

pengetahuan faktual, tetapi juga merupakan tanggung jawab etis dan keagamaan yang mendalam. Artikel ini bertujuan untuk membuktikan dan mengevaluasi mengenai suatu pendekatan pembelajaran yang relevan dan inovatif untuk diterapkan di sekolah dalam merekonstruksi pokok bahasan makanan *ḥalāl* dan *ṭayyib* pada mata pelajaran IPA. Adapun metode yang digunakan dalam penelitian, yaitu metode pra-eksperimen dengan sampel peserta didik kelas 4, 5, dan 6 di SD Yayasan Beribu sebanyak 37 orang yang dipilih secara random. Pengumpulan data dilakukan dengan pendekatan kualitatif dan kuantitatif (*mix method*) yang selanjutnya dianalisis secara deskriptif menggunakan sudut pandang filsafat ilmu epistemologi. Perolehan data diambil dengan menggunakan instrumen wawancara dan tes pemahaman konsep. Adapun hasil penelitian menunjukkan bahwa pendekatan epistemologi konstruktivis mampu meningkatkan pemahaman konsep peserta didik pada pokok bahasan makanan *ḥalāl* dan *ṭayyib* dengan perhitungan gain berada pada kategori tinggi. Hasil penelitian tersebut juga dapat mengindikasikan bahwa pendekatan epistemologi konstruktivis mampu memberikan pembelajaran bermakna yang mengarahkan peserta didik untuk menggali pemikirannya secara lebih mendalam.

Kata-kata Kunci: *Epistemologi Konstruktivis, Makanan Ḥalāl dan Ṭayyib, Pembelajaran IPA.*

Introduction

Food, in all civilizations and religions, plays a central role in human life (Usman et al. 2023, 1). Food functions to form or replace tissue, provide energy, and regulate all processes that occur in the body (Markoulli et al. 2023, 227). In Islam itself, food has a very important additional dimension which includes ethical and spiritual dimensions. The concept of “*ḥalāl* dan *ṭayyib* food” is one of the main pillars in Islamic teachings which regulates what things can be consumed by humans, especially Muslims (Aziz et al. 2023, 1).

The fact, the concept of *ṭayyib ḥalāl* food has also been explained in the Al-Qur’an, Surah Al-Baqarah verse 168, which means: “*O people, eat some (food) on earth that is ḥalāl and good and do not follow the steps of Satan. Indeed, he is a real enemy to you*” (Lajnah Pentashihan Mushaf Al-Qur’an 2022).

The word “halal” comes from Arabic, namely *حلال*, which means “permissible” or “legitimate” (Zainuddin and Shariff 2016, 406). Meanwhile, the term “*ṭayyib*” comes from the word *طيب*, which means “good”, with the connotation that something has qualities and qualities so that it is not detrimental to health (Kashim et al. 2023, 5). Therefore, it can be interpreted that the concept of “*ḥalāl*” is related to permissibility or legality, while the concept of “*ṭayyib*” emphasizes goodness and quality without causing detrimental impacts on health.

The concept of *ṭayyib ḥalāl* food is not only about what is legally permissible to eat but also about how the food is obtained and prepared by considering high ethical and health principles (Kurniasari, Wijaya, and Rahman 2023, 372). In the era of globalization, a deep understanding

of the concept of *ṭayyib ḥalāl* food is becoming increasingly important. Understanding, internalizing, and applying the principles of *ḥalāl* food and *ṭayyib* in everyday life is becoming an increasingly urgent challenge (Hasyim 2023, 667). Learning the concepts of *ḥalāl* food and *ṭayyib* is no longer just a matter of factual knowledge but is also a deep ethical and religious responsibility.

Based on information obtained from the newspaper, dozens of elementary school students were reported to have experienced poisoning which was thought to have come from snacks at school (Detik News, October 12th, 2023). This incident indicates a lack of knowledge and understanding among students regarding the importance of choosing food, especially good snacks or *ṭayyib*. Apart from that, news also reported by the Tribune Kaltim noted that dozens of children and adults in Mahulu had experienced poisoning due to food consumption (Febriawan 2023). This also shows that society still absence attention to healthy food choices.

The concept of food veritably is a sub-concept in science learning, which discusses a variety of healthy foods and their sources (Kemendikbud 2022, 15). However, in reality in the field when teachers teach this sub-concept, integration between the principles of scientifically balanced nutritious food and the concepts of *ḥalāl* food and *ṭayyib* from a religious perspective is rarely found (Zain and Vebrianto 2017, 704).

The results of a preliminary study that the author also carried out on three IPA/IPAS teachers at The Mother Foundation Elementary School on October 2nd, 2023 showed that during their years of teaching healthy and nutritious food material, they had never integrated these concepts from a scientific and nutritional perspective religion.

Besides that, based on the results of a survey that was also conducted on several random students at the school, most of them knew the meaning of *ḥalāl* food, but none of them knew the meaning of *ṭayyib* food. Several students who were interviewed stated that so far, they had paid little attention to the concepts of *ḥalāl* and *ṭayyib* food. They also think that the concepts of *ḥalāl* and *ṭayyib* food are not related to the concept of healthy and nutritionally balanced food that has been studied in class. The results of this survey are an indication that the concept of *ḥalāl* and *ṭayyib* food in students' lives still doesn't receive adequate attention and understanding.

This article aims to prove and evaluate the relevance of the constructivist epistemological learning approach to science learning. A constructivist approach can be used to reconceptualize learning the concept of *ḥalāl* and *ṭayyib* food in science subjects, where this approach is closely related to epistemology as a branch of philosophy that studies the formation of knowledge and assessing the truth of knowledge (Dinata 2021, 221).

This is in line with Piaget's constructivist theory, which states that knowledge does not only reflect the external world or a projection of pre-

existing thought structures but knowledge must be actively constructed (Ribaupierre 2015, 121–3). The constructivist epistemological approach recognizes the central role of students in building an understanding of concepts through consistent experience, reflection, and social interaction.

Previous research that has been conducted regarding the application of constructivism theory has been proven to be able to have a positive impact on students' epistemological development (Barger et al. 2018, 91). In almost a similar context, other research also shows that teachers who make a transition from objectivist to constructivist-oriented thinking and behavior will bring about radical changes in their classroom practices (Lorsbach and Jinks 1999, 163).

Even though there have been these studies, research that combines epistemology and constructivism as a learning approach in the classroom, especially in integrating the two concepts (healthy nutritious food and *ḥalāl ṭayyib* food) has never been carried out. Therefore, there is a knowledge gap that needs to be filled by exploring the positive impact of applying a constructivist epistemological approach. Through this research, it is hoped that it can provide new insights and meaningful contributions to understanding the integration of constructivism and epistemology in the learning context.

The method used in the research is the pre-experimental method. This method aims to show the impact of a treatment on certain conditions. The design used in the research is one group pretest-posttest design, which can be visualized as follows:

Table 1. Research Design

<i>Group</i>	<i>Pretest</i>	<i>Treatment</i>	<i>Posttest</i>
Class A	01	X	02

Shows the research design with the information: Class A → Class used as research; 01 → Conduct a pretest before implementing the approach; X → Learning process with a constructivist epistemological approach; 02 → Conduct a posttest after implementing the approach.

The population in this study included all students at The Mother Foundation Elementary School, while the samples taken in the research were students in grades 4, 5, and 6 who were selected using random sampling techniques and totaled 37 people. The data obtained in this research was collected using interview sheet instruments as well as questions about students' understanding of the concept of *ḥalālan ṭayyib* food which was re-conceptualized with the subject of balanced nutritious food. The hypothesis used in this research can be formulated as follows:

- H₀ : There is no difference in students' ability to understand the concept of *ḥalāl ṭayyib* food before and after taking part in learning using a constructivist epistemological approach.
- H₁ : There is a difference in students' abilities to understand the concept of *ḥalāl ṭayyib* food before and after taking part in learning using a constructivist epistemological approach.

Constructivist Epistemology in Science Learning

Sufism has always had a great fan following, not just among Muslims but also among non-Muslims, as seen in India, where Sufi saints laid the foundations of the Bhakti movement in Hinduism. Moreover, Sufism has always played a pivotal role in breaking down superstitions and has become all the more relevant in contemporary times of violence. The word Sufi has many derivations, but the most popular one is that the word 'Sufi' comes from the Arabic word 'ṣū' which means wool. Therefore, the Muslim saints who used to wear garments made of wool were termed "Sufis." Even though Sufism is a much later phenomenon associated with Islam, it is said to have its foundations in the 7th century A.D.

Research that has been carried out regarding the constructivist epistemological approach in science learning on the subject of "*ḥalālān ṭayyiban*" food has obtained research data, namely test scores for understanding concepts and their explanations. This test is given before and after the learning approach is implemented, with the following recapitulation results:

Table 2. Comparing Results of Concept Understanding Scores

Data Type	Average Score	Max. Score	Min. Score
Pretest	32	70	0
Posttest	85	100	65

Comparing Results of Concept Understanding Scores shows the results of the comparison of processing scores for understanding the concept of *ḥalālān ṭayyiban* food with the average score obtained before implementing the constructivist epistemology approach of 32 with a maximum score of 70 and a minimum score of 0. Meanwhile, the average score of students' understanding of the concept of *ḥalālān ṭayyiban* food after implementing the approach constructivist epistemology is 85 with a maximum score of 100 and a minimum score of 65.

The recapitulation of research data regarding the elaboration of points discussed before and after the implementation of the learning approach for each question developed is as follows:

Table 3. Recapitulation of Conceptual Understanding of Each Question

No	Questions asked	Students who answer the correct		Students who answered half		Students who answered incorrectly	
		Pre-test	Post-test	Pre-test	Post-test	Pre-test	Post-test
1.	Definition and meaning of halal food	12	34	14	0	11	3
2.	How to check the halal status of a food/drink product	29	34	0	3	8	0
3.	Food/drink requirements are categorized as halal	2	21	14	15	21	1
4.	Definition and significance of <i>ṭayyib</i> food	0	30	6	6	31	1
5.	Food/drink requirements are categorized as <i>ṭayyib</i>	1	33	3	2	33	1
6.	Reasons why pork is forbidden (integrate religious and scientific perspectives)	3	19	20	17	14	1
7.	Reasons why carcasses are forbidden (integrate religious and scientific perspectives)	0	21	15	16	22	0
8.	Reasons why alcohol is forbidden (integrate religious and scientific perspectives)	1	12	20	25	16	0
9.	Definition of healthy and nutritionally balanced food with examples	2	27	15	10	20	0
10.	How to maintain a healthy body through food (integrate religious and scientific perspectives)	3	33	14	4	20	0

Table 3 shows the number of students who answered with correct scores, half scores, and incorrect scores for each question component before and after the implementation of the constructivist epistemological approach. For more details, the comparison of student scores can be seen in charts 1 and 2.

After the concept understanding score data has been summarized, an analysis of the normality prerequisite tests is then carried out to determine

the type of hypothesis test used (parametric or non-parametric) in the SPSS 26 Windows computer application, which can be seen in the following table:

Table 4. Test of Normality

	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
PRETEST	,095	37	,200*	,979	37	,681
POSTTEST	,157	37	,022	,952	37	,110

*. This is a lower bound of the true significance.

Lilliefors Significance Correction

Table 4 it can be seen that there is one of the calculated significance numbers which shows a result that is smaller than the reference significance number of 0.05 (red column) so it can be concluded that the concept understanding data is not normally distributed.

Based on the results of this analysis, hypothesis testing continues using a non-parametric hypothesis test, namely the “Wilcoxon Test”, the calculation of which can be seen in the table below:

Table 5. Test Statistics^a Uji Hipotesis

POSTTEST - PRETEST	
Z	-5,310 ^b
Asymp. Sig. (2-tailed)	,000

a. Wilcoxon Signed Ranks Test

b. Based on negative ranks.

Table 5 shows that the calculated significance number is 0.000, where this number is smaller than the reference significance number of 0.05 so H_0 is rejected and H_1 is accepted, which means “there is a difference in the ability to understand the concept of *halālan tayyiban* food of students before and after taking part in learning using a constructivist epistemological approach”.

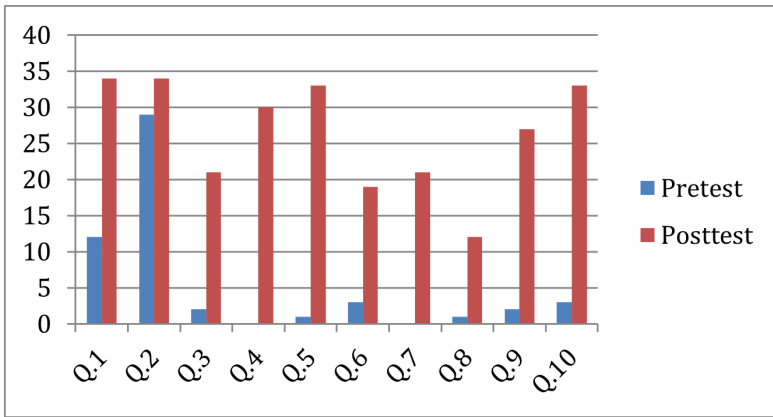


Chart 1. Comparison Chart of Correct Answers

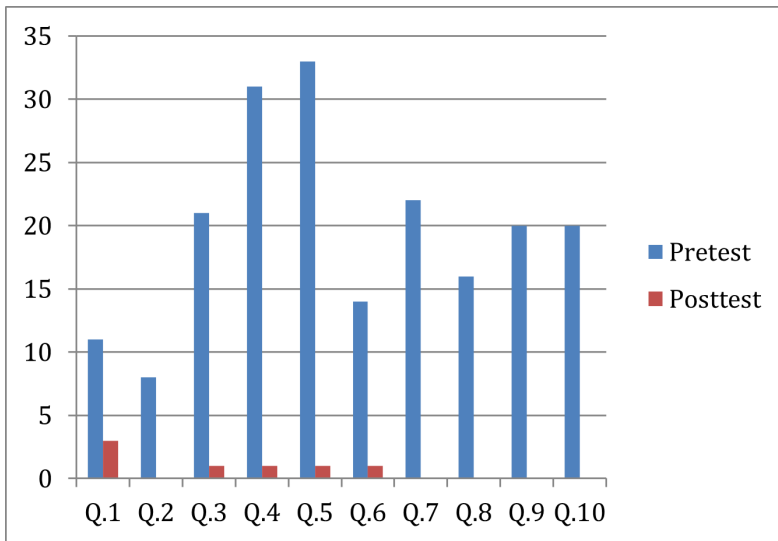


Chart 2. Comparison Chart of Incorrect Answers

Chart 1 and 2 shows a graph of the comparison results of the number of students who answered the question correctly (top graph) and students who answered the question incorrectly (bottom graph). From chart 1 it can be seen that fewer students answered correctly during the pretest than during the posttest. Meanwhile, the reverse results are shown in chart 2, from this graph it can be seen that more students answered incorrectly during the pretest than during the posttest.

This research can be strengthened by the N-Gain calculation which shows an increase in the high calculation category for the majority of students with a result of 0.7813 and according to theory if the calculation results are in the range of $0.71 < g \leq 1.00$ then the results are interpreted in the high category. The recapitulation of the comprehension gain index categories for each student can be seen in the graph below:

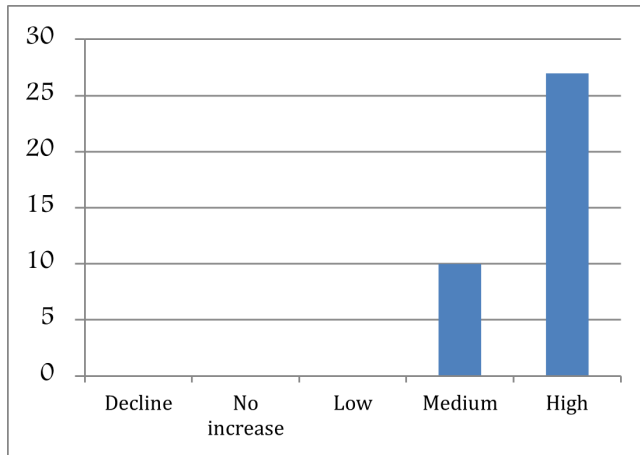


Chart 3. Concept Understanding Gain Index Category Graph

Chart 3 shows the category of increasing Gain calculations for students. From the graph above, it can be seen that as many as 10 students (27%) experienced an increase in the medium category and 27 students (73%) experienced an increase in the high category.

Referring to the results of the research described above, an interpretation can be drawn that the constructivist epistemological approach can increase students' conceptual understanding of the subject of *halāl tayyib* food. This increased understanding of concepts among students is due to a change in learning style from being teacher-centered to student-centered through a constructivist approach (Insani et al. 2024, 84).

Constructivism is a view of learning that proposes that knowledge is not only received passively but is actively constructed by students through their personal experiences, interpretations, and reflections on information (Ameen 2023, 90). A learning process that is centered only on the teacher will not encourage students to find out what material will be studied (Anggraeni, Veryliana, and Fatkhur 2019, 219). During learning, students tend to be passive, and interaction in the classroom, both between teachers and students and between students, is less established, causing the learning process to become less meaningful.

In the context of learning *halāl* and *tayyib* food, the constructivist epistemological approach encourages students to be actively involved in designing their meaning through activities that involve observation, discussion, and exploration of these concepts. According to Irawan (2019, 6), a teacher's pedagogical competence can be seen in his ability to carry out learning management. A teacher who masters teaching and learning activities must of course be able to manage a more dynamic learning process by involving students, and one of this can be done through the application of a constructivist epistemological approach.

The constructivist approach encourages students to develop a deep conceptual understanding of a scientific concept or theory (Boon, Orozco, and Sivakumar 2022, 1–23).

The constructivist approach refers to explaining epistemic activities (for example scientific thinking) in building and justifying scientific knowledge (Ismajli and Krasniqi 2022, 259). This can be seen from several changes in the answer statements given by students on question two number, namely how to determine the halalness of a food/drink product. Previously, students said that the halal status of a product could be seen if the food did not contain pork. However, after applying a constructivist epistemological approach, they were able to build new information if halalness is not only seen from the presence or absence of pork, but can be seen from the presence or absence of a halal logo on the packaging, the content used (containing ingredients that are forbidden in the Koran or not), and the processing process avoids things that doubt halalness.

Essentially understanding the concept of halal food and *ṭayyib* has several benefits, including increasing adherence to religion. This can be used as a way to obey Allah SWT's commands to stay away from things that are prohibited. From a scientific perspective, understanding the concepts of halal food and *ṭayyib* is an effort to maintain health. This is due to information that halal and *ṭayyib* meat is based on processes and preparation, following hygiene standards and food safety (Ikomatussuniah et al. 2021, 450–51).

The meaning of *ṭayyib ḥalāl* food includes the following things: halal food is food that comes from halal sources, halal food can be accepted using fitra methods, halal food has non-*shubhah* elements which, is hygienic, safe, and nutritious (Kashim et al. 2023, 8).

However, based on the results of the pretest scores on the first and fourth, it was found that the majority of students understood the meaning of the concept of halal food (question number one) but none of them knew the concept of *ṭayyib* (question number four). Therefore, they have thought that *ṭayyib* food is food that is the opposite of halal food, according to them *ṭayyib* food is food that comes from pork and is forbidden. According to theory, halal itself is an action or status that is permitted according to Islamic law and is in conflict with haram or that which is prohibited in Islamic teachings (Ng et al. 2022, 11).

While the word "*ṭayyiban*" comes from Arabic which means good, according to Riaz and Chaudry 2004 *ṭayyib* also means healthy, pure, and safe (Dewi and Agustina 2021, 180). The concept of *ḥalāl ṭayyib* includes aspects such as eating food that comes from halal sources, processing it according to the correct method, not mixing it with anything suspicious, keeping the clean, safe, and nutrition (Kashim et al. 2023, 2).

Not much different, in question number five regarding *ṭayyib* food requirements, only one student was able to answer correctly and the

rest were still wrong. This is due to students' ignorance of the concept of *ṭayyib* food. However, after learning constructivist epistemology, it was found that there was a change in students' understanding of the concept of *ṭayyib*. Most of the students said that *ṭayyib* food is food that is good for health provided that the food or drink does not have a bad impact on the body. This is according to the theory which explains that the term *ṭayyib* is related to food that is maximally clean and has minimal potential for contamination with toxins, unclean materials, and *khabith* (Alzeer, Rieder, and Hadeed 2018, 1).

Ṭayyib food must be clean and pure, protect the health, and be able to improve the quality of life (Alzeer, Rieder, and Hadeed 2018, 2). The constructivist epistemological approach directs students to be actively involved in learning through direct observation (Danielyan 2023, 3). Therefore, in the context of *ṭayyib* food, students are invited to observe, analyze, and taste for themselves the foods that are considered *ṭayyib*, in this method students will be able to develop a deep understanding of this concept.

Question number six asks about the reasons why pork is forbidden which is integrated from a religious and scientific perspective. During the pretest, there were still many students who gave explanations only from a scientific perspective, namely 80% answered that pork is haram because it contains tapeworms. However, during the posttest, the students' answers had some additional information, apart from answering that pork contains tapeworms, they also explained the dirty lifestyle of pigs which often consume feces. Some of the students also explained that pork is a type of food whose haram is clearly stated in the Qur'an. The prohibition of pork is indeed explained in the Qur'an, one of which is in the letter An-Nahl verse 115 which means: "*Indeed, Allah has only forbidden you carrion, blood, pork flesh, and (animals) slaughtered by (mentioning names) other than Allah, but whoever is forced (to eat) not because he wants it and does not (also) exceed the limit, then indeed, Allah is Forgiving, Most Merciful*" (Lajnah Pentashihan Mushaf Al-Qur'an 2022).

The reason for the Islamic perspective on this prohibition can be seen from the perspective of obedience to Allah's commands and maintaining spiritual purity and cleanliness. Meanwhile, from a natural science perspective, the ban on pork consumption can also be understood from a health and hygiene perspective. Pigs are a source of zoonotic diseases, namely diseases that can be transmitted from animals to humans. Some diseases that can be transmitted by pigs include trichinellosis, brucellosis, and parasitic worm infections such as tapeworms (Solikah and Widyastuti 2023, 55). Apart from that, research results also state that pig muscles contain many bacteria and microbes (Fang et al. 2017, 9).

An almost similar answer was found in question number seven regarding the reasons carrion is forbidden from a religious and scientific

perspective. Previously, students answered that carcasses are haram because they have an unpleasant aroma. This answer was not related to the two points of view instructed. However, after learning, many of the students were able to explain that carrion is forbidden because it is contained in verses of the Koran and is a center for the spread of bacteria. This is according to the theory which explains that even though carcass meat undergoes a slaughtering process after death, its contents are different from meat obtained from animals slaughtered while they are still alive. When an animal has previously died, blood cannot drain properly during cuts in the carotid artery and jugular vein in the neck. This happens because blood flow has stopped due to the heart no longer functioning (Fakhrudin et al. 2023, 96). Blood that clots and is still present in the animal's body creates an ideal environment for the growth of microorganisms (Dangerfield et al. 2020, 1–23).

In question number eight, the discussion regarding the reasons why alcohol is forbidden from a religious and scientific perspective found the fact that students answer, because alcohol can intoxicate. Fact, this is quite different from the theory that has explained that any ethanol produced through anaerobic fermentation, ranging from 1 to 15% is considered haram/non-halal/forbidden (Alzeer, Rieder, and Hadeed 2018, 3).

Alcohol can make a person lose their sense of control and self-control. This opinion is further strengthened by MUI Fatwa No. 10 of 2018 which states that "*Alcoholic drinks that fall into the khamr category are drinks that contain at least 0.5% alcohol/ethanol (C₂H₅OH)*". Alcoholic drinks that fall into the *khamr* category are unclean and *haram*, whether a little or a lot (Majelis Ulama Indonesia 2018, 9).

From an Islamic perspective, alcohol is prohibited because it is considered to disrupt a person's spiritual awareness and balance. This prohibition aims to maintain spiritual cleanliness, keep away from everything that can disturb good thoughts and behavior, and keep consciousness clear. From a natural science perspective, the prohibition on alcohol consumption can also be seen in terms of health impacts. Alcohol is known to have negative effects on the human body system. Consuming excessive amounts of alcohol can damage important organs such as the liver, brain, and digestive system (Wyper et al. 2023, 1367).

Apart from that, alcohol can also cause dependence and affect a person's cognitive function (Fitriani, Nazwa, and Afifah 2023, 1049). Scientific research has shown that excessive alcohol consumption can cause various serious diseases such as liver cirrhosis, disorders of mental and increase the risk of accidents and violence (Johnson et al. 2016, 500).

The constructivist epistemological approach recognizes that knowledge is influenced by individual context. In the context of the prohibition of pork, carrion, and alcohol, during the learning, students are directed to study religious teachings and the values that underlie these

prohibitions. Students are encouraged to be able to integrate scientific knowledge regarding health and hygiene with a religious perspective. This approach provides opportunities for students to see various perspectives by developing a deep understanding, thus that they can feel the impact in real terms (Ecevit and Özdemir 2020, 152). Thus, the constructivist epistemological approach not only facilitates accumulating knowledge but also promotes the development of a holistic understanding that allows students to understand the broader context of the prohibition.

In answering question number nine regarding the definition of healthy and nutritionally balanced food, initially, students only gave examples of healthy and nutritious food, such as vegetables, fruit, meat, milk, and so on. However, there were changes in conceptual thinking after following the learning. Students are now able to explain that healthy and nutritious food is food that supports the growth and development of the body. The students' answers are almost in line with the theory taken from theory where there are three main requirements for healthy food. First, the food must contain complete nutrition and nutrition. Second, food must be safe from dangerous substances, such as microbes, toxins, pathogens, and so on. Third, food must also have a taste and aroma that attracts attention/delicious (Naumova 2024, 4). Thus, after implementing the constructivist epistemological approach, students not only show a good understanding of the concept of health and nutritious food but are also able to relate it to existing theories, producing more comprehensive answers.

A similar thing was also found in the discussion of question number ten regarding efforts to maintain health through food. After the learning process, many students gave explanations by integrating religious views, where in consuming food, apart from paying attention to its halalness, we must also pay attention to its *ṭayyib*. The Islamic view of food often involves the concepts of halal (permitted) and haram (prohibited). In the Islamic religion, there are regulations and classifications of food that can be consumed and what cannot be consumed, which are known as *ḥalāl* and *ḥaram* food laws (Kurth and Glasbergen 2017, 109).

Meanwhile, according to a scientific perspective, we are obliged to choose foods that contain nutrients according to the body's needs. Natural Sciences provides an understanding of food composition, health benefits, and its impact on the human body. This is often in line with Islamic views on cleanliness and health in food, creating continuity between religious and scientific aspects in maintaining health through food choices (Rojabiah, Suryani, and Budiyanto 2023, 6).

Based on the results of students' thinking in answering all the questions given, there is a change in understanding their thinking patterns. The difference in answers given before and after the implementation of the constructivist epistemological approach proves that there is new knowledge that is formed during the learning process. The constructivist

epistemological approach can provide meaningful learning and direct students to explore their thoughts more deeply (Habsy et al. 2023, 766). Constructivism is a view of learning that believes that students actively construct knowledge and create meaning based on their experiences, both individually and in social interactions (Riyanti et al. 2021).

A teacher has a very important role in determining the success of a learning process. Therefore, teachers are expected to have the ability to design learning that is not only teach, but also has certain characteristics. Teachers are required to emphasize the learning process of how to learn, prioritize strategies that support meaningful learning processes, and help students become competent in thinking about and choosing answers to the problems they face (Darling-Hammond et al. 2022, 4).

The importance of the learning characteristics mentioned can be realized through the application of a constructivist epistemological approach. In this way, teachers not only act as transmitters but also function as facilitators who encourage students to be actively involved in the learning process. Teachers help students build their knowledge by developing their critical thinking skills. The correlation between the teacher's role as facilitator and the learning activities implemented becomes clear, and this approach is consistently in line with the learning philosophy of constructivist epistemology.

Reconceptualizing the relationship between natural sciences and Islamic viewpoints regarding food involves combining different aspects of knowledge to gain a holistic understanding. Natural sciences provide a solid foundation of knowledge regarding nutrition, the chemical composition of food, its impact on the body, and sustainable production methods. This understanding allows individuals to make healthier and environmentally friendly food choices.

On the other hand, the Islamic viewpoint regarding food brings an additional dimension involving religious rules and teachings. Some religions, including Islam, have specific regulations regarding which foods are permitted (*ḥalāl*) and which are not permitted (*ḥaram*). These rules are often based on health, spirituality, and ethical considerations. Reconceptualizing the concept of *ṭayyib ḥalāl* food, which means halal and good food, can help individuals combine aspects of natural science with the spiritual or ethical values believed in by the Islamic religion.

A deeper understanding of the concepts of halal food and *ṭayyib* can guide individuals in making food choices that not only meet the body's physical needs but are also in line with moral and spiritual values. This process helps produce wiser food policies, promotes individual and environmental health, and infuses religious values into everyday actions. Therefore, the integration of natural science and Islamic viewpoints regarding food opens the door to aligning holistic and sustainable food policies.

The increasing understanding of students in re-conceptualizing the concept of *ṭayyib ḥalāl* food from a religious perspective and healthy, nutritious food from a scientific perspective after applying a constructivist epistemological approach can be caused by several factors. First, by understanding how natural science and religious perspectives view the process of gaining knowledge, students can combine the two perspectives more coherently.

A constructivist epistemological approach can help them see that natural science and religion do not conflict with each other, but can complement each other and form a more comprehensive understanding. The constructivist epistemological approach provides a basis for reconceptualizing the concept of *ṭayyib ḥalāl* food as an effort to choose food that not only fulfills the physics but is also in line with the spiritual and ethical values believed in.

Second, a constructivist epistemological approach can also help develop students' critical thinking skills. They can be invited to question and analyze information from both points of view, identifying similarities and differences as well as possible areas where the two can complement each other. This not only increases their understanding of food based on religious and scientific methods but also helps develop their ability to construct structured arguments. By using an epistemological approach, learning about food can become more dynamic and relevant for students, because they learn to see food as a complex entity that involves aspects of science and religious values. They may feel that this diversity of perspectives can translate into more thoughtful and informed food policies, promoting individual health and spiritual or ethical values respected in society.

Conclusion

Based on the results of the analysis and discussion in the research described previously, a conclusion can be drawn that the application of a constructivist epistemological learning approach can have a positive impact, in increasing students' understanding of the concept of *ṭayyib ḥalāl* food. By applying this approach, understanding of the concept not only increases but also becomes more mature. Students experience significant changes in their perception of the subject of halal food, and *ṭayyib* can present various new information obtained through the constructive learning process.

It is hoped that in the future this approach can be applied by teachers to create a more meaningful learning process that provides better learning outcomes. The author's suggestions for future research are to invest further effort in developing more detailed evaluation strategies so that they can provide in-depth insight into the effectiveness of learning approaches, as well as make comparisons with conventional learning

methods to obtain stronger research results.

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