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## The Pattern of Hybrid Learning to Maintain Learning Effectiveness at the Higher Education Level Post-COVID-19 Pandemic

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**Abstract:** Online learning during the Coronavirus disease (COVID-19) pandemic has awakened and affirmed the necessity of learning based on digital technology. The article was aimed to analyze the effectiveness of online learning at bachelor's, master's, and doctoral degrees of Islamic Religious Education as a reference to develop a learning pattern post-COVID-19 pandemic. The research employed a mixed-method design with a concurrent triangulation model. The samples were taken using stratified random and purposive sampling. Meanwhile, the data were collected through questionnaires, in-depth interviews, and forum group discussion. A descriptive analysis and one-way analysis of variance were used to analyze the quantitative data, while interpretative descriptive for the qualitative data. The research showed that online learning during the COVID-19 pandemic at the bachelor's, master's, and doctoral degrees of Islamic Religious Education have been effective. In detail, online learning at the doctoral degree was the most effective among all. On the other hand, face-to-face learning is still necessary. Therefore, the learning pattern developed post-COVID-19 pandemic combines face-to-face and online learning (hybrid learning). The formulation is adjusted to the characteristics, educational purpose and orientation, level of ability, readiness, and learning autonomy of the students at each educational level.

**Keywords:** COVID-19, higher education, hybrid learning, learning effectiveness.

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### Introduction

The Coronavirus disease (COVID-19) pandemic has forced educational institutions, including higher education institutions, to shift face-to-face learning to online (Bhamani et al., 2020; Dhawan, 2020). Until recently, learning activities at the campus or in the classroom was face-to-face, but it has changed into learning online from home using various platforms (Zaharah & Kirilova, 2020). The shift was unexpected. Many institutions, lecturers, staff, and students are not ready for the change (Hodges et al., 2020; Wang et al., 2020). In the implementation, online learning during an emergency imposes some obstacles. Among many are unsteady learning media, limited internet access, less motivation, and disorderliness during the learning process (Agarwal & Dewan, 2020).

The forced shift has encouraged relevant parties involving in organizing educational institutions, including lecturers and students. They are aware that there should be intensive utilization of technology in learning. Indeed, online learning has been more effective. Soffer and Nachmias (2018) found that online learning is equally effective or more effective than face-to-face learning in many aspects. According to Tartavulea et al. (2020), the shift to online learning during the pandemic resulted in a positive impact, potentially being applied in the future. Online learning is effective when challenges during the pandemic are appropriately explored and transformed into opportunities (Adedoyin & Soykan, 2020). Besides, online learning shows a number of excellences, such as access and flexibility in terms of time, place, speed, learning style, material, assessment, or learning path for students (Müller et al., 2018). Therefore, the changes can be a reference for developing a new learning pattern post-COVID-19 pandemic. Thus, it is necessary to conduct a comprehensive evaluation of the effectiveness of online learning during the COVID-19 pandemic.

Studies on the topic have been conducted. Some found that online learning during the pandemic was ineffective (Febrianto et al., 2020; Irawan et al., 2020) or less effective (Chang & Fang, 2020). Besides, online learning could not

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produce the expected learning outcome (Bestiantono et al., 2020), and face-to-face mode is more favorable than online (Deepika, 2020). Further, one study revealed that online learning could support the educational process, but it cannot replace the steady system (Kaur et al., 2020). Meanwhile, other studies found that online learning during the COVID-19 pandemic is equally effective as the one conducted offline (Jones et al., 2020). Furthermore, online learning is appropriate to implement during the COVID-19 pandemic (Allo, 2020; Kalman et al., 2020) and positively impacts during the COVID-19 pandemic (Hendryka et al., 2021). Learning online is easy, cheap, and can be implemented (Agarwal & Kaushik, 2020). Some other research mentioned that online learning effectively increases the students' knowledge, but it is less effective in improving students' social skills and competencies (Bączek et al., 2021).

The previous studies provide various findings. Some mentioned that online learning during the pandemic was ineffective, while others stated the opposite. However, those who found that online learning was ineffective mainly researched at the beginning of the pandemic. At that time, educational institutions were not completely ready for the sudden changes (Virtič et al., 2021). Some of the research was conducted at the bachelor's level, and some at the master's using qualitative or quantitative methods. Among them, none discussed the effectiveness of online learning in all three educational levels (bachelor's, master's, and doctoral) of the Islamic Religious Education department. Further, none of the research employed a mixed method. Therefore, the present study was aimed to fill in the gap. The research analyzed and compared the online learning effectiveness at three educational levels of Islamic Religious Education, Faculty of Tarbiyah and Teacher Training of Universitas Islam Negeri Sunan Kalijaga Yogyakarta employing a mixed-method as a reference to develop effective learning patterns post-COVID-19 pandemic. The underlying reason for conducting the research was a finding that educational level influences the readiness for implementing online learning and its success (Rasouli et al., 2016).

Based on the background of the study, the research questions can be formulated as follow. 1) how effective is the online learning during the COVID-19 pandemic at bachelor's, master's, and doctoral degree in Islamic Religious Education?; 2) what are the differences in online learning effectiveness at the bachelor's, master's, and doctoral degrees of Islamic Religious Education?; 3) what should learning pattern be developed for the bachelor's, master's, and doctoral degree of Islamic Religious Education post-COVID-19 pandemic?. The research results provided comprehensive and in-depth illustrations about online learning effectiveness during the COVID-19 pandemic. Hence, it can be a reference to develop a learning pattern for bachelor's, master's, and doctoral degrees of Islamic Religious Education post-COVID-19 pandemic following the demands of the digital technology era.

## Literature Review

### *Online Learning in Higher Education*

Online learning is a learning experience through synchronous or asynchronous settings using various internet access devices (e.g., mobile phone, laptop, and others) (Singh & Thurman, 2019). Learners can learn anywhere (autonomously) and interact with the teacher and other learners. In online learning, learners can interact with the materials they find in a number of formats, such as video, audio, document, and others (Huang et al., 2020). Online learning consists of varied programs utilizing the internet inside and outside the classroom setting. It can be used to provide access to the teaching material and facilitate interaction between teachers and students. Learning can be conducted entirely online or combined with face-to-face interaction (Yen et al., 2018).

Integrating technology in learning can strengthen the interactive and communicative learning environment (Eckhaus & Davidovitch, 2019), produce meaningful results, and improve student-centered learning (Castro, 2019). The learning process can be optimal if the components are interconnected. The components include the lecturer's competence, students' maturity in thinking, expected learning outcome, methods, and expected learning condition. Therefore, before integrating technology into learning, it is necessary to identify the students' needs and preferences. Besides, it is also essential to consider several factors, such as socio-economic background and information and technology mastery. This way, student-centered learning utilizing information, communication, and technology can facilitate effective learning (Bruggeman et al., 2021; Porter et al., 2014).

### *Effective Learning in Higher Education*

Defining effective learning is not an easy task because everyone holds different perceptions and interpretations based on his view and interest. Indeed, time and space add to vary the definition. Today's effective learning concept was different from the concept a century ago (Watkins et al., 2007). In general, effective learning can be defined as successful learning to achieve the learning objectives expected from the students and lecturers (Kyriacou, 2009). Coe et al. (2014) stated that effective learning is a process directed to high achievement by the students. In constructivism, learning is effective if it can facilitate students in constructing knowledge with other learners (Gray & Klapper, 2009). Further, an effective student understands the necessary process for individuals and society to learn how to learn. Learning is an activity of creative meaning construction of meaning not merely accepting. The social dimension is always present, and in the social context, collaboration can support learning. Students, not the lecturers, should

regulate effective learning. Effective students can monitor the strategies, objectives, results, effects, and context (Watkins et al., 2007).

The measurement of learning effectiveness in higher education can be observed in three aspects: learning preparation, implementation, and outcome. At the preparation stage, lecturers must master the materials (Rubio, 2009). They have to increase their digital technology competencies, design modern online learning with various innovations, and create interesting learning methods (Kaden, 2020). Lecturers need to design the activities and assessment (Coe et al., 2014), as well as preparing the variation of teaching material to promote effective learning (Sun & Chen, 2016).

At the implementation stage, lecturers need to create a quality learning environment. It includes building a learning culture, managing the class, managing the students' behavior, and organizing the classroom (Coe et al., 2014). Lecturers must communicate with the students appropriately, involve students to participate in the learning, and allow them to collaborate with their peers (Roy, 2016), and encourage student-centered learning (Cannon & Knapper, 2011). Besides, lecturers should employ effective learning strategies (Biwer et al., 2020) and assess the students thoroughly (Cannon & Knapper, 2011). From personal characteristics, lecturers should show sympathy to the challenges encountered by the students (Allan et al., 2009). Moreover, they should create a friendly atmosphere (Mupa & Chinooneka, 2015), be helpful for students, motivate them to learn (Bidabadi et al., 2016), and helps students to regulate their learning (Dunlosky et al., 2013). Rubio (2009) added that lecturers should create a warm environment to promote students' comfort. They have to be innovative and inspiring for the students, allowing them to achieve their full potential. According to Tootoonchi et al. (2002), from the students' perspective, the most positive influence is by providing tangible examples and encouraging the students to participate in a discussion based on the experience.

In terms of outcome, effective learning is the one that improves the students' learning outcome (Dunlosky et al., 2013; Sun & Chen, 2016). It is achieved when students gain a new understanding (Noesgaard & Ørngreen, 2015). Learning outcome provides a clear description of what to accomplish after following a particular program (Mahajan & Singh, 2017). The learning outcome is the expected results in knowledge, skills, and attitude after participating in the learning activities (Alfauzan & Tarchouna, 2017; Greenleaf, 2008). Besides, students need to achieve several expected learning outcomes fulfilling the 21st century demands. Among many are critical thinking, problem-solving skills, creativity, innovation, collaboration, teamwork and leadership, cross-cultural understanding, communication and media literacy, computation and ICT-literacy, career, learning autonomy, and skills referring to reading, writing, and calculation (Trilling & Fadel, 2009; Wilson et al., 2002). Some of the competencies mentioned are essential. Bialik et al. (2015) mentioned four primary competencies: creativity and innovation, critical thinking and problem-solving, communication, and collaboration. In addition, Chu et al. (2017) proposed that ability of a long-life learner is necessary to balance the technological evolution. Lile and Bran (2014) mentioned that the learning outcome expected from the students is information literacy competency. It is the ability to find, access, evaluate, and use information efficiently and ethically to support their learning success.

#### *Online Educational Level and Online Learning Success*

Educational level influences the readiness and success of online learning. Rasouli et al. (2016) reported that the higher the educational level, the more ready the students to participate in online learning. The student's readiness for the doctoral degree is better than the master's and bachelors. Besides, Sankar et al. (2020) revealed a significant difference in the e-learning quality of different educational levels. Undergraduate students, particularly those in the 3rd and 4th year, and master's students can learn in little interaction where the learning is more directed and autonomous. Meanwhile, undergraduate students in the 1st and 2nd year can be given more access or sessions in the classroom.

From the aspect of learning outcome, postgraduate students achieved higher scores at the end of the learning process (Torres et al., 2010). Yu (2021) found that educational level influences the outcome of online learning. In particular, master's students achieve higher than bachelor's students. Students of the bachelor's degree can use the internet, but it is for entertainment or interacts with their friends. On the other hand, master's students, with better self-regulation, were more resistant to external disturbance and can control their learning behavior. Therefore, they prefer online learning to the traditional method; thereby, their learning outcome is higher. Another point is that students under 20 years old can obtain information quickly using the internet, but they prefer face-to-face. Bachelor's students tend to be easily distracted during online learning and need extra assistance in using the technology during the learning process (Adams et al., 2021).

The online learning pattern at the doctoral degree provides opportunities for students to go beyond the cross-national border at the end of the study (Ames et al., 2018). Besides, online learning allows time flexibility, learning material accessibility, and student-centered learning (Woo et al., 2021). Finch and Jacobs (2012) added that online learning has decreased the time and cost of trips, increasing the opportunities to access and collaborate with experts or professionals globally. The pattern is suitable and beneficial for doctoral students, those with tons of tasks and family responsibilities (Bell & Federman, 2013). From the learning effectiveness, Ames et al. (2018) revealed that online learning is as effective as face-to-face learning. Therefore, nowadays trend of demand for online doctoral programs is increasing (Berry, 2017; Jiang et al., 2019).

## Methodology

### Research Objectives

The research aimed to analyze and compare the effectiveness of online learning at different educational levels (bachelor's, master's, and doctoral) of Islamic Religious Education, Faculty of Tarbiyah and Teacher Training, Universitas Islam Negeri Sunan Kalijaga, Yogyakarta and find hybrid learning patterns to maintain the effectiveness of learning at the higher education level post-COVID-19 pandemic.

### Research Subject

The research employed a concurrent triangulation model of a mixed method. Its combined quantitative and qualitative methods simultaneously (Johnson & Cristensen, 2014). The purpose was to gain an in-depth understanding of the research object. The mixed method offers several advantages. The data were complete, valid, reliable, and objective because they were gathered using triangulation. Besides, the data collecting process was more efficient in terms of time (Creswell, 2009).

The research subject for the quantitative data were the students of bachelor's, master's, and doctoral degrees of Islamic Religious Education of Universitas Islam Negeri Sunan Kalijaga Yogyakarta. The samples were selected using stratified random sampling (Lohr, 2010). The samples include 40 doctoral students, 60 master students, and 60 bachelor's students. The samples' profile was presented in Table 1.

Table 1. Quantitative Research Samples' Profile

No.	Level/Program	Age	Gender		Quantity
			Male	Female	
1	Bachelor's	19-22	27	33	60
2	Master's	24-28	36	24	60
3	Doctoral	27-58	30	10	40
	Total				160

The qualitative data were gathered from the research subjects, the students of the bachelor's, master's, and doctoral degrees of the Islamic Religious Education department. The samples were selected using a purposive technique (Palinkas et al., 2015). It is based on particular characteristics of the participants as required to answer the research question (Lohr, 2010). The samples were taken until the data were complete or saturated (there is a redundancy). It is when the number of informants cannot enrich the required information (Saunders et al., 2018; Tuckett, 2004).

### Data Collecting Technique and Instrument

The research data were collected using three techniques: questionnaire, interview, and forum group discussion (FGD). The questionnaire was to gather the data about the effectiveness of online learning at the bachelor's, master's, and doctoral degree of Islamic Religious Education. The research employed a close-ended questionnaire, which provided multiple-choice questions. This way, respondents only chose the answers provided for each question. The respondents filled in the questionnaire delivered online via Google Form. In addition, the data were gathered through in-depth interviews (Patton, 2002). Meanwhile, the FGD was conducted through a meeting using the Zoom application. Interview and FGD were used to collect the data about the students' perspective of the effectiveness of online learning and their view about developing a new learning pattern post-COVID-19 pandemic.

The quantitative data were collected using a questionnaire containing a Likert Scale with five choices: Strongly Agree, Agree, Neutral, Disagree, and Strongly Disagree (Chyung et al., 2017; Subedi, 2016). All items were made into positive questions with the following scoring guidelines: 5 for strongly agree, 4 agree, 3 neutral, 2 disagree, and 1 strongly disagree. The questionnaire was arranged following several steps. The first was analyzing the research variables, elaborating them into aspects, sub-aspects, and indicators. The conceptual framework was effective online learning in higher education. The next step was drafting the questionnaire outline, arranging the items, analyzing, and discussing the questionnaire with the research team members, trying the questionnaire to the students with bachelor's and master's students, and analyzing the questionnaire quality in terms of validity and reliability.

The questionnaire's validity was tested using the Pearson's Product Moment test. The instrument is valid if the r-index is higher than the r-table (Price, 2017). The r table score for 40 samples with 5% significance (confidence level of 95%) reached 0,312. Meanwhile, the questionnaire's reliability was analyzed using the *Alpha Cronbach* formula (Bandalos, 2018; Lester et al., 2014). The instrument is reliable if the index is above 0,70 (Garson, 2013). The questionnaire validity and reliability were calculated using IBM SPSS Statistics 25. The validity analysis result showed 36 valid items and 2 invalid items (numbers 27 and 33). The validity coefficient reached 0.370 for the lowest and 0.800 for the highest. Meanwhile, the reliability analysis reached a reliability coefficient of 0.953. It was categorized as excellent because it was higher than 0.90 (Fisher, 2007).

Qualitative data was collected by the researcher. In the process, a supplementary instrument was in the form of interview guidelines. During the interview, a recorder and book notes were used to document the information provided by the informants.

#### Analyzing the Data

The research data were analyzed quantitatively and qualitatively. The quantitative analysis employed descriptive and inferential statistics. The former includes Mean score and standard deviation to describe the online learning effectiveness in each educational level. The descriptive analysis used criteria and categorization as presented in Table 2.

Table 2. Categorization of Online Learning Effectiveness

No.	Score Interval	Category
1	>4.24-5.00	Highly Effective
2	>3.43-4.24	Effective
3	>2.62-3.43	Quite Effective
4	>1.80-2.62	Less Effective
5	1.00-1.80	Not Effective

Inferential statistics were used to analyze the comparison of the online learning effectiveness at bachelor's, master's, and doctoral degrees of Islamic Religious Education using one-way analysis of variance (ANOVA) (Watkins, 2017). The data were calculated using IBM SPSS Statistics (version 25.0). A prerequisite test was carried out before the ANOVA test was conducted using the Shapiro-Wilk normality test, while the homogeneity test was carried out using Levene's statistical test through SPSS (Verma, 2013). The normality test was to ensure that the data were normally distributed, of which the results were presented in Table 3.

Table 3. Results of Data Normality Test

	Level	Shapiro-Wilk		
		Statistic	Df	Sig.
Online Learning Effectiveness	Bachelor's	.971	60	.162
	Master's	.976	60	.299
	Doctorate	.951	40	.080

Based on the table, it is known that the data were normally distributed because the significance score for all levels was higher than 0.05. The homogeneity test was aimed to know the similarity and differences of the data variance. The results were presented in Table 4.

Table 4. Results of Variance Homogeneity Test

		Levene's Statistic	df1	df2	Sig.
Online Learning	Based on Mean	.783	2	157	.459
Effectiveness	Based on Median	.658	2	157	.519

Table 4 showed that the three educational levels have a homogenous variance because the mean score was 0.459, above 0.05. Hence, the online learning effectiveness data at the three educational levels have fulfilled the requirements to be tested using ANOVA.

Meanwhile, the qualitative data were analyzed interpretative-descriptively. The steps adopted the ones proposed by Miles et al. (2014). Qualitative data analysis was conducted interactively and intensively in each research stage until data were saturated. The data analysis process included (1) data condensation, (2) data display, and (3) concluding/verification. The researchers selected, focused, simplified, abstracted, and transformed the data after collecting them from the field. They were notes and interview transcripts. Further, the researchers displayed the data in the form of a description, drawing preliminary conclusions and verifying the findings compared to other sources. Hence, the final conclusion was credible. The qualitative data validity test employed two criteria: credibility (validity) and dependability (reliability). The credibility was tested by cross-checking the data obtained from the respondents. Besides, the data were compared between that from the questionnaire and that of the interview results. Meanwhile, the reliability criteria were tested using an audit trail technique. The investigation was conducted by the researchers, a group of three members. The process followed the suggestions proposed by Schwandt (2007). Further, the researchers examined the process of data collection, transcript and recording analysis, data-coding, and categorization of research themes, data description, and conclusion.

### Findings

The data were presented based on the issues under study and the research method used. In the first stage, the quantitative data analysis result was presented. It was continued by qualitative data analysis related to the online learning effectiveness in three educational levels.

#### *Online Learning Effectiveness*

The measurement of online learning effectiveness in bachelor's, master's, and doctoral degrees of Islamic Religious Education of Universitas Islam Negeri Sunan Kalijaga Yogyakarta included 36 indicators categorized into three aspects. The first was planning (consisted of 9 indicators). The second was implementation (16 indicators). And the third was learning outcome achievement (11 indicators). The analysis results of online learning effectiveness in each educational level were presented in Table 5.

*Table 5. Online Learning Effectiveness at the Bachelor's, Master's, and Doctoral Degree of Islamic Religious Education*

Aspect	Bachelor's		Master's		Doctoral	
	Mean Score	Category	Mean Score	Category	Mean Score	Category
Lesson Planning	4.07	Effective	4.11	Effective	4.30	Highly Effective
Lesson Implementation	4.08	Effective	4.02	Effective	4.31	Highly Effective
Learning Outcome Achievement	3,53	Effective	3,51	Effective	3,98	Effective

Table 5 showed that the three aspects of online learning at bachelor's and master's degrees was effective. It is evident in the mean score of 3.99, following the criteria ( $>3.43 - 4.24$ ), or effective. The mean score for online learning effectiveness at the master's degree was 4.10, categorized as effective ( $>3.43 - 4.24$ ). Meanwhile, the planning and implementation were highly effective and effective for learning outcome achievement at the doctoral degree. Overall, the mean score for online learning effectiveness at the doctoral degree was 4.40, reaching the highly effective category ( $>4.24 - 5.00$ ). Therefore, it can be concluded that online learning in bachelor's and master's degrees of Islamic Religious Education was effective, while it is highly effective in the doctorate.

#### *Comparison of Online Learning Effectiveness in Bachelor's, Master's, and Doctoral Level*

This research is to compare the effectiveness of online learning at the bachelor's, master's, and doctoral degrees of the Islamic Religious Education Study Program. The effectiveness of online learning at these three degrees of education is based on the students' perceptions. The data were collected through a questionnaire and analyzed using one-way analysis of variance (ANOVA).

The hypothesis test in the research employed a significance level of 5% or 0.05. The criteria used were based on the comparison between values of  $F_{\text{observation}}$  ( $F_o$ ) and  $F_{\text{table}}$  ( $F_t$ ). If  $F_o > F_t$ , the  $H_o$  is rejected; and if  $F_o < F_t$ , the  $H_o$  is accepted. Besides, the hypothesis test in the research was also based on the significance level of probability. If the significance or probability is above 0.05,  $H_o$  is accepted, and  $H_a$  is rejected. Conversely, if the significance or probability is below 0.05,  $H_o$  is rejected, and  $H_a$  is accepted (Verma, 2013). The ANOVA test results were presented in Table 6.

*Table 6. ANOVA test results of Online Learning Effectiveness*

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4901.719	2	2450.859	5.517	.005
Within Groups	69746.775	157	444.247		
Total	74648.494	159			

Based on Table 6,  $H_o$  is rejected, and  $H_a$  is accepted because the  $F_o$  has a significance level of 5% was 5.517, higher than  $F_t$  (3.06). Besides, the significance level was 0.005, or below 0.05. It means that there is a difference between the mean score of online learning effectiveness at the bachelor's, master's, and doctoral degrees for Islamic Religious Education of Universitas Islam Negeri Sunan Kalijaga Yogyakarta, Indonesia. Further, to identify which differences between pairs are significant, the Post Hoc test was carried out. The results were presented in Table 7.

Table 7. Post Hoc Test Result of the Online Learning Effectiveness Average

Level (I)	Level (J)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Bachelor's	Master's	-2.000	3.848	.874	-11.51	7.51
	Doctorate	-13.625*	4.302	.008	-24.26	-2.99
Master's	Bachelor's	2.000	3.848	.874	-7.51	11.51
	Doctorate	-11.625*	4.302	.028	-22.26	-.99
Doctorate	Bachelor's	13.625*	4.302	.008	2.99	24.26
	Master's	11.625*	4.302	.028	.99	22.26

Table 7 showed that the mean score for online learning effectiveness at the bachelor's was like the master's degree. It was evident in the significance score for both groups, which was  $0.874 > 0.05$ . The mean score at the bachelor's was different from the doctorate, where the significance level was  $0.008 < 0.05$ . Similarly, the mean score for the master's was different from the doctorate, evident in the significance level of both groups ( $0.028 < 0.05$ ). Hence, it can be concluded that the online learning effectiveness of the bachelor's degree was like that of the master's one. The effectiveness of the bachelor's and master's degrees was different from the doctorate. Online learning at the doctoral level was the most effective.

#### *Online Learning Effectiveness and Development of Learning Mode*

The section consists of the elaboration of the qualitative analysis result as the triangulation of the quantitative analysis. It focuses on two issues. The first is the perception of the bachelor's, master's, and doctoral students of Islamic Religious Education; the second is the student's perspective of developing learning pattern post-COVID-19 pandemic. Bachelor's and master's students have similar appraisals about online learning effectiveness during the COVID-19 pandemic. Some of them think that it was effective, and some other stated that it was less effective. The former observed the learning from the process. In particular, they claimed that the lecturers had used appropriate strategies and platforms. Online learning, in their opinion, has created flexibility in learning for the students. Besides, it saves time, energy, and cost. The followings are the statement of the bachelor's students (BS) and master's students (MS).

BS1: *In my opinion, online learning is effective because it is conducted using good strategies, such as through zoom application and others. Sometimes, the learning is not effective because the lecturers only give continuous tasks in each meeting.*

BS2: *Online learning in Islamic Religious Education Study Program is quite effective and fun because the lecturers use various platforms. It encourages our creativity and innovation. However, the material will be easily understood if it is delivered in face-to-face method because there will be effective two-way communication.*

MS1: *To me, online learning is highly effective because I can be more focused and freer in terms of time and situation. Online learning is more flexible compared to the conventional method because we can do it anywhere. It saves energy and time. I don't have to go to campus, considering the distance from my home to the campus. Moreover, I often came late to class because of the traffic jam.*

MS2: *At the beginning, it was hard, and I found many problems. But I am getting used to online learning. We can explore the knowledge about technology that demands us to be more creative in using digital book services and looking for online references.*

Meanwhile, some students at the bachelor's and master's degrees saw online learning during the pandemic as less effective in learning outcome achievement. They think that it is not as effective as face-to-face learning. They experienced some obstacles that they cannot maximize their ability in developing their knowledge and understanding. In their experience, some of the lecturers were less active in guiding the learning activities. Besides, the internet access was limited; and the network was sometimes less stable.

BS3: *In my opinion, online learning during the pandemic is less effective in developing students' knowledge. Sometimes, lecturers were less active, so we find difficulties in understanding the learning material.*

BS4: *Online learning during a COVID-19 pandemic is good enough by maximizing the available platform. But it cannot be as effective as face-to-face learning.*

MS3: *Online learning is less effective because it is not supported with adequate network/internet quota.*

MS4: *Online learning effectiveness is less optimal because of many technical issues. Yet, it encourages innovation and new learning methods.*

Unlike the students of bachelor's and master's students, students of the doctoral degree of Islamic Religious Education (DS) stated that online learning during the pandemic is effective in terms of process and learning outcome. They added

that it is equally effective compared to face-to-face learning. Online learning has more advantages in terms of process, such as flexibility for the students and energy- and cost-saving.

DS1: *To me, online learning is more effective than face-to-face. Zoom meeting provides new atmosphere. Online learning is more comfortable; the students are more prepared. Through the zoom application, we can present more interesting videos. Indeed, our lecturer has ever invited a lecturer, an expert in curriculum development, from another university. We found a new learning atmosphere.*

DS2: *Online learning is more flexible because we can follow the process from anywhere. I live in a village, so I prefer this mode of learning. The disadvantage comes from the internet connection. I suggest the university implement an online method for the next semester. We can also meet the lecturer once in a while to build the chemistry. In terms of understanding, I think it is similar with face-to-face learning, but I am more comfortable with zoom media.*

In line with the students' opinion about online learning effectiveness during the COVID-19 pandemic, students at the bachelor's and master's students have a similar understanding. Most of them suggest the implementation of face-to-face learning after the pandemic is over. They prefer offline learning because it is more effective than online learning.

BS5: *It is better to have face-to-face learning. The lecturer's presence in the offline meeting helps to build the students' characters. Besides, students can ask questions directly, and lecturers can explain the material without causing any miscommunication. Another thing, there will be more chances to discuss because students can get new insight and gain critical thinking in solving a problem.*

BS6: *In my opinion, face-to-face learning helps students understand the material.*

MS5: *It is better to implement full face-to-face learning in the future because it is easier to understand the material. We can also share with other friends and can ask the lecturers directly if we don't understand certain materials.*

MS6: *Personally, I think if the pandemic is over, the learning should be conducted using the face-to-face method. Students will be better in following the learning process, and it also builds good relations with others.*

Some of the respondents with bachelor's and master's students suggested a combined mode of learning. They think online and offline learning has advantages and disadvantages. One mode can complete another.

BS7: *I think it should be conducted offline, but it can also be conducted online so that students can follow the technological advances related to the classes.*

MS7: *In my opinion, learning should be combined between online and offline. Online learning can be an alternative to build students' creativity and to remove the limitation of time and space. Meanwhile, offline learning is advantageous in terms of communication and socialization with peers. Besides, communication with lecturers and friends is much better when it is carried out directly.*

Doctoral students suggest online learning be continued after the pandemic is over. At least, it can be combined with face-to-face learning, but the bigger proportion is given to online mode. They think that appropriate planning and media are proven to be effective.

DS3: *Online learning during the pandemic has positive and negative sides. Even if the pandemic is over, I suggest we preserve the online learning model, although it won't be 100%. In the future, it is better to integrate online and face-to-face learning. Lecturers must design the lesson plan, such as the schedule of conducting online and offline sessions. This way, the design should be well planned.*

DS4: *Online learning is fine. It is comfortable to use the zoom platform. If it is possible, the learning process is conducted fully online using zoom. However, if it has to be offline, better having it at the beginning or the end of the semester.*

DS5: *Online learning in the first semester is satisfying. Later, when the pandemic is over, I hope we can still learn online because it is truly more effective.*

### Discussion

The research found that online learning for the bachelor's, master's, and doctoral degrees of Islamic Religious Education is effective from planning, implementation, and outcome achievement. The results were different from several studies conducted previously. Some of them revealed that online learning during the COVID-19 pandemic was ineffective (Febrianto et al., 2020; Irawan et al., 2020) or less effective (Chang & Fang, 2020). Besides, it cannot produce the expected results (Bestiantono et al., 2020). Less supportive components mainly caused the ineffectiveness of online learning during the pandemic. Based on the previous studies, online learning has several obstacles. Among them are limited internet access (Bestiantono et al., 2020; Muthuprasad et al., 2021), less optimal learning management system, limited learning resources, less optimal competencies of the educators (Sarwar et al., 2020), and students' lack of motivation (Agarwal & Dewan, 2020). Other obstacles include unprepared learning components (Coman et al., 2020). Hodges et al. (2020) stated that online learning during an emergency is a temporary shift from face-to-face learning to an alternative mode. During such conditions, learning becomes ineffective because it is without a designing process.



In other words, the ineffectiveness of online learning during the COVID-19 pandemic does not depend on the learning concept. Instead, it is caused by other factors, such as the unprepared and unplanned lesson. Previous studies found that online learning during the pandemic was less effective at the beginning. At that moment, educational institutions, lecturers, and students were not ready because of the sudden changes (Virtič et al., 2021). Another possible cause may be from the research location. Possibly, previous studies were conducted in an area or a country where the geographical, social-cultural, and economic aspects did not support online learning, as found by Bestiantono et al. (2020) and Febrianto et al. (2020). Meanwhile, the supporting components prepared and designed appropriately can result in effective learning. Research successfully provided evidence by McCutcheon et al. (2015) and Soffer and Nachmias (2018). They revealed that online learning is equally effective as face-to-face learning.

The present study found no significant difference in the effectiveness of online learning during the pandemic between bachelor's and master's degrees. Meanwhile, the effectiveness between bachelor's and doctorate and between master's and doctorate was different. The possible influencing factor was students' maturity and readiness. Students at the doctoral degree are generally more mature, ready, and autonomous than bachelor's and master's. The findings are in line with the results of the previous studies. Rasouli et al. (2016) and Rafique et al. (2021) found that the higher the educational level, the more ready they are to participate in online learning. The readiness of doctoral students (S3) was better than those of the master's (S2) and bachelor's (S1). Adams et al. (2018) also found that students above 30 years old were more autonomous than those below 29 years old. In terms of learning achievement, postgraduate students had higher scores at the end of study than undergraduates (Torres et al., 2010; Yu, 2021).

Another factor influencing online learning effectiveness in three educational levels was the utilization of learning media. Online learning in the doctoral degree of Islamic Religious Education used interactive video media, such as zoom meetings. It supported synchronous learning and virtual interaction between lecturers and students. Some classes used interactive video media at the bachelor's and master's degrees of Islamic Religious Education. Therefore, the interaction was relatively small. The finding supported the research conducted by Rosyid et al. (2020), stating that Zoom Cloud Meetings application is quite effective for online learning.

Khusniyah (2020) also claimed that use of Zoom meeting is effective. In addition, Handayani (2021) mentioned that a Zoom meeting is interactive and can replace a face-to-face meeting.

The qualitative results revealed that although online learning during the COVID-19 pandemic is effective for bachelor's and master's degrees, the students stated that the learning process after the pandemic should be offline. Some stated that the learning could be conducted using combined modes of learning. The students claimed that face-to-face learning is better for understanding the material, building communication, and collaborating with the lectures and peers. Meanwhile, most doctoral students viewed that online learning should be continued after the pandemic is over. They think that online learning during the pandemic has run well and offered many advantages. If there should be a face-to-face meeting, it should be for coordination only. Other learning activities can be conducted online. Referring to the finding, the development of a learning pattern for the bachelor's, master's, and doctoral degrees of Islamic Religious Education can be conducted by combining face-to-face and online settings. The model is known as blended learning or hybrid learning (Bowyer & Chambers, 2017; Yan Ju & Yan Mei, 2018). The development is in line with the results of previous studies. Kaden (2020) stated that the shift to online learning during the pandemic had become the catalysator to create a new learning model that is more effective in teaching the students in the future. Tartavulea et al. (2020) revealed that the shift has a positive impact and can be continued in the future. Besides, online learning can supplement offline learning (Amir et al., 2020). Hybrid learning can be successful if the challenges faced during the pandemic are explored and changed into an opportunity (Adedoyin & Soykan, 2020).

The development of hybrid learning can be adjusted to the direction and orientation of each educational level since each is different. The Bachelor Program of Islamic Religious Education is oriented to educate students into prospective educators/teachers of Islamic Religious Education in schools/madrasah (Suwadi, 2016). The Bachelor Program of Islamic Religious Education curriculum consists of 60% theoretical aspects and 40% skills. Meanwhile, the orientation of the Master Program of Islamic Religious Education is to educate students to have the skills, cognition, and managerial ability as an academic in the field of Islamic Religious Education (Salim et al., 2018). The curriculum of the master's program is dominated by theoretical aspects (80%), while the rest is skills in Islamic Religious Education. The orientation of the doctoral program of Islamic Religious Education is to educate the students to become an academic, researcher, and consultant who can develop, think philosophically, and find new theories in Islamic Religious Education (Salim et al., 2018). The curriculum at the doctoral degree is directed to develop theoretical aspects. In short, the development of hybrid learning should be in line with the proportional composition of each educational level.

### Conclusion

Online learning during the COVID-19 pandemic at the bachelor's, master's, and doctoral degrees of Islamic Religious Education is effective. There is no significant difference in the effectiveness of online learning at the bachelor's and master's degrees. Meanwhile, the effectiveness of online learning between the bachelor's and doctorate and between master's and doctorate is different. Online learning at the doctoral level was the most effective. Although the learning is

effective in the three levels, the students of the bachelor's and master's programs of Islamic Religious Education suggested having face-to-face learning while having online learning. They think that each mode can complement the other. Therefore, the hybrid learning model is the most appropriate for the students post-COVID-19 pandemic. Meanwhile, the proportion for each mode in the hybrid learning model should be adjusted to the characteristics, direction, educational orientation, ability, readiness, and autonomy of the students of each level.

### Recommendations

The researchers suggested hybrid learning for the learning process at the bachelor's, master's, and doctoral degree of Islamic Religious Education post-COVID-19 pandemic. The formulation for each level should be distinguished based on the characteristics, direction, educational orientation, ability, readiness, learning autonomy of the students. For the bachelor's, 60%-70% of the learning can be conducted offline, while the rest (30%-40%) online. The hybrid learning for a master's degrees can be 40%-50% offline and 50%-60% online. Meanwhile, for the doctorate, the proportion for offline learning should be decreased. It can be 20% offline, while the majority (80%) can be conducted online.

The researchers recommended several ideas for further research. The present study employed descriptive and comparative methods to observe the effectiveness of online learning at the bachelor's, master's, and doctoral degrees based on the students' perception. It is suggested that further research use an action research design or experimental to examine the impact of online learning on students' learning outcomes. Another recommendation is related to the Islamic Religion Education Study Program, which is included in the cluster of social and humanity fields. The learning process in the study program does not require a lot of practical activities in the laboratory. Therefore, further research needs to investigate the effectiveness of online learning conducted at the programs requiring many practices in laboratories, such as Chemistry Education, Biology Education, and Physics Education at the bachelor's, master's, and doctoral degrees.

### Limitations

The research was limited because online learning effectiveness, especially the aspect of learning outcome, only included the students' perception using a questionnaire. The instrument has disadvantages in that it cannot measure the validity of the learning outcome achieved by the students, either in the cognitive, skills, or attitude aspects. Therefore, it is suggested that further research measure the learning outcome effectiveness using a more appropriate instrument adjusted to the characteristics of the results.

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### Authorship Contribution Statement

Sukiman: Conceptualization, design, data analysis/interpretation, drafting. Haningsih: Data collection, editing, reviewing, supervising. Rohmi: Statistic analysis, editing, reviewing, technical support, administration.

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