, *27*(2), 243–253. https://www.researchgate.net/publication/350901704_Technology_of_Holobox_Augmented_Reality_Grebeg_Pancasila_rite_for_Mathematics_learning_in_Elementary_School

Setiadi, N. J., & SE, M. M. (2019). *Perilaku Konsumen: Perspektif Kontemporer pada Motif, Tujuan, dan Keinginan Konsumen Edisi Ketiga* [Consumer Behavior: Contemporary Perspectives on Consumer Motives, Goals, and Desires Third Edition] (Vol. 3). Prenada Media.

Sharan, Y. (2010). Cooperative learning for academic and social gains: Valued pedagogy, problematic practice. *European Journal of Education*, *45*(2), 300–313. doi.org/10.1111/j.1465-3435.2010.01430.x

Sharif, M. S. M., Zahari, M. S. M., Nor, N. M., & Muhammad, R. (2016). The importance of knowledge transmission and its relation towards the Malay traditional food practice continuity. *Procedia-Social and Behavioral Sciences*, *222*, 567–577. https://doi.org/10.1016/j.sbspro.2016.05.215

Sherly, S., Herman, H., Halim, F., Dharma, E., Purba, R., Sinaga, Y. K., & Tannuary, A. (2021). Sosialisasi Implementasi Program Profil Pelajar Pancasila di SMP Swasta Sultan Agung Pematangsiantar [Socialization of the Implementation of the Pancasila Student Profile Program at Sultan Agung Pematangsiantar Private Middle School]. *Indonesian Journal of Community Services and School Education*, *1*(3), 282–289. https://jubaedah.lppmbinabangsa.id/index.php/home/article/download/51/50

Sholihah, N. R., Sapriya, S., Supriatna, N., & Komalasari, K. (2021). Ecoliteracy of elementary school students in social studies: In online learning during the pandemic of COVID 19. *Proceedings of the 2nd International Conference on Social Sciences Education (ICSSE 2020)*, 120–126. https://www.researchgate.net/publication/350069626_Ecoliteracy_of_Elementary_School_Students_in_Social_Studies_In_Online_Learning_During_the_Pandemic_of_COVID_19

Smith, C. P. (2000). Content analysis and narrative analysis. In H. T. Reis, & C. M. Judd (Eds.), *Handbook of research methods in social and personality psychology* (pp. 313–335). Cambridge University Press.

Stuart, D., Gunderson, R., & Petersen, B. (2020). Overconsumption as ideology: Implications for addressing global climate change. *Nature and Culture*, *15*(2), 199–223. https://doi.org/10.3167/nc.2020.150205

Sumarmi, S. (2015). Local wisdom of osing people in conserving water resources. *Jurnal Komunitas*, *7*(1), 43–51. http://dx.doi.org/10.15294/komunitas.v7i1.3429

Supriatna, N. (2016a). *Ecopedagogy: Membangun kecerdasan ekologis dalam Pembelajaran IPS* [Ecopedagogy: Building ecological intelligence in Social Studies learning]. PT Remaja Rosdakarya.

Supriatna, N. (2016b). Local wisdom in constructing students' ecoliteracy through ethnopedagogy and ecopedagogy. *Proceedings of the 1st UPI International Conference on Sociology Education*, 126–133. https://www.atlantis-press.com/proceedings/icse-15/25852494

Timm, J.-M., & Barth, M. (2021). Making education for sustainable development happen in elementary schools: The role of teachers. *Environmental Education Research*, *27*(1), 50–66. https://doi.org/10.1080/13504622.2020.1813256

Utari, U., Degeng, I. N. S., & Akbar, S. (2017). Pembelajaran tematik berbasis kearifan lokal di sekolah dasar dalam menghadapi Masyarakat Ekonomi Asean (MEA) [Thematic learning based on local wisdom in elementary schools in dealing with the ASEAN Economic Community (AEC)]. *Jurnal Teori Dan Praksis Pembelajaran IPS*, *1*(1), 39–44. http://dx.doi.org/10.17977/um022v1i12016p039

Vioreza, N., & Supriatna, N. (2020, November 3). *Building ecoliteracy through digital learning materials about local functional food* [Conference session]. The 5th International Seminar on Social Studies and History Education, Bandung, Indonesia.

Vioreza, N., Supriatna, N., & Hakam, K. A. (2022). Development of digital teaching materials based on Betawi local food to increase ecoliteracy in elementary school students. *Al Ibtida: Jurnal Pendidikan Guru MI*, *9*(2), 402–416. http://dx.doi.org/ 10.24235/al.ibtida.snj.v9i2.11888

Vioreza, N., Supriatna, N., Hakam, K. A., & Setiawan, W. (2022). Analisis ketersediaan bahan ajar berbasis kearifan lokal dalam menumbuhkan ecoliteracy [Analysis of the availability of teaching materials based on local wisdom in growing ecoliteracy]. *Jurnal Cakrawala Pendas*, *8*(1), 147–156. https://jurnal.unma.ac.id/index.php/CP/article/view/3475

Weking, A. N., Suyoto, S., & Santoso, A. J. (2020). A development of augmented reality mobile application to promote the traditional Indonesian food. *International Journal of Interactive Mobile Technologies*, *14*(9), 248–257. https://doi.org/10.3991/ijim.v14i09.11179

Will, M. C. (1986). Educating children with learning problems: A shared responsibility. *Exceptional Children*, *52*(5), 411–415. https://doi.org/10.1177/001440298605200502

Yang, K., & Banamah, A. (2014). Quota sampling as an alternative to probability sampling? An experimental study. *Sociological Research Online*, *19*(1), 56–66. https://doi.org/10.5153/sro.3