

How Much is Character Education Correlated with Learning Outcomes of Islamic Religious Education Students in Indonesia: Meta-Analysis Study

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Abstract. This study aims to conduct a statistical evaluation of the correlation between character education and Islamic Religious Education (PAI) learning outcomes among students in Indonesia, addressing the variations in findings from previous research. A meta-correlation analysis was employed, analyzing data from 36 independent studies derived from 24 primary sources published between 2019 and 2023. The data was processed using JASP software (version 0.16.4). The analysis yielded a combined effect size of 0.30 ($p < 0.001$) based on a random effects model, indicating a small but statistically significant effect. These results suggest that improvements in character education are positively associated with academic achievement in Islamic Religious Education. The findings underscore the importance of integrating character education into the curriculum to enhance students' learning outcomes in PAI.

1 Introduction

Character education is an important thing that is indispensable in all aspects of life. Today the world is interconnected and there are no more barriers so it seems to contrast with the previous century. Character quality is one of the three skills needed in facing the challenges of the 21st century (World Economic Forum, 2015). Would be good morale anyway. According to Berkowitz (2019), the character is a combination of characteristics that directly motivate and can act as moral ambassadors. Morals become a determining indicator of the quality of a person's character, where morals will reflect a person's behavior. A person is considered successful when what he does gives meaning and moral values (Fleeson et al., 2014). This is supported by Jia & Krettenauer (2017) that a person's moral identity will affect his moral actions. This explanation shows that moral identity is very important for everyone when interacting with others in the environment because a good moral identity will reflect good moral actions as well.

Meanwhile, the term character by Khoury (2017) is associated with positive behavior. Meanwhile, Diggs & Akos, (2016) explained about character traits, namely behavior patterns that are seen continuously or long-lasting can be inferred to be character traits. The character of each person involves the achievement of feelings, thoughts, and skills. These are important qualities that must be possessed by each individual to create a positive environment in every stage of life both in general and personally.

In this regard, to realize the mandate of Pancasila and the preamble of the 1945 Constitution, the quality of the nation's character is currently being pursued. To this day character education still plays a very important role in the educational curriculum in schools (Kristjansson, 2015; Ryan & Bohlin, 1999). Lickona (1992) says that as old as education itself is character education. Currently in Indonesia, character education has even become a national movement that is expected to create schools that grow a young generation of ethics, responsibility, and care (Pala, 2011).

The importance of character education can be seen through student learning outcomes, one of which is by looking at its effect on student learning outcomes. The development of all educational programs has as its primary objective the academic success of pupils in educational facilities (Gore et al., 2021). The most crucial components to evaluate are abilities, declarative and procedural knowledge, and continual examinations or evaluations are frequently used to gauge academic success (Ward et al., 1996). The achievement of the learning that has been carried out is the final result of learning efforts and shows the ability of students in learning (Slattery et al., 2021). Several studies have stated that students who are always optimistic in the academic field have an effect on their learning achievement. (Arthur, 2011; Bevel & Mitchell, 2012; Chang, 2011; Diggs, 2016, Park & Peterson, 2006, Tucker et al., 2016). Meanwhile, in Indonesia, some of the research results obtained state that significantly character education is positively correlated with student PAI learning outcomes (Kurnia et al., 2019; Khoiruddin

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et al., 2022; Sari, 2020; Ichsanto & Wahyuningsih, 2021; Arifin et al., 2022.

Based on the description, we know that character education is very important. To be able to provide a bigger picture of the relationship between character education and student PAI learning achievement in Indonesia, Conducting a meta-analysis study is required. However, until now there has been no research that directly assesses the relationship between the two, so the purpose of this study is to prove and find out the magnitude of the influence of the relationship between character education and student learning outcomes in PAI subjects in Indonesia through a quantitative meta-analysis approach.

2 Research methods

2.1 Research design

This research uses the meta-analysis method, which is a systematic review conducted on several articles in journals, both nationally and internationally. This study aims to statistically evaluate the findings of primary studies that examine the relationship between character education and the learning outcomes of Islamic religious education (PAI) students in Indonesia from 2019 to 2023. Using quantitative statistical analysis from separate studies, meta-analysis provides an overall assessment of this issue. A meta-analysis by selecting a randomized effect model was used to conduct this study (Borenstein et al., 2009; Cleophas & Zwinderman, 2017; Cumming, 2012; Mike & Cheung, 2015). Some literature mentions that there are seven stages to which a meta-analysis study must be carried out (Cooper et al., 2013; Hunter & Schmidt, 2004). The steps are: 1) Problem Formulation; 2) Inclusion Criteria; 3) Literature Search; 4) Literature Selection; 5) Coding; 6) Data Analysis; 7) Interpretation and Reporting.

2.2 Inclusion requirements

We created a number of inclusion criteria in order to restrict the problem of this meta-analysis investigation. The following requirements must be met in order for a study to be included: (1) it must be a proceedings article, journal article, or e-print published by Google Scholar; (2) it must have been published between 2019 and 2023; (3) it must use a correlational design; (4) it must involve students from Indonesia as participants; and (5) it must include complete statistics that allow for the calculation of measures of effects like sample size (N), Pearson correlation coefficient (r), or t value, or F value.

2.3 Search and selection of literature

To find some material, the search was carried out utilizing an electronic search tool. Several keyword combinations, such "Character education and learning outcomes of Islamic religious education students" or "Character education and learning successes of Islamic religious education students," were used to search for literature in the Google Scholar database. These

keywords turned up 38,000 studies. The first studies discovered were then chosen based on inclusion criteria.

Based on the results of the selection of studies that fit the specified inclusion criteria, independent studies (k=36) were found from 24 main studies for further evaluation. The final collected data is then variable coding and data extraction in Microsoft Excel for further data analysis.

2.4 Coding

Transferring statistical information like the Pearson correlation coefficient, the number of samples, the Fisher z-score, and some details about the author, their educational background, and the type of publishing (See Table 1). Code sheets, which were created by the main author and contain information about the author, the year of study, the sample size (N), the correlation coefficient (r), the F value, the t value, the educational level, and the kind of publishing, are used to streamline the coding process.

2.5 Analyzing statistical data

Correlation meta-analysis is the kind of meta-analysis used in this study. JASP software version 0.16.4 is used to perform statistical data analysis on the data. The process of data analysis can be broken down into the following stages: Finding papers that are pertinent to the goal of the meta analysis is the first step in the research selection process. Second, change any remaining F or t values in the data to a r value. Third, perform heterogeneity testing to determine if the subsequent analysis will employ a fixed effect model or a random effect model. A random model of effects is used in the analysis if it is diverse. To make conclusions more clear, forest plot analysis is also done. Fourth, publish a piece.

Correlation coefficient, transformation of R to Z, heterogeneity test, summary calculation of the size effect, conversion of results into r, interpretation, and reporting are the phases of the correlation statistical meta-analysis employed in this work.

Use the Thalheimer and Cook scale to interpret the size effect (2002). The classification of effect sizes is as follows, depending on the scale: Effect sizes ranging from -0.15 to 0.15 (no effect), 0.15 and 0.40 (low effect), 0.40 and 0.75 (medium effect), 0.75 and 1.10 (strong effect), 1.10 and 1.45 (very high effect), and effect sizes of 1.45 or greater (excellent effect).

3 Result and discussion

3.1 Key study overview

After screening literature based on inclusion criteria set by researchers, 36 independent studies from 24 main studies were found. Hunter & Schmidt (2004) explains that the number of articles that meta analysis can do consists of at least ten main studies. The summary of the research included in the meta analysis in this study is presented in table 1 consisting of authors, year, sample size (N), effect size (r), education level and publication.

The correlation value of each study is in the range of values -0.016 to 0.886. There were six studies (n=6) in 2019, 18 studies (n=18) in 2020, eight studies (n=8) in 2021, and four studies (n=4) in 2022. Research from five articles (n = 5) at the elementary school level, 20 articles (n = 20) at the junior high school level, and 11

papers (n = 11) at the senior high school level all fulfill the criteria for inclusion in this study. In terms of publication, there were 23 studies (n=23) published as papers in journals and 13 studies (n=13) published through e-print.

Table 1. Characteristics of research samples that meet inclusion criteria.

Author	N	r	Educational Level	Publication Type
Laksono, TA, (2020)	49	0.003	Senior High School	e Prints
Ariadi, R., (2019) a	248	0.010	Elementary School	e Prints
Ariadi, R., (2019) b	248	0.002	Elementary School	e Prints
Fadilah, N., (2021)	40	0.001	Elementary School	e Prints
Grace, P., (2020)	60	0.35	Senior High School	Article
Kurnia, H., et al (2019)	40	0.608	Junior High School	Article
Khoirudin, AR, et al (2022)	25	0.521	Junior High School	Article
Amirudin, et al (2020)	30	0.033	Elementary School	Article
Mardiana, E., & Sholeh, M., (2020)	115	0.044	Junior High School	Article
Sari, GP, (2020)	52	0.482	Elementary School	Article
Laksono, TA, (2021)	49	0.000	Senior High School	Article
Masfufah (2021)	85	0.132	Junior High School	e Prints
Fatima, (2019)	68	0.71	Junior High School	e Prints
Hannan, ND, (2020)	30	0.531	Junior High School	e Prints
Shinta, LU, (2021)	85	0.839	Senior High School	e Prints
Arifin, M., et al (2022)	46	0.886	Junior High School	Article
Fitri, S. L (2021)	30	0.03	Senior High School	e Prints
Rahmadani, AD, (2022)	50	0.633	Junior High School	e Prints
Fithidayati, (2022)	176	0.012	Junior High School	Article
Rahmah, K., et al (2020) a	202	-0.016	Junior High School	Article
Rahmah, K., et al (2020) b	202	-0.015	Junior High School	Article
Rahmah, K., et al (2020) c	202	0.021	Junior High School	Article
Rahmah, K., et al (2020) d	202	0.019	Junior High School	Article
Rahmatiah, S. (2019) a	52	0.491	Junior High School	e Prints
Rahmatiah, S. (2019) b	53	0.412	Junior High School	e Prints
Rosmayati, S., et al (2020) a	80	0.344	Senior High School	Article
Rosmayati, S., et al (2020) b	80	0.251	Senior High School	Article
Rosmayati, S., et al (2020) c	80	0.184	Senior High School	Article
Al Fajri, FN, et al (2020)	88	0.297	Junior High School	Article
Ichsanto, W., & Wahyuningsih, R., (2021) a	92	0.385	Junior High School	Article
Ichsanto, W., & Wahyuningsih, R., (2021) b	93	0.634	Junior High School	Article
Ichsanto, W., & Wahyuningsih, R., (2021) c	94	0.44	Junior High School	Article
Sayekti, A., et al (2020) a	131	0.015	Senior High School	Article
Sayekti, A., et al (2020) b	131	0.021	Senior High School	Article
Sayekti, A., et al (2020) c	131	0.018	Senior High School	Article
Ma'ruf, A., (2020)	38	0.093	Junior High School	e Prints

The results of this study indicate a positive, albeit small, correlation between character education and Islamic Religious Education (PAI) learning outcomes. These findings carry significant implications for

educational practice in Indonesia. First, the integration of character education into PAI instruction should be a key focus for educators, as even a small but statistically significant effect demonstrates that enhancing students'

character development can contribute to better academic achievement. This suggests that a teaching approach that not only addresses cognitive aspects but also emphasizes affective and moral dimensions may improve students' comprehension in PAI subjects. The results open up opportunities for future studies to further explore how specific elements of character education—such as self-discipline, responsibility, or religious values—may exert a more substantial impact on students' academic performance. Additionally, further

research could examine potential moderating or mediating variables that may either strengthen or weaken this relationship, such as social environment, teaching methods, or parental involvement. Given that the effect size found in this study is small, future research should also consider strategies for enhancing the effectiveness of character education programs, including innovations in curriculum design and more interactive, contextualized teaching methods.

Table 2. Effect size and standard error of each study.

No. Studies	N	r	Effect Size	Variance	Standard Error
1	49	0.00	0.003	0.022	0.147
2	248	0.01	0.010	0.004	0.064
3	248	0.00	0.002	0.004	0.064
4	40	0.00	0.001	0.027	0.164
5	60	0.35	0.365	0.018	0.132
6	40	0.61	0.706	0.027	0.164
7	25	0.52	0.578	0.045	0.213
8	30	0.03	0.033	0.037	0.192
9	115	0.04	0.044	0.009	0.094
10	52	0.48	0.526	0.020	0.143
11	49	0.00	0.000	0.022	0.147
12	85	0.13	0.133	0.012	0.110
13	68	0.71	0.887	0.015	0.124
14	30	0.53	0.592	0.037	0.192
15	85	0.84	1.218	0.012	0.110
16	46	0.89	1.403	0.023	0.152
17	30	0.03	0.030	0.037	0.192
18	50	0.63	0.746	0.021	0.146
19	176	0.01	0.012	0.006	0.076
20	202	-0.02	-0.016	0.005	0.071
21	202	-0.01	-0.015	0.005	0.071
22	202	0.02	0.021	0.005	0.071
23	202	0.02	0.019	0.005	0.071
24	52	0.49	0.537	0.020	0.143
25	53	0.41	0.438	0.020	0.141
26	80	0.34	0.359	0.013	0.114
27	80	0.25	0.256	0.013	0.114
28	80	0.18	0.186	0.013	0.114
29	88	0.30	0.306	0.012	0.108
30	92	0.39	0.406	0.011	0.106
31	93	0.63	0.748	0.011	0.105
32	94	0.44	0.472	0.011	0.105
33	131	0.02	0.015	0.008	0.088
34	131	0.02	0.021	0.008	0.088
35	131	0.02	0.018	0.008	0.088
36	38	0.09	0.093	0.029	0.169

3.2 Effect size of each study

In order to do a correlation meta-analysis, the "r" value acquired from all studies that satisfied the requirements was then converted to z, which is the effect size (Retnawati et al, 2018). The analysis's findings indicate that the influence of different variables might range from -0.016 to 0.886. The outcomes of the recapitulation of each study's r value into a size impact are shown in Table 2. Table 2 presents the results of the recapitulation of the r value of each study that has been converted into a size effect. Based on the effect size criteria according to Thalheimer and Cook (2002), there are two effect measures (n=2) belonging to the very high effect category, two effect measures (n=2) belonging to the high effect category, nine effect sizes (n=9) belonging to the medium effect category, 5 effect measures (n=5) belonging to the low effect category, and there are 18 studies (n=18) belonging to the category of negligible or without effect (study number 1, 2, 3, 4, 8, 9, 11, 12, 17, 19, 20, 21, 22, 23, 33, 34, 35, 36) which implies that there is no significant relationship between character education and student Islamic religious education learning outcomes. The findings against these different representations will then be calculated the weighted average value of the overall study. A summary of the results of the effect size calculation of each study is presented in Table 2.

3.3 Heterogeneity Test

The heterogeneity test is used to demonstrate whether the effect size of each study differs from the others. The model to be used in computing the summary effect size is also chosen based on the findings of the heterogeneity test. There are numerous ways to do heterogeneity tests, and in this article we conduct them using the Q parameter approach with 35 degrees of freedom. The findings of the heterogeneity test are summarized in Table 3.

Table 3. Fixed and random effects.

	Q	df	p.s	I ²
Omnibus test of Model Coefficients	24,705	1	< .001	91,584
Test of Residual Heterogeneity	344,661	35	< .001	

The analysis's findings, which are shown in table 3, indicate that Q has a value of 24,705 and a p-value of 0.001. Therefore, it can be said that the research under consideration has a heterogeneous distribution of effect sizes. The I-Squared score (I² = 91.584), which indicates that 92% of the observed effect sizes reflect the percentage fluctuation attributable to real heterogeneity, reflects the degree of variation in the impact size between studies. Therefore, the cumulative effect size is determined using a random effects model.

3.4 Summary effect size random effect model

The effect mean (M) must be identified in a random effects model in order to calculate the summary effect. The outcomes of computing the average weighted effect (M) = 0.302 are shown in Table 4. This effect size falls within the low effect classification (Thalheimer and Cook, 2002). Figure 1 displays the average impact size values for each study individually as well as collectively. You can view the p value for the hypothesis in Table 4 of the coefficients to determine if it is accepted or not. A graphic of the summary effect and the total of the output coefficients can be seen below:

Table 4. Coefficient estimation using random-effect model.

Coefficients				
	Estimates (M)	Standard Error (SEM)	z	p.s
intercepts	0.302	0.061	4,970	<0.001

Table 4's results show that the p-value is less than 0.01, as can be observed. A substantial correlation between character education and student learning outcomes of Islamic religious education can be inferred from the fact that the p-value is less than 0.01. Based on the impact size summary results in Figure 1, the correlation coefficient for effect size is 0.30, with a confidence interval ranging from 0.18 to 0.42. Along the x-axis, square markings are used to indicate the forest plot analysis findings for each research article. Effect size estimates from the combined meta-analyses are thoroughly displayed and shown with symbols (diamonds) below the plot lines.

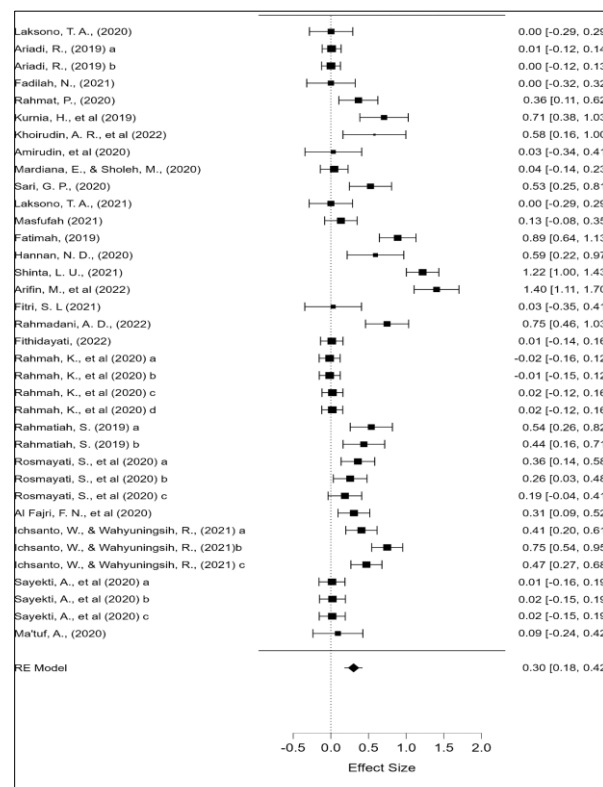


Fig. 1. Funnel plot random effect model.

3.5 Evaluation of Publication Bias

In the last step, publication bias must be found. In this study, the funnel plot approach and File-Safe N were employed to examine the issue of publishing bias. The funnel plot, which is displayed in Figure 2 below, was produced based on the inquiry using the JASP software. The analysis's findings indicate that the effect size distribution is not perfectly symmetrical across the vertical axis, thus the Rosenthal fail-safe N (FSN) method is kept in place. The JASP software is used to diagnose Rosenthal's fail-safe value in Table 5 below.

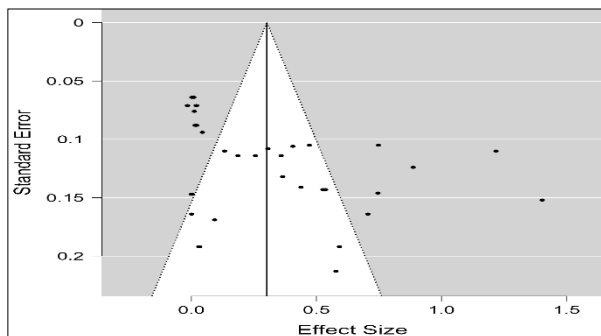


Fig. 2. Forest plot random effect model.

Table 5. Fail-Safe N.

File Drawer Analysis			
	Failsafe N	Target Significance	Observed Significance
Rosenthal	2632,000	0.050	< .001

Using table 5, where $K = 36$, we can calculate that $5K + 10 = 190$. With a significance level of $(\alpha = 0.05)$ and $p\text{-value} = 0.001$, the N Fail-Safe value was found to be (FSN = 2642). The fact that File-Safe N > (5K+10) shows that there is no publication bias in the meta-analysis conducted means that the meta-analysis in this study may be justified scientifically.

The results of this study indicate a positive, albeit small, correlation between character education and Islamic Religious Education (PAI) learning outcomes. These findings carry significant implications for educational practice in Indonesia. First, the integration of character education into PAI instruction should be a key focus for educators, as even a small but statistically significant effect demonstrates that enhancing students' character development can contribute to better academic achievement. This suggests that a teaching approach that not only addresses cognitive aspects but also emphasizes affective and moral dimensions may improve students' comprehension in PAI subjects. The results open up opportunities for future studies to further explore how specific elements of character education—such as self-discipline, responsibility, or religious values—may exert a more substantial impact on students' academic performance. Additionally, further research could examine potential moderating or mediating variables that may either strengthen or weaken this relationship, such as social environment, teaching methods, or parental involvement. Given that the effect size found in this study is small, future research should also consider strategies for enhancing

the effectiveness of character education programs, including innovations in curriculum design and more interactive, contextualized teaching methods.

4 Conclusion

According to the findings of the research described above, character education has a relationship with students' learning outcomes in Islamic religious education in Indonesia and has a beneficial impact on academic accomplishment, with an effect size of 0.30. (Small Effect). This demonstrates that character education variables will affect student academic progress in Islamic religious education courses to a greater or lesser extent depending on their level of increase. In addition, once a meta-analysis was completed, issues with the tiny category of the association between character education characteristics and student academic accomplishment (some fall into the no-effect to extremely high-effect group) were apparent. In the meantime, based on the evidence provided, the findings of this study firmly establish the importance of character education in the classroom and the need for teachers to focus on its variable value when teaching Islamic religious education (PAI) to students at all levels of formal education, including elementary, middle, high, and vocational schools. Students' internalized moral principles will further affect each individual learner.

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