

The Effectiveness of Portfolio-Based Learning on Student Achievement in Islamic Education Subject

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Abstract

Learning is where a transfer of knowledge takes place. In order that learning happens effectively and efficiently, an alternative so-called portfolio-based learning is often used today. This research aims to determine the effectiveness of portfolio-based learning on student achievement in Islamic Education lesson. The subjects are 10th Grade Science Students from SMAN 8 senior high school in Bekasi City Indonesia, academic year of 2018/2019. The method used was correlation test. Prerequisite tests for normality and variance homogeneity were conducted first and further tests using simple linear regression analysis were then carried out afterwards. The results show that the correlation test obtained a significant value of $0.009 \leq 0.05$, suggesting that there is a correlation, and a simple regression test obtained a $t_{count} \geq t_{table}$ $2.676 \geq 1.664$, suggesting influence between variables. Therefore, it can be concluded that learning must be comfortable, educative, varied, and challenging for students.

Keywords: Effectiveness, Portfolio, Student Achievement, Islamic Education subject.

1. Introduction:

The advancement in science tremendously affects the learning system used in order to help students understand and follow a learning process easily. Some indications can be seen from the progress of the western world, such as America and Europe, which consistently become a role model when it comes to finding solutions for problems in learning system. With the rapid growth in knowledge regarding human development and their learning processes, comes the opportunity to apply more effective educational practices (Hammond, Flook, Harvey, Barron and Osher, 2019). Achievement in the learning process starting from elementary to tertiary level needs to get better attention (Neat, 2016). The success in learning depends on several aspects. One of which is how a teacher manages to provide a learning process which is comfortable, educative, varied, and challenging for students.

The learning system in Indonesia still tends to be teacher-centered. Thus, students are less actively involved in the learning process, and consequently the level of student understanding of the learning materials remains low (Halimah, Nadjamuddin, and Harun, 2016). The limited use of instructional media also constrains the learning process so that learning becomes less meaningful. Moreover, the pattern of teaching and learning process which most teachers apply is one-sided in terms of communication. The teachers have more dominant roles than students so that class conditions do not facilitate communicative exchange (Stolle, Betty, and Marilyn, 2005). Such conditions require the development of learning models which accommodate differences in potential and at the same time provide the widest range of

opportunity to actively develop student creativity (Arifin, 2011). Current researchers have turned their attention to alternative types of learning to provide more valid and reliable information about student progress and achievement (Youde, 2020).

Over the last few decades, the shift from a teacher-centered approach to a student-centered one has been widely discussed and studied, which means that traditional teaching and learning methods have been considered ineffective and inefficient (Sliogeriene, 2012; Erdost, and Cinar, 2015). The learning process undertaken by the teacher greatly determines the success of students (Khodijah, 2013). In conventional teaching and learning method, teachers tend to use lecture and question and answer, so students seem to understand the learning materials at first glance. However, when being asked to explain what they have learned, no one has the courage to come forward. Furthermore, when being confirmed by the teacher if there is a question or anything which they do not understand, no student raises their hands either. Yet, the results at the end of the learning period indicate that there are still many students who fail to complete the assignments and many incorrect answers are found (Hasnawati, 2017).

Therefore, when being centered on the learning process, the main focus is on how teachers should teach and how students should learn. This determines the achievement of competence and recognizes the real performance of the students as well as the application of the knowledge which they have mastered (Hernandez et al., 2020). One piece of innovation which can be used by teachers in the learning process is a portfolio-based learning model (Juita, 2018; Hanifa, 2017; Priscah, Ronald, and Tecla, 2016). Portfolio-based learning can be used as a tool to compile student work, which shows sustainable efforts and continuous improvements throughout the learning process (Zarifsanaiey, Etemadi, and Rezaee, 2018). Portfolio-based method evaluates the actual conditions of learning and combines the benefits of learning in the classroom using electronic media due to its flexibility for teachers to integrate educational technology in teaching (Koraneekij and Khlaisang, 2015). In addition, it also helps clarify the scope and objectives of a program and appropriately document teacher's learning and their professional development (Aksit, 2016).

Portfolio-based learning must be viewed as a continuous process. Three learning phases, as shown in Figure 1, are carried out to illustrate some specific learning activities which may occur in each learning process (Dysthe, 2002). Portfolio-based learning highlights the importance of providing evidence in achieving all learning outcomes, both in terms of theoretical knowledge and applicable skills. As a result, it can encourage students to be more concerned about their own achievement and prepare them for lifelong learning (Davis, Gominda& Ker, 2009).

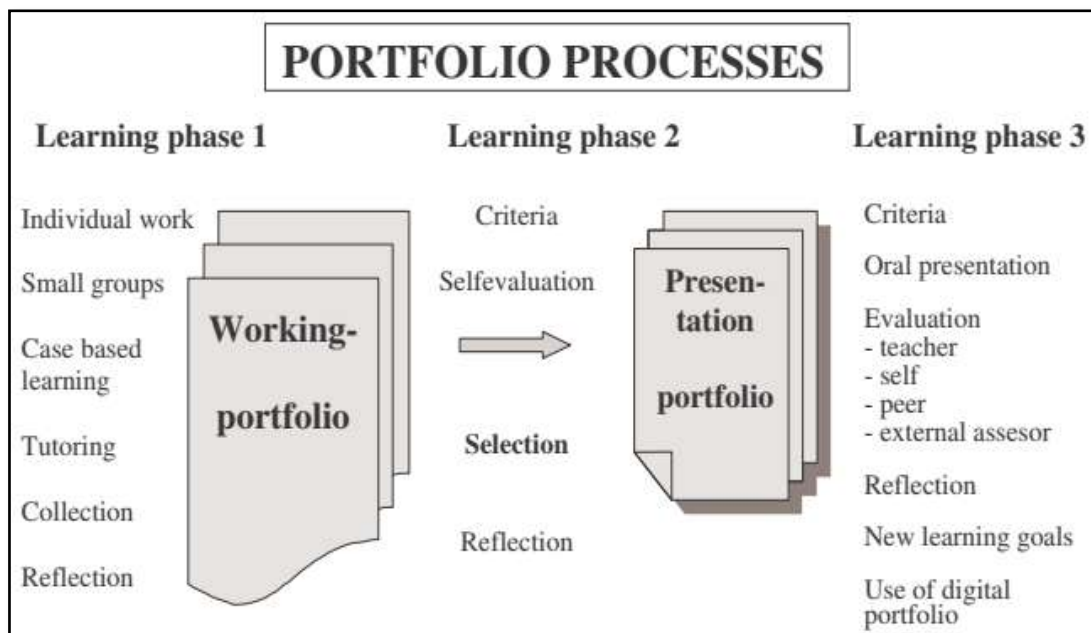


Fig. 1: Portfolio-Based Learning Process According to Dysthe, 2002

Learning Phase 1 is the period when students work individually and collaboratively with given learning tasks. Learning Phase 2 is the process of absorbing learning materials in working on the learning task so that it can be presented. Learning Phase 3 is the final evaluation and assessment of learning in the form of written examinations and dialogues. The portfolio method is effective in promoting learning independence and improving student learning outcomes (Lubis, Hasruddin, and Mahmud, 2016). Portfolios broadly replace notebooks in medical school—in the form of simple collections of tasks performed but not including critical reflection, and the recording of activities in notebooks can be seen as tasks to stimulate learning (Gomez, Ostos, and Solano, 2013). Further studies show that portfolio-based managed to improve student learning outcomes from Integral Calculus (Mahayukti, Dantes, Candiasa, and Marhaeni, 2018). Asrul et al. (2015) suggested that portfolio learning would be more appropriate when being used on subjects which require numerous assignments and demand independence in learning. Every application of the basic learning model has a goal of being able to create an effective learning environment (Rohmawati, 2015). Referring to McCormick (1981) success to state clear goals can be measured by effectiveness. Effectiveness provide the critical link between strategy and execution, essentially translating strategy into reality (Melnik, Douglas, and Morgan, 2004). In addition, effectiveness provides feedback to decision makers about the impact of deliberate actions and whether to maintain or change existing strategies (Bullock, 2006).

Therefore, portfolio-based learning is applicable and relevant to be used in Islamic Education. Islamic Education aims to ensure that students constantly know, understand, believe, and practice the teachings of the Islamic religion. In order to achieve those goals, regarding Islamic Education and the goals of education in general, the students are expected to gain insightful knowledge and to be able to apply it in real life contexts. The problem which arises in this regard is how portfolio can be used to evaluate Islamic Education lesson. Then, the successful implementation of the learning model can be seen from the achievements of students in the form of written test and dialogue assessment on student report cards. Referring to the above statement, this study aims to determine the effectiveness of portfolio-based learning on student achievement in Islamic Education lesson at SMAN 8 senior high school in Bekasi City.

2. Materials and Methods:

Research Design and Participantss

This research used a quantitative exploratory empirical approach with a survey method and sought to describe the correlations and influences between variables (Manasia, Ianos, and Chicioeanu, 2019). The survey model was used on account of the following considerations: (a) high representation; (b) low cost; (c) easy data collection; (d) good statistical significance; and (e) small degree of subjectivity (Utomo, Suminar, and Hamidah, 2019). In developing aspects of education identifying learning environments, learning designs, and performance criteria becomes the main focus of each study (Kummel, Moskaliuk, Cress, and Kimmerle, 2020). The target population used was 10th grade students of SMAN 8 senior high school in Bekasi City from 2018/2019 academic year, as many as 403 students. To simplify data retrieval from the population, sampling was determined by simple random sampling and the sample size used Solvin formula with an assumption of a error rate of 10% (Prasetyono et al., 2018). As a result, the number of samples was rounded to 80 students.

Instruments

The instruments used in the data collection techniques included questionnaires and documentation studies. The questionnaire is in the form of four-point Likert scale (From 4 = Very Frequently to 1 = Very Rarely) and its validity and reliability have been tested (Werang, 2018; Nurwati, 2009). The questionnaires were used to explore data on the effectiveness of portfolio-based learning and distributed to the afore-mentioned 80 students. Therefore, portfolio-based learning asks participants to produce a number of things that should be done by the teacher and students; things teachers should do for students; things that students should do for the teacher; the responsibilities that teachers and students should have for each other; and rules that teachers and students must have about how they act or behave during the learning process. The scale is designed to include learning portfolio-based learning effectiveness components and learning achievements include affective, cognitive, and psychomotor assessment. These questions

also distinguish between the teacher as a general social role and the teacher as a role in certain parent-child relationships.

As for the documentation studies, the study of textbooks, journals, curriculum documents, newspapers, and other types of document such as report cards was carried out (Dharma and Aristo, 2013). The documentation study based on the grades on report cards aimed to look into the student achievement in Islamic Education subject. Specifically, the instruments used in the study are divided into two variables, the effectiveness of portfolio-based learning as an independent variable (X) and the student achievement in Islamic Education subject according to their report cards as the dependent variable (Y). All questions raised about the effectiveness of portfolio-based learning and learning achievement have a relationship between grur relations and students. Thus, the idea that teachers apply portfolio-based "effectiveness" learning throughout the learning process, even though more active role schemes are carried out by students.

Data Analysis

Before the data were analyzed, a test was administered in order to attain validity and reliability. Validity test concerning the statement in the questionnaires used Product Moment Correlation (Pearson). As for the reliability test, Cronbach's Alpha was applied. The test was carried out on 80 respondents. Therefore, $n = 80$, $\alpha = 0.05$, and $r_{table} = 0.220$ with a criterion: if $r_{count} > r_{table}$, the instruments are said to be valid and reliable, and vice versa. The questionnaires were declared valid on the basis of the following result: $r_{count} > 0.220$ and $sig < 0.05$. As for reliability test with Cronbach's Alpha, the measurement was based on Alpha 0 to 1, suggesting that the test is declared reliable if the Cronbach's Alpha value was > 0.60 . Since the Cronbach's Alpha value was greater ($0.779 > 0.60$), it was declared reliable.

The data were analyzed using statistical analysis. First of all, prerequisites tests, which include normality and homogeneity tests, were conducted. Normality test was done using Kolmogorov-Smirnov's One Sample test. Homogeneity test was done by means of employing Levene's statistics. (Buchory, Rahmawati, and Wardani, 2017; Situmorang, 2014). After the prerequisite tests were completed, the next step was to execute correlation test to determine the direct and indirect correlation of the independent variable to the dependent one (Suciati, 2017). The next calculation, follow-up analysis was undertaken by means of simple linear regression to find out the influence of variables, and computer-based data management program of SPSS for Windows Version 25.00 was utilized.

3. Result and Discussion:

Result

Description of the Effectiveness of Portfolio-Based Learning and Student Achievement

The implementation of portfolio-based learning in Islamic Education lesson conducted at SMAN 8 senior high school in Bekasi City began in the 2018-2019 academic year. In portfolio-based learning, there are three aspects developed by teachers in Islamic Education lesson, namely 1) cognitive aspects (knowledge); the intake of knowledge during face-to-face meetings and through assignments given to students in order to be able to comprehend and explain the sources being studied. 2) affective aspects (ability); the development of potential by assigning students to perform various daily prayers, so that they can implement the types of sources being studied. 3) psychomotor aspects (skills); the development of social and religious capacity that encourages students to do group work activities, the result of which students are able to describe the benefits of the sources being studied. Based on the learning process described above, the data indicating learning effectiveness were obtained from the results of a set of questionnaires given to 80 respondents, 10th grade science students of SMAN 8 senior high school in Bekasi City. A summary of the frequency of effectiveness of portfolio-based learning can be seen in Figure 2.

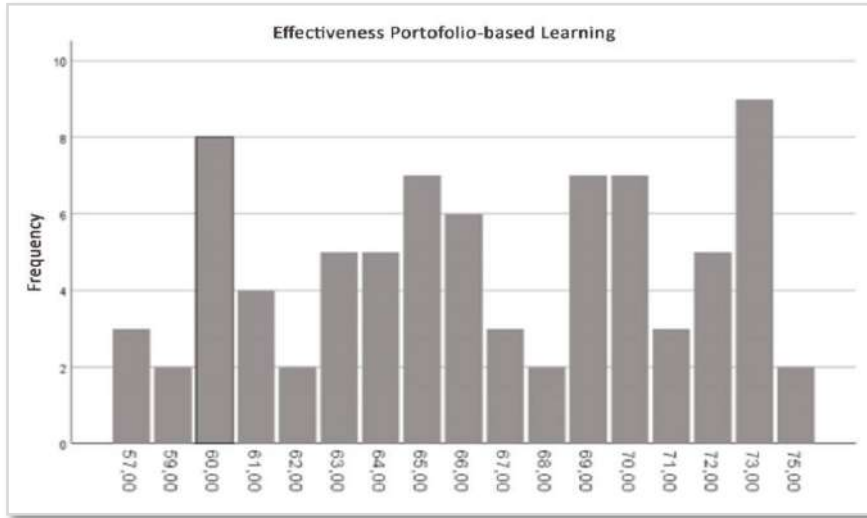


Fig.2: Effectiveness Frequency Score of Portofolio-based Learning

Figure 2 displays the results of the analysis with the help of SPSS Version 25.00 application program, which produces the lowest score of 57 and the highest score of 75. Identify that the success of the portfolio learning method in Islamic religious education is very effectively applied in SMAN 8 senior high school Bekasi City, Indonesia. For the highest score in terms of frequency is 73, followed with a score of 60. Overall, with reference to the average value regarding the effectiveness of portfolio-based learning in the 10th grade science students of SMAN 8 senior high school Bekasi City, the implementation falls on the category of very good. Whereas for student achievement, the data taken is based on student learning outcomes in Islamic Education subject listed on the report cards of 80 respondents. Both the lowest and highest scores can be seen in Figure 3.

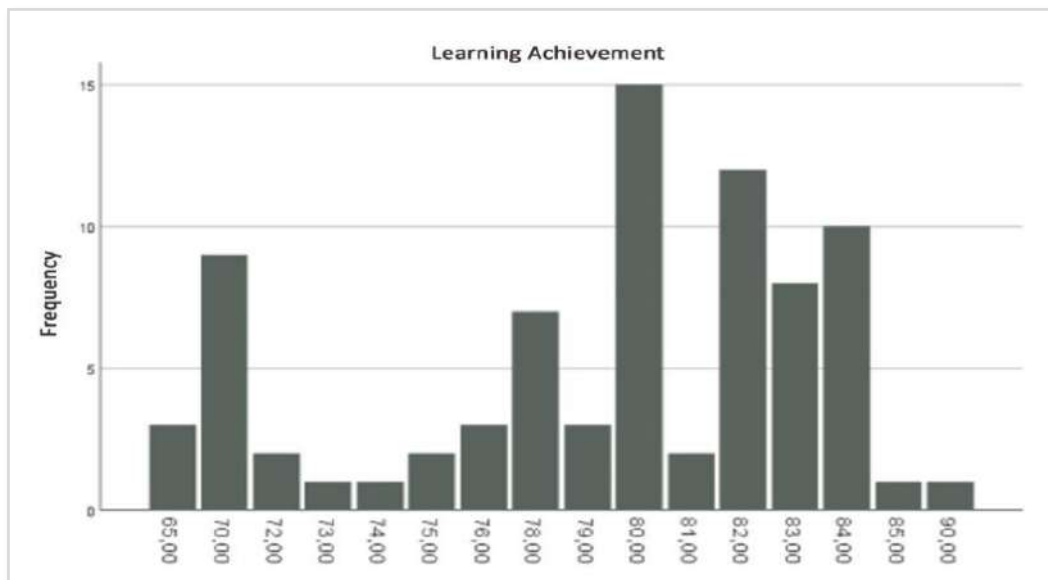


Fig. 3: Student Achievement Frequency Scores

Student achievement data were analyzed with the help of the SPSS Version 25.00 application, resulting in the lowest score of 65 and the highest score of 90. The highest frequency is at a score of 80. This indicates that student achievement in learning is good and suggests future potential to improve student abilities in Islamic Education subject.

Requirement Test for Analysis

The prerequisite tests for analysis in this research include: (1) normality test of normally-distributed data; (2) data homogeneity test, whether the two variables are homogeneous. The normality test used SPSS Version 25.00 program with Kolmogorov-Smirnov's test at a significance level $\alpha = 0.05$, with significance value of Asym.Sig. (2-tailed) $0.200 \geq 0.05$. Thus, it can be said that the data have normal distribution. For homogeneity test regarding whether the two variants are equal, the value of Sig. $0.574 \geq 0.05$ is obtained. Therefore, it can be concluded that the data are homogeneous or of the same variant.

Correlation Test and Simple Regression Test

After the data passed the prerequisite tests, Product Moment Correlation test was executed using SPSS Version 25.00 program to measure the strength and type of the correlation regarding the variable of effectiveness of portfolio-based learning (X) on student achievement (Y) in Islamic Education subject in the form of quantitative results. The strength of the correlation between the two variables referred to here is whether the correlation is strong, weak, or not very strong, while the type of the correlation is whether the correlation is linearly positive or linearly negative. The results can be seen in Table 1 below.

Table 1: Correlation Test Results

Variable	Pearson Correlation	Sig.(2-tailed)	Conclusion
(X) to (Y)	0,290**	0,009	Weak Correlation

** . Correlation is significant at the 0,05 level (2-tailed)

Referring to the Correlation Test Results in the table above, it can be explained that the significance value (2-tailed) is obtained at $0.009 \geq 0.005$, which suggests that there is a correlation between the independent variable and the dependent variable. In other words, it can be said that variable (X), the effectiveness of portfolio-based learning, correlated with variable (Y), student achievement. The strength of the correlation of these two variables is weak correlation, with Pearson Correlation value of 0.290, but the type of the correlation is linearly positive.

Furthermore, advanced hypothetical test with simple linear regression test was performed to determine the effect of the effectiveness of portfolio-based learning (X) on student achievement (Y) on Islamic Education subject. The hypothesis in this research is $h_0 =$ there is no influence between variables, $h_1 =$ there is influence between variables. For the simple linear regression test, the detailed results are in Table 2 below.

Table 2: Regression Test Results

Analysis	Model						Sig.
	Summary		Anova		Coefficients		
	R	R Square	df	F	Constant	B	
Regression	0,290	0,084	1	7,156	99,72	0,315	0,009

Predictors: (Constant), The Effectiveness of Portofolio-based Learning Dependent Variable: Student Achievement

Based on the analysis summarized in Table 2, the Regression Test results can be explicated as follows. Model Summary shows the results of the coefficient score of determination used to show the proportion between variables. If

the coefficient score of determination (R Square) is closer to 1, it suggests a strong influence. The score in the column $R_{\text{square}} = 0.84$ or 8.4% variable (Y) is clarified by variable (X), meaning that the effectiveness of portfolio-based learning variables can affect student achievement variables in Islamic Education subject by 8.4% and 91.6% was influenced by other factors. Model Anova shows that the score of the test $F_{\text{count}} = 7.156$ for a significance level of 0.05. This means that H_0 is rejected and H_1 is accepted. So, it can be concluded that there is a significant influence between or, it indicates that there is no influence between (X) and (Y). In other words, a simple linear regression model is suitable for predicting dependent variables. The Model Coefficients part in the Table explains that the constant score (a) is 99.717, while the regression coefficient score (B) is 0.315. Thus, the regression equation can be written as $\hat{Y} = 99.717 + 0.315X$ constant for 99.717, meaning that the consistency score of variable Y is 99,717.

The simple regression coefficient (B) of 0.315 dictates that for each addition of 1% of the score in variable (X), the score in variable (Y) increases by 0.315. The regression coefficient is positive. Therefore, it can be said that the direction of the influence of variable (X) towards variable (Y) is positive. In relation to student achievement through observations and interviews with teachers about using portfolios as a learning tool, the main concern is to internalize the core features of portfolio-based teaching before they can use them as learning tools to measure student learning improvement in class.

Discussion

The development of learning over a few decades of educational research provides a framework for supporting children's basic knowledge in the various contexts which they experience. In a learning process, a transfer of knowledge, technological capabilities, culture, values, norms and different kinds of skills takes place. Therefore, learning must happen in a comfortable, educative, varied, and interesting way for students. The learning methods conventionally applied by subject teachers up to now usually takes forms of lecture series, question and answer sessions, as well as assignments. Unfortunately, the application of such methods does not seem to improve student abilities effectively and efficiently. According to Fahri (2011), the ineffectiveness of learning process may result in the emergence of student moral problems, such as student committing illegal acts, e.g. drinking alcohol, using drugs, doing rape, and many others) regardless the fact that educational institutions have provided religious education lessons in schools to give spiritual insights to students. So, it can be assumed that if religious education lessons are done well, student morality will be much better.

This study attempts to determine the effectiveness of portfolio-based learning on student achievement in Islamic Education subject at SMAN 8 senior high school in Bekasi City, academic year of 2018/2019. The effectiveness is measured based on the implementation of portfolio-based learning, and the student achievement is examined through teacher's assessment as shown on student report cards. Portfolio-based learning model encourages students to think in a smart, creative, participatory, prospective, and responsible way.

The Effectiveness of Portfolio-based Learning in Islamic Education Subject

The implementation of portfolio-based learning in Islamic Education subject at SMAN 8 senior high school in Bekasi City covers all the standards of national education (its content, processes, competencies, personnel, infrastructure and facilities, management, financing and assessment). The portfolio-based learning model implemented at SMAN 8 senior high school in Bekasi City carries out learning activities both inside and outside the classroom, by producing physical evidence in the form of notes and works. They include student taking notes or summarizing the materials discussed in the classroom, completing assignments in the form of student worksheet at home, collecting news or articles on religious matters and presenting them in front of the class, getting involved in religious activities such as attending religious studies, religious seminars, and excursions. The student participation in the activities was proven by a summary of classroom lectures, certificates, and documentation. Based on the calculations on the effectiveness of portfolio-based learning, it comes up with the following results: mean of 66.41; median of 66.00; and mode of 73.00. The mean of 66.41 is in the interval of 57-75 with 80 respondents. Through this learning process, the learning atmosphere has been very active. Referring to Juita's research (2018), portfolio-based learning model increases the mean of student grades to 80 from the previous grades of 64 before the application of portfolio-based model. It means

that there is an increase of 17.5% in learning indicated by student high enthusiasm, conducive learning conditions, and good classroom management by teachers.

Student Achievement in Islamic Education Subject

The learning process in schools needs to look at student achievement to measure the learning outcomes obtained by students in learning the lessons given by the teacher. Student achievement is basically the end result that is expected to be achieved after someone learns something (Yusuf & Nurlela, 2017). Student achievement is very important in education to measure the success of a teaching and learning process throughout a semester. The results of this study suggest that student achievement in Islamic Education subject at SMAN 8 senior high school in Bekasi City has received good attention from the teachers and beyond. The level of student achievement in Islamic Education subject at SMAN 8 senior high school in Bekasi City can be seen from the results of the 2018/2019 academic year report cards. The calculation regarding student achievement Islamic Education subject at SMAN 8 senior high school in Bekasi City shows a mean of 78.77; a median of 80.00; and a mode of 80.00. The mean of 78.77 is at intervals of 65-90. The report card scores are taken as a benchmark, indicating that the student achievement in Islamic Education subject is very good, the motivation to learn is high, and sympathy in each process of learning Islamic Education lessons arises. With the increase of student achievement, the students become more motivated. For example, they will read the Qur'an first before class starts. Adiputra & Mujiyati (2017) argue that student achievement forms the motive for the existence of needs and encouragement (motivation) that make students able to carry out learning activities well. Student achievement is also a very important indicator in the overall education process in general and teaching and learning process in particular, because it can show the quality of student learning in school (Suhendar, 2008).

The Effectiveness of Portfolio-Based Learning on Student Achievement

There is a correlation and influence between the effectiveness of portfolio-based learning and student achievement in Islamic Education subject at SMAN 8 senior high school in Bekasi City. The results suggest that the correlation is significant. The type of the correlation falls on the "Weak" category, with a frequency of 0.84%. Meanwhile, from the results of hypothesis testing using simple linear regression analysis, it can be identified that the regression equation $\hat{Y} = 99.717 + 0.315X$. Meanwhile, in order to test the significance of the equation, the decision rule used is as follows: when $\text{Sig.} \leq 0.05$ (significant level score), then the distribution is linearly patterned. The results of linearity test with a significant level score $\alpha = 0.05$, Sig. 0.009 is obtained, indicating linearly patterned data. There is a significant influence concerning the effectiveness of portfolio-based learning on student achievement in Islamic Education subject at SMAN 8 senior high school in Bekasi City. In line with Erdos & Cinar (2015), portfolio-based learning can develop student's independent learning, which means that there will be an increase in student achievement.

In addition, Cimer (2011) argues that portfolio-based learning encourages students to learn regularly, increases retention and makes learning more enjoyable. Successful implementation of portfolio-based learning guides students in improving their achievement. Cakan et al (2010) examined whether portfolio-based learning would improve the learning in 6th graders in science lessons and whether it would influence student attitudes toward science subjects. The results reveal that portfolio-based learning make learning more meaningful and help the students learn better. In other words, there is an increase in student achievement. Chrysa & Ifigenia (2016) investigated the implementation of portfolio-based learning, as a teaching, learning, and assessment tool, in a group of 25 students (considered an experimental group) attending the first year of senior high school in Plati. The research findings show that portfolio-based learning offer sustainable opportunities and can be integrated with instruction. Students are urged to plan, organize, and evaluate their assignments. The development of student achievement lies on their self-reflective skills and self-evaluation. Whereas for pharmacy students, portfolio-based learning increased their appreciation in learning as they progressed to their final year. These findings support the use of portfolio-based learning as a tool for the personal and professional development of pharmacy undergraduate students (Meng, et al., 2019).

Komarudin (2017) suggests that portfolio-based learning improves student achievement in physical education subject, particularly in the psychomotor domain. Moreover, portfolio-based learning must be used in the teaching and learning of physical education because this type of assessment describes the learning process of students comprehensively. Suwaed (2018) shows that participants generally prefer to be evaluated based on their portfolios.

Most of them believe that portfolio-based learning enhances their ability and increases their motivation. Temuan kualitatif berkontribusi pada pemahaman yang lebih baik tentang penggunaan portofolio juga sebagai alat penilaian dan memiliki beberapa implikasi untuk pengajaran dan penilaian. Kaur & Samad (2012) reports teachers' comment on the core features of portfolio-based learning, which include the objectives, content, and structure, that they are considered important to facilitate effective learning for students. Qualitative findings contribute to a better understanding of the use of portfolio-based learning as an assessment tool and provide some implications for teaching and assessment.

4. Conclusions:

This study provides the testing results and discussion on portfolio-based learning implemented in Islamic Education subject at SMAN 8 senior high school in Bekasi City, which has been carried out effectively, this means that findings related to the effectiveness of portfolio-based learning applied to Islamic religious subjects produce active student performance in following the learning process and made it easier for teachers to assess student learning outcomes. This learning process makes students participate more actively. As for the hypothesis test, the results reveal that there is a positive correlation and influence between the effectiveness of portfolio-based learning and student achievement in Islamic Education subject. It means that if the implementation of portfolio-based learning is good, there will be an increase in student achievement.

Author Contributions

For research articles with several authors, a short paragraph specifying their individual contributions must be provided. The following statements should be used "Conceptualization, YS and S; methodology, Y.S.; software, MY validation, YS., S., UM, AN; and M.Y. formal analysis, Y.S; investigation, A.N.; resources, M.Y; data curation, Y,S.; writing—original draft preparation, Y.S; writing—review and editing, U.M; visualization, S; supervision, M.Y.; project administration, A.N; funding acquisition, M.Y.; All authors have read and agreed to the published version of the manuscript."

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