

Alcohol and Khamr on Fiqh Using Science Experiment Videos in Schools Affected by COVID-19

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Abstract. Covid-19 has paralyzed Islamic and Natural Science Education in Indonesia. The impact of online learning is not optimal, teachers have difficulty explaining the material or practice making it more difficult for students to understand the material. The purpose of this study was to improve the students' understanding of grade 8 PGRI 6 Denpasar Junior High School on fiqh regarding alcohol and khamr with online learning. The media used is a science experiment video which will have implications for changing the way students perceive the use of alcohol and khamr. This study uses the Nonequivalent Control Group Design method with a comparison between the science experiment class and the control class using the traditional method. The results of the validation of experimental experts, 91.34% fiqh material with perfect criteria. Pretest in the experimental class percentage of 70% sufficient criteria from the experimental class and the control class get a presentation of 72.4% sufficient criteria. Posttest in the experimental class with a percentage of 87.4% good criteria while in the control class presentation 75%. Based on the results of the validation and pretest-posttest comparisons between classes, the experimental method is good for learning fiqh in Islamic education.

Keywords: online teaching and learning, COVID-19, fiqh, alcohol and khamr, islamic education

1 Introduction

The Covid-19 pandemic has hit almost all countries in the world and one of the effects that can be felt from this pandemic is the disruption of the education sector [1][2]. As a result of this pandemic, Indonesia and various other countries decided to convert school and university learning into online learning [3]. Based on the Education Index released by the Human Development Reports, in 2017, Indonesia was in seventh position out of eleven other countries in ASEAN [4]. The education index shows that face-to-face learning in Indonesia is still weak, especially the discourse of online learning has not been fully implemented in previous schools. Online learning due to the Covid-19 pandemic has reduced students' interest in learning, especially learning based on short traditional material and assignments. Teachers play an important role in arranging effective and appropriate online learning steps according to the 2013 curriculum.

Some of the problems in this study are (i) the teacher has difficulty choosing efficient and attractive learning media for students that are in accordance with the 2013 curriculum during the distance learning period due to the COVID-19 pandemic and (ii) students cannot distinguish between alcohol and alcohol which results in doubts use of alcohol on a daily basis.

In the 2013 curriculum, all subjects must contribute to the formation of the affective,

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psychomotor and cognitive aspects of students and demand that learning be active [5][6]. The 2013 curriculum emphasizes the importance of integration between one subject and other related subjects [7]. Integration of Islamic religious learning with other subjects is important so that the creation of a young generation who is knowledgeable, faithful and has noble character[8]. Integrating Islamic religious learning is quite difficult for Islamic education teachers to do, especially during the COVID-19 pandemic. Online learning limits the space for teacher exploration in providing attractive learning media [9]. Learning videos are an example of efficient learning media that is practical and can be done online or face-to-face[10].

Misunderstanding about alcohol and khamr strengthened in Islamic religious learning materials include about halal-haram alcohol and khamr still equate between alcohol and khamr besides the discussion about alcohol is limited [11]. As a result, teachers and students have a narrow minded of the laws of fiqh alcohol. They think that all kinds of alcohol are considered haram. Islamic views are rigid about the products that have alcohol content cause doubts in the use of alcoholic products, such as drugs, cosmetics and food [12].

Efforts to these problems can be done by integrating Islamic education subjects with one of the other subjects that are quite related to learning material. Learning materials used Class 8 Chapters 12 and 14 Consume Halal Food and Beverages and Stay Away from the Unlawful [11]. Chapter 12 includes Khamr and the use of alcohol in daily life. The learning material will be integrated with scientific learning and experiments using halal and haram alcohol with objects of meat and chicken skin.

Experimentation is one of the media that is good enough to increase students' curiosity can enthusiastically participate in learning and in general experiment experiments will always be remembered by students because students conduct experiments individually [13]. According to Roestiyah experiment is a way of teaching, where students conduct an experiment about a thing, observe the process and write the results of the experiment, and the observations are conveyed to the class and evaluated by the teacher [14]. Experiments on learning are used based on a problem that needs to be solved later in the work procedure to hold to scientific principles.

Media science experiments on Islamic education has never been done and real data from the results of research methods can not be displayed but reflected from the success of the results of learning research using science experiments can prove that with the experimental learning methods students can remember the material and learning outcomes because students conduct experiments themselves, discuss and conclude what was obtained from the experiment [15]. The translation of these learning outcomes is evidenced by research conducted by Rahmawati, Nugroho and Putra in 2014 which concluded that learning with positive positive experimental methods students were more active and recalled learning outcomes by analyzing the results of the pretest and posttest conducted in the study [16]. Other researchers such as Rina, Widha and Suciati in 2012 published in their research article that the experimental method can improve students' affective, cognitive and psychomotor based on data from their research results [17].

This research will be conducted online using a series of simple science experiments packaged into an experimental video. The function of science experiments is used as a study of the use of halal and haram substances in the integrated learning of Islamic Education and Natural Sciences for grade 8 junior high school students. The selection of 8th grade students is based on learning addictive substances that have been taught in the subject of Alamaic Science when students are in grade 7 even semester, so that 8th grade students already understand about addictive substances (Khamr and alcohol). This experiment was designed as a simple scientific proof that Allah forbids his servant to approach the unlawful because the unlawful can endanger himself. Proving with this experiment increases the creative power, accuracy and high curiosity [18] [19].

The experimental method is generally a method of learning that is carried out directly or face-to-face, but there are several developments in experimental methods that have been carried out such as virtual experiments using certain assistance tools. Henlenti conducted a virtual experiment in 2014 with his research on optical materials in grade 8 junior high school. The results of this study indicate that students' interest in learning is not much different from when students conduct face-to-face experiments. This is the foundation that online experiments can be carried out with good results [20].

Online experimental learning is rarely done because it has more complex challenges in designing experiments and takes time to manufacture. So that the previous research data has not found the use of experimental methods for alcohol and khamr in online fiqh learning, besides the above research with regard to alcohol and khamr only in descriptive literature.

The benefits and objectives of this study are as a way out of the teacher's problems to the difficulties in determining distance learning media that are in accordance with the 2013 curriculum. Other benefits obtained from this study are theoretical guidelines for Muslims in viewing religion and science in an integrative way. so that there is a further awareness to reinterpret science, including the spirit of studying science based on Islamic values.

2 Methods

The method used in this research is a quasi type experiment (quasi experiment). This method consists of variables in the control group and the experimental group, the quasi experiment is used to determine the increase in understanding the concept of the material of halal-haram fiqh of alcohol and khamar. This study was also developed using the nonequivalent control group design research design. Data collection was carried out using the pretest and posttest given to the control and experimental groups. The data retrieval design is illustrated by table 1.

Table 1. Nonquivalent control group design of pretest and posttest

Class	Pretest	Treatment	Post test
EC	O ₁	X ₁	O ₂
CC	O ₁	X ₂	O ₂

Information:

EC : Experiment Class

CC : Control Class

O₁ : Pretest

O₂ : Posttest

X₁ : Learning Fiqh alcohol and khamr with science experimental video X₂ : Learning fiqh alcohol and khamr with tradisional methods

The experiment pattern that shown in Table 1. The experimental class and the control class get the same pretest question, namely O₁, but get different treatments indicated by symbols X₁ and X₂ and have the same question O₂ for posttest. Pretest and posttest questions have the same difficulty level but the problem points are different.

2.1 Sampling

The sample of this research was students in grades 8A and 8B for the 2020/2021 school year

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of PGRI 6 Denpasar Junior High School. The experimental class consisted of 10 students of class 8A with 5 male and 5 female students, while the control class consisted of 10 students of class 8B with 4 male and 6 female students. School selection is made based on the largest number of Muslim students in schools around South Denpasar. Class selection is made based on the number of grades last semester and students' thinking analysis skills in general. Based on the value and data analysis obtained from the last semester, the experimental class and the control class have similar abilities

2.2 Instrument

The instrument in this study used a pretest and posttest questionnaire which had different questions but still had the same weight. In the posttest questions students will be given a column to answer essays about their opinions. The pretest and posttest questions consist of questions with points 1-5, indicator 1 is an opinion that does not agree and point 5 is an opinion that really agrees. The material of fiqh and alcohol in the pretest and posttest questions has passed the validator from learning experts, fiqh material and food engineering

2.3 Procedures

Before conducting research, the first step to do is to observe, interview and survey how the understanding and knowledge of teachers and students and whether or not the infrastructure is adequate [21]. Observations, interviews and surveys were conducted to look for problems faced by 8th grade students and teaching teachers at PGRI 6 Denpasar Junior High School regarding material to consume halal food and drinks and stay away from what is unclean in chapters 12 and 14 which are also as research subjects and the results are used also as a means of collecting data with interactive models. The second stage is the pretest of the experimental class and the control class which is carried out using google form media. The third stage is the implementation of learning by conducting science experiments in the experimental class. At this stage, the material presented uses the zoom application, starting with the presentation of the material on alcohol and khamar fiqh with power point slides by the teacher then showing a video of the science experiment that has been previously recorded and edited. The third stage ended with a discussion about the experimental material and videos that were presented [22]. Whereas in the control class, learning was carried out with the zoom application using the same power point slide but did not use science experiment videos and continued with discussions. The fourth stage is the evaluation (posttest) stage based on data collection in the second and third stages then comparing the final results of the experimental class and the control class [23].

2.4 Analysis of Data

This study uses a simple calculation of the average score and ideal score written by Prof. Dr. S. Eko Putro Widoyoko, M.Pd. in his book "Research Instrumentation Techniques".

2.5 Component in Video Science Experiment

Tools and materials needed in learning experiments, namely:

Table 3. Materials

No.	Material	Content	Measure
1.	Halal Alcohol		
	Tapai Singkong	7%	50ml

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Table 2. Tools

No.	Tools	Amount	Measure
1.	Clear Glass	6	200 ml
2.	Measuring Cup	1	50 ml
3.	Sticky Tape	1	2 x 1 cm
4.	Paper	5	1 x 0.5 cm
5.	Scissor	1	
6.	Tapai Ketan	20%	50 ml
7.	Stearyl Alcohol (in Lotion)	15%	50 ml
8.	Khamr		
9.	Ethanol Denaturated (in Cologne)	80%	50 ml
10.	Soju	20%	50 ml
11.	Meat and Skin of Chicken		5 x 3 Gram

Procedure

1. Prepare tools and materials.
2. Measure 50 ml of alcohol respectively.
3. Pour each alcohol and the measured it into a glass beaker.
4. Mark the glass cup with masking tape and paper that has written the name of the type of alcohol.
5. Put the chicken in a glass of alcohol until submerged.
6. Observe and wait up to 240 minutes.
7. Make conclusions.

Chicken meat and skin are assumed to be our body because 60% of chicken genes are similar to human genes [24], stearyl alcohol and denatured alcohol (found in cologne) are alcohol products that are used in cosmetics mixtures such as soap, perfume, lotions and others [25]. Soju and Water Tapai are drinks that we can easily find [26]. Experiments carried out can provide insight into the state of our bodies before and after the use of halal alcohol and kharm alcohol.

3 Result

The product was previously validated by experimental media experts, learning material experts and teachers before starting to conduct research. Product assessments are assessed based on relevance, accuracy, completeness of the presentation, the basic concept of the material and the suitability of the presentation with the learning demands totaling 17 items [27].

After the assessment, a revision was made before testing the experimental class 8.A with 10 students 10 questions and the control class 8.B 10 students 10 questions. The assessment results obtained from expert validation were analyzed using category tables 4 [28],

Table 4. Standart Scores Criteria

Average Range of Scores	Criteria
> 4,2 - 5,0	Very Good
> 3,4 - 4,2	Good
> 2,6 - 3,4	Enough
> 1,8 - 2,6	Poor
1,0 - 1,8	Very Poor

Calculate the mean score using equation 1.

$$\text{Average score } (X) = \frac{\text{Total } (\Sigma X)}{\text{Total participant} \times \text{Total item}} \quad (1) [29]$$

Find out the ideal percentage of the product using equation 2

$$\text{Ideal \%} = \frac{\text{Total Score}}{\text{Max Score}} \times 100\%$$

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Science videos of alcohol and khamr experiments have passed the validity of experts on fiqh subject matter, learning media and food technology. The validator of fiqh subject matter in this study came from a lecturer in Islamic education at the Tourism Academy campus in Denpasar, he taught about Islamic tourism. The instructional media validator (experimental video) is a task force for examining exam questions and education supervisors in Denpasar. The science experiment validator is the head of the food technology study program at Ahmad Dahlan University. The results of the validation can be summarized in table 5.

Table 5. Expert Validation

Evaluator	Amount
Media Expert	46
Material Expert	43
Experimen Expert	48
Total	137
Average	4.56
Percentage	91.34%

In table 5, the percentage results show 91.34%. Based on the calculation of the average and ideal percentage in eq. 1 and 2, it shows a value of 4.56 in the very good category. Before reaching this value the video of this science experiment has gone through several revisions. The value of the calculations carried out shows the feasibility of this science experiment video to be tested on students with a small scale.

The learning exposure in this study uses a zoom with a power point as the delivery of the material and the only difference is that the experimental class gets an additional 10 minutes of experimental video and the control class does the learning in general with traditional methods. The pretest and posttest in this study used google form media. Figures 1, 2 and 3 show examples of pretest and posttest questions and students' wrong answers.

Alkohol adalah zat yang dapat memabukkan sehingga wajib dihindari *

Tidak Setuju

Kurang Setuju

Ragu-ragu

Setuju

Sangat Setuju

Mengapa? *

alkohol merupakan minuman khamr sehingga pengobatannya mengikuti idah khamr

Fig 1. Control Class Posttest in Google Form

Figure 1 shows the post test questions and the answers given by the control class students (8B). The question reads "alcohol is an intoxicating substance so it must be avoided" and the student answered strongly that he agreed with this opinion on the grounds that alcohol is khamr because in Indonesia generally alcohol is identical to alcoholic drinks (liquor) which is included in the khamr class [30].

In fact, based on science and fiqh, alcohol is not included as khamr, although in liquor types there is alcohol. In science, some types of alcohol can be intoxicating but many other types of alcohol are not intoxicating[31]. Generally the alcohol used in liquor comes from alcohol with the type of methanol, buthanol and ethanol. The opinion that alcohol is an intoxicating substance is not entirely correct and alcohol is not a substance that should be avoided as is khamr [32].

The image shows a screenshot of a Google Form. The question is: "Parfum dan kosmetika lainnya yang terkandung alkohol sebaiknya tidak digunakan". Below the question are five radio button options: "Tidak Setuju", "Kurang Setuju", "Ragu-ragu", "Setuju", and "Sangat Setuju". The "Ragu-ragu" option is selected. Below the options is a text box labeled "Mengapa" with the following text: "parfum yang mengandung alkohol baiknya tidak digunakan mengingat banyak kandungan parfum yang tidak menggunakan alkohol tetapi tetap wangi" and "kosmetika yang mengandung alkohol juga baiknya dihindari kecuali untuk hal penting misalnya sebagai salah satu penyembuhan pada okincam tubuh".

Fig 2. Result of Experiment Class Pretest in Google Form

Figure 2 shows the pretest questions and answers given by the experimental class students (8A). The question reads "Perfumes and other cosmetics that contain alcohol must be avoided" and the student answered doubtfully on the grounds that alcoholic perfume might be avoided but regarding cosmetics it can still be used, especially medicinal cosmetics such as skin care which contains alcohol with the aim of treatment at face and body.

This doubtful opinion is shared by many students and even the general public who still think that alcohol is not well used except for urgent purposes. Just like pork which is a haram substrate but can become halal when forced [33].

Based on the study of fiqh, khamr is not something that is unclean but cannot be used for anything except in a forced situation such as the law of using pigs. If khamr which is clearly forbidden is not unclean, so will alcohol which is even halal. In science, alcohol is a substance that is widely found in nature but with the development of the food industry, alcohol has been produced as a support [34]. One example of alcohol that exists in nature is the alcohol contained in honey and in fruits such as grapes [35]. Honey and wine are not haram foods, this simple logic makes alcohol not included in the category of unclean objects.

The use of alcohol as perfume and cosmetics may be used but you must know that alcohol comes from the general alcohol industry or the khamr manufacturing industry [36].



Fig 3. Wrong answer of Posttest in Google Form

Figure 3 shows the questions and posttest answers by the experimental class students (8A). The question reads "The argument for prohibition of alcohol is found in the Koran and the hadith." The student's answer shows that he strongly agrees if there is the argument against prohibiting alcohol on the grounds of quoting Al-Baqarah 219, Al-Ma'idah 90-9, An-Nisa' 43 and HR . Bukhari. The student's answer was incorrect because the surah and hadith only spoke of "khamr" in general, not specifically on alcohol.

In the Koran and hadith, there is no mention of alcohol. in general only mentions khamr and liquor which is generally through fermentation. The fermentation that occurs generally contains alcohol, which is a reference that alcohol is included in the argument for prohibition of khamr [37]. It is not correct to mention the proposition that alcohol is the same as alcohol. Alcohol is a substance that stands alone in contrast to khamr which consists of various types of compounds.

Trials of the experimental video were conducted on a small scale to 10 students in grade 8A and 10 students in grade 8B. The trial started from doing a pretest of 10 questions with the results summarized in table 6, then different treatments in classes 8A and 8B. 8A is the experimental class, while 8B is the control class. After the treatment was carried out, it was followed by a posttest of 10 questions which are summarized in table 7.

Table 6. Pretest

Experiment Class 8 A		Control Class 8 B	
Student	Amount	Student	Amount
1.	33	1.	38
2.	27	2.	35
3.	34	3.	40
4.	43	4.	39
5.	36	5.	35
6.	35	6.	35
7.	41	7.	36
8.	39	8.	34

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9.	30	9.	37
10.	32	10.	33
Total	350	Total	362
Average	2.56	Average	3.62
Percentage	70%	Percentage	72.4%

Table 7. Posttest

Experiment Class 8 A		Control Class 8 B	
Student	Amount	Student	Amount
1	45	1	40
2	43	2	35
3	42	3	43
4	43	4	39
5	46	5	36
6	42	6	37
7	47	7	36
8	46	8	34
9	42	9	37
10	40	10	38
Total	436	Total	375
Average	4.36	Average	3.75
Percent	87.4 %	Percent	75 %

Based on the calculations summarized in Table 6 and Table 7, it shows that the difference in knowledge between students in the experimental class and the control class is not too far away. The control class scored 12 points superior at the time of the pretest than the experimental class. But the posttest results shown in table 7 show a significant increase in the experimental class after being treated using science experiment videos compared to the control class which shows that the improvement is not much different from the pretest results with learning using traditional methods.

The results of this study are in line with previous research conducted at PGRI 6 Denpasar in the 2019/2020 school year which showed an increase in experimental class students using alcohol and alcohol science experiments in laboratories and different material tools [38]. Science experiment videos have also proven to be a solution to the difficulties of teachers affected by COVID-19, and the application is quite effective in accordance with research conducted by Abdulhadi Shoufan regarding the effectiveness of learning with videos in 2019[39].

4 Conclusion

The results of the analysis of the validation of experimentalists or education regarding scientific experiments that have been developed get good scores. Based on the results of the expert's analysis, it developed with field trials of students at PGRI 6 Denpasar Junior High School who were affected by COVID-19. Tests that were carried out increased significantly different results based on the pretest and posttests conducted by the control class students and the experimental class students. Initially students in the experimental class had lower scores at the pretest than the control class, but the posttest results showed a significant increase in scores between the pretest and posttest results in the experimental class. The developed online science experiment video can improve students' understanding of alcohol and khamr which is better than learning with traditional methods. The results of the research are in line with research conducted by Abdi in 2014 regarding science experiments on learning and by Martin Merk in 2011 and Christian Stöhr in 2018 regarding the use of video media as supporting learning[40], [41]. The conclusion from the use of video media of science experiments in the experimental class has a deeper understanding of the difference between alcohol and khamr from both the perspective of fiqh and the description of science.

The development of science experiments on fiqh learning with other materials would be good to do to see the extent of the effectiveness of science experiments on fiqh as a medium that facilitates students' understanding of the subject matter.

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