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Regression Test of the Effect of Spiritual Intelligence on Process Skills in Plantae Material at MA Nahdlatul Muslimin Kudus

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Abstract

The purpose of this study was to determine the level of spiritual intelligence and science process skills of students of MA Nahdlatul Muslimin and to determine the effect of spiritual intelligence on science process skills. This research is motivated by the word of Allah QS. Yusuf verse 105 and QS. Ar-rum verse 7, where there are various signs of Allah's greatness in the form of natural phenomena, but at this time many Muslims are negligent about this, while Westerners are enthusiastic about natural phenomena that occur, but because they are not matched by spiritual intelligence led to scientific prostitution. Therefore, science process skills and spiritual intelligence are the main capital in understanding and discovering concepts related to natural phenomena, with the hope that from these phenomena we can develop science so that they become a source of help and help humans in understanding science. This study uses a quantitative approach using simple linear regression analysis. The data collection technique uses a questionnaire instrument to measure spiritual intelligence and a performance instrument to measure science process skills. The results of this study indicate the level of spiritual intelligence of students in the good category with an average percentage of 73.86%, the level of science process skills in the good category with an average value of 78.68, and the influence of spiritual intelligence on science process skills is 13. 2%..

Key words: intelegence, process skills, science, spiritual.

INTRODUCTION

The relationship between science and religion has been stated in the Qur'an, where the Qur'an places great emphasis on humans studying various natural phenomena to be able to see the signs of Allah's power in them. The reality is that Muslims today are less enthusiastic and negligent in welcoming this order. The majority of them consider various natural phenomena that occur as natural events that just happen (Taken for granted) (Imron Rossidi, 2014). Word of Allah SWT in QS. Yusuf verse 105 is a reflection of the negligence of Muslims at this time. The verse is a harsh satire of the negligence of Muslims for the empirical phenomena that occur. Although some Muslims are aware that various phenomena that occur are the power of Allah, due to their lack of expertise in scientific methodology they are unable to produce useful scientific theories which have an impact on Muslims being less active in contributing to the field of modern science. It should also be able to balance science and religion (Jalil, 2022)

Switching from Muslims who lack enthusiasm for various natural phenomena, Westerners have the enthusiasm and high sensitivity to

various phenomena that occur. They have a sophisticated scientific methodology, but as a result of the influence of materialism which is their reference, they can only understand the various natural phenomena that occur in a realistic way to fulfill worldly needs, and they forget about metaphysical reality which is spiritual in nature which is useful to achieve the afterlife. Allah SWT describes the incident through his word in QS. Ar-Ruum verse 7. The verse above shows human negligence in balancing worldly knowledge with metaphysical reality that is spiritual in nature. This incident is in line with Einstein's opinion that science or natural science without religion is paralyzed, where the scientific method without the support of strong religion can only satisfy a person only physically while spiritually they are empty. If science without religion can bring up various deviant things, then it is understandable why the Qur'an does not only emphasize observation and experimentation but also uses reason and intuition.

Understanding natural phenomena is closely related to science, in understanding science it is necessary to have Science Process Skills. According to Syarif, et al KPS is used to obtain and process knowledge by observing which is the skill of collecting data through various observations of the five senses (Napis Markawi, 2015). According to Whyne and Beyer in Hendrik Siswono, Science process skill is a procedure used in finding and processing information and tools for understanding material (Hendrik Siswono, 2017). Science process skill can help students in the learning process, find an invention as well as ways and methods in research, students also become more active, their sense of responsibility increases and helps increase students' understanding of lessons.

Science process skill has a fairly large role in the world of education. However, at this time there are still obstacles or problems that are the task of educators in implementing Science process skill in the learning process. The obstacles revealed from the results of interviews with the Biology subject teacher MA Nahdlatul Muslimin, Undaan District, Kudus Regency on October 23, 2022, indicate that the Biology learning process has so far not been optimal and there are difficulties for some students in analyzing available information, students tend to accept what is the information they receive, uneven activity in expressing ideas and asking questions and answering questions from the problems raised by the teacher. This shows the lack of skill level of students. One of the efforts made to improve the skills of students is through the role of an educator.

According to Dede Saroni, several skills must be possessed by educators to face 21st-century education, namely digital age literacy, inventive thinking, effective communication, and high productivity. Educators who can think critically in solving problems and are creative and innovative at work, when accompanied by effective communication skills and able to work together with other people, will be able to face various challenges that can be overcome by educators (Dede Saroni, 2022). Therefore, educators have a great responsibility in providing effective

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learning. If the teaching staff can carry out their duties and functions properly, then the results received will also be good, but if the teaching staff cannot carry out their duties and functions properly, then the results received are less than optimal.

As for benchmarks in determining the level of skill in science processes according to Jinks (1997), there are 13 indicators recommended by the American Association for the Advancement of Science (AAAS), namely: (1) observation/observation, (2) measurement, (3) classification, (4) quantification, (5) inferring, (6) predicting, (7) relationships, (8) communicating, (9) interpreting data, (10) controlling variables, (11) operational definitions, (12) hypotheses, (13) experiment (Jerry Jinks, 1997). Based on these 13 indicators, the researcher used 6 indicators which were used as benchmarks in science process skills through written tests conducted by respondents from class X IPA MA Nahdhatul Muslimin, Undaan District, Kudus Regency, including (1) observation, (2) classification, (3) concludes, (4) hypotheses, (5) interprets data, (6) communicates.

Science process skill is included in intellectual intelligence (IQ). A lack of understanding of Science process skill also shows a person's lack of intellectual intelligence. According to Prof. Abdul Kadim Masaog, the human brain is divided into three parts, namely the cerebral cortex, the limbic system, and the temporal lobe. The cerebral cortex functions in regulating intellectual intelligence (IQ), the limbic system which functions in regulating emotional intelligence (EQ), and the temporal lobe which functions in regulating spiritual intelligence (SQ). The performance of the three parts of the human brain can run continuously or separately, this is what will cause variations in the character and behavior of students (Abdul Kadim Masaog, 2013). Based on the opinion of Prof. Abdul Kadim Masaog, it can be concluded that the lack of KPS has a relationship with the level of one's spiritual and emotional intelligence.

According to Danah Zohar and Ian Marshal Spiritual Quotient (SQ) or often referred to as spiritual intelligence is intelligence that functions in dealing with and solving problems broadly and richly, intelligence that is used to determine an action or one's way of life becomes more meaningful. Spiritual Quotient SQ is the main foundation used to carry out IQ and EQ so that it can run effectively (Damayanti, 2018). Lack of spiritual intelligence causes many violations committed by students or students, especially actions that violate religious norms, and ethics, deviations committed at school such as fights between students, stealing, violating school rules, consuming drugs, and free sex which can damage our morale, to overcome this we must always seek guidance, explanation, and direction as well as provide education that is useful and relevant, besides that with spiritual intelligence it is also able to limit the misuse of science, one of which is Biology.

According to Danah Zohar and Ian Marshall, there are several indicators to measure a person's spiritual intelligence, namely: (1) the ability to be flexible, (2) a high level of awareness, (3) the ability to

face and take advantage of suffering, (4) the ability to deal with and overcome feelings sick, (5) quality of life inspired by vision and values, (6) not doing harmful activities, (7) having a holistic view, (8) tendency to ask questions and seek basic answers, (9) can work independently and against conventions that violate norms (Zohar, 2007). Based on these 9 indicators, the researcher used 8 indicators which were used as benchmarks in spiritual intelligence through written questionnaires done by respondents from class X IPA MA Nahdhatul Muslimin, Undaan District, Kudus Regency, including (1) the ability to be flexible, (2) having a strong awareness high, (3) ability to face and overcome pain, (4) quality of life inspired by vision and values, (5) not doing harmful activities, (6) having a holistic view, (7) tendency to ask questions and seek answers, (8) can work independently and fight conventions that violate norms. The selection of the eight indicators is in line with the vision of MA Nahdlatul Muslimin, namely the formation of students to become human beings who have good morals, are intelligent, and have Islamic culture according to the teachings of Ahlussunnah wal-Jamaah.

Based on the various descriptions above, it shows that spiritual intelligence has a contribution to the development of intellectual intelligence. Where scientific thinking process skills are part of intellectual intelligence, automatically one of the factors for the success or failure of a Science process skill is influenced by spiritual intelligence. The results obtained by the researcher from the results of an interview on October 23 2022 with the Biology teacher MA Nahdlatul Muslimin indicate a lack of students' science thinking process skills which allows for a correlation with the spiritual intelligence possessed by students. This prompted researchers to conduct research at MA Nahdlatul Muslimin Undaan District, Kudus Regency to prove whether or not there is an influence of spiritual intelligence on students' scientific thinking skills. Therefore, the it is conducted a research with the title "The Effect of Students' Spiritual Intelligence on Science Process Skills in Kingdom Plantae Topic".

METODE

This type of research uses experimental research with a quantitative approach. Meanwhile, according to the explanation of this study using simple linear regression research. This research was conducted at MA Nahdlatul Muslimin, Undaan District, Kudus Regency. The class as research was class X Science which consisted of X Science 1 and X Science 2. The total population was 76 students of class X IPA MA Nahdlatul Muslimin, and 38 students were used as samples. This is done so that there is even distribution in sampling. As for the sampling technique, the researcher used the Cluster Random Sampling technique by randomly selecting sample members from class X IPA 1 and X IPA. As for the research time on teaching and learning activities in the even semester of the 2022/2023 school year. The research instrument used a questionnaire to measure spiritual intelligence and

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performance tests to measure students' science process skills.

The questionnaire instrument uses a Likert scale with four-point choices in each question, namely Strongly Agree (SS), Agree (S), Disagree (TS), and Strongly Disagree (STS). the point of the choice of the statement is Appropriate (S). The steps for using the Likert scale formula are as follows:

Index % = Total score / highest score Likert x 100

The interpretation of the score is based on the following intervals (Sapoetra, 2015):

Number 0% - 19.99% = Very bad

Figures 20% - 39.99% = Not good

Figures 40% - 59.99% = Enough

Figures 60% - 79.99% = Good

Number 80% - 100% = Very good

The process of calculating performance instruments is done by adding up each result of the indicators assessed by researchers while in the field. The evaluation formula used is:

Score = Score earned / Maximum Score x 100

The interpretation of values is as follows (Khoiriyyah, 2019):

Value 81 – 100 = Very good

Value 61 – 80 = Good

Value 41 – 60 = Enough

Value 21 – 40 = Less

Value 0 – 20 = Very Poor

There are several stages before the instrument is given to the respondent, the instrument goes through a validation process first using construct and empirical validation, then the data is given to the respondent then the data tabulation process is carried out by carrying out the classic assumption test which consists of a normality test, linearity test, homogeneity test, and homoscedasticity test to determine the type of analysis to be used in research. The last stage is the analysis using simple linear regression to determine the effect between variables.

RESULT AND DISCISSION

The research begins with testing research instruments with validity and reliability tests. The results of construct validation by experts on the spiritual intelligence questionnaire and the science process skills performance instrument show valid results and are suitable for use in the field with revisions according to suggestions. As for the empirical validation process of the spiritual intelligence questionnaire, the number of respondents was 113 with the item criteria declared valid if r_(count) is equal to or greater than r_table with a significance level of 5%, and items are declared invalid if r_(count) is equal to or less than r_table with a significance level of 5%

The validity test process in this study used the IBM SPSS version 25 program, with the results showing that of the 32 statement items, there were 3 invalid statements which were then deleted or not included in the subsequent data analysis process, while the reliability test results at a 5% significance level of 0.722 were above 0.6.

According to Shofiyan Siregar, the results of the questionnaire reliability test using Alfa Cronbach were declared reliable if the instrument reliability was > 0.6 (Siregar, 2013). Based on this, it can be concluded that the data is reliable.

The classic assumption test is the next step before carrying out further data analysis. This assumption test consists of a normality test, linearity test, homogeneity test, and homoscedasticity test. The process of calculating this classic assumption test uses the help of the IBM SPSS version 25 program. The results of the classic assumption test are as follows:

1. Normality test

The results of the normality test for variable X have a value of 0.832 and variable Y has a value of 0.080, where the value is more than 0.05. According to Priyono, if the sig value > 0.05 means that the data is not significant (the data is relatively the same as the average) so that the data is normally distributed, then Ho is accepted. (sig value > 0.05) (Priyono, 2021). Based on this, it can be concluded that the two variables are normally distributed.

2. Linearity test

The linearity test results obtained a deviation from the linearity significance value of 0.683 where the value was more than 0.05, so it can be stated that the dependent and independent variables are linearly distributed.

3. Homogenity test

The provisions for the homoscedasticity test are that if the significance value is > 0.05, the two groups of variables can be said to be homogeneous. The results of the calculation are known to be sig. of 0.072, where the value is more than 0.05 which indicates that the variables are homogeneous.

4. Homoscedasticity test

Determining whether a variable is homoscedastic or not, can be seen by looking at the graph plots between the values of the variables X and Y if they form a certain pattern (dots that have regular patterns) then it indicates heteroscedasticity, but if the graph plots do not form a certain pattern and the dots spread across below the number 0 on the Y axis indicates homoscedasticity.

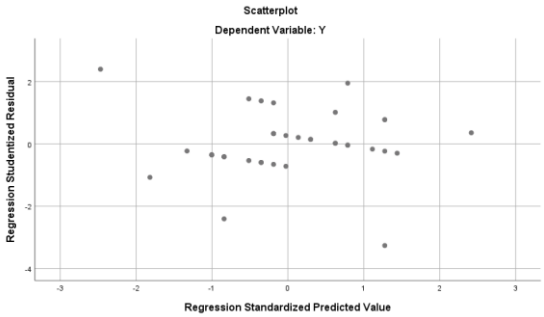

Figure 1 Homoscedasticity Test

Based on Figure 1, it can be seen that the dots are spread out, do not form a pattern, and several points are below the number 0 on the Y axis, so it can be concluded that the variables experience homoscedasticity.

The next stage is hypothesis testing, testing this hypothesis is based on the answers from a sample of 38 students with a spiritual intelligence questionnaire instrument consisting of 29 statements of 8 indicators of spiritual intelligence and 20 assessment criteria on the performance test of process skills derived from 5 indicators of science process skills. The process of calculating the hypothesis is done with the help of the IBM SPSS version 25 program which shows the following results.

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1. Level of Spiritual Intelligence of Students

The minimum score of students' spiritual intelligence is 71 with a percentage of 61.21% which is included in the good category, and the maximum score of students' spiritual intelligence is 101 with a percentage of 87.07% which is included in the very good category. That score shows at table 1.

Tabel 1. Percentage Results of Spiritual Intelligence Levels

	Spiritual Intelligence Score	Spiritual Intelligence Percentage	Level of Spiritual Intelligence
Maximum Value	101	87,07%	Very Good
	71	61,21%	Good
Minimum Value	85,68	73,86%	Good
Average	101	87,07%	Very Good

The average spiritual intelligence score of students of MA Nahdlatul Muslimin, Undaan District, Kudus Regency is 85.68 with a percentage of 73.86%, where the percentage is in a good category, which is between 60% - 79.99%, so it can be stated that the condition of the participants' spiritual intelligence students of MA Nahdlatul Muslimin, Undaan District, Kudus Regency in the good category. These results can be increased to a very good level. The process of increasing spiritual intelligence according to Danah Zohar and Ian Marsal can be done by way of a psychological tertiary process, namely by the tendency to ask why, look for connections between things, assume the meaning behind something, reflect more, reach a little beyond ourselves, be responsible, be more self-aware, more honest with oneself, and more courageous (Zohar, 2007).

Meanwhile, according to Abid Wahab H.S. and Umiarso, six steps can be taken to increase spiritual intelligence. First, a person must realize who he is now. Second, after contemplating then arises the feeling of wanting to be better. Third, ponder deeper. Fourth, one must find obstacles and try to break through these obstacles. Fifth, a person must give various efforts, mental, and spiritual efforts to find his potential. Sixth, a person must determine one path and then walk straight to one destination to reach the center of his journey (Wahab, 2012).

Based on these two expert opinions, there is a process of contemplating which is one way to increase spiritual intelligence which is quite often discussed. From this contemplation process, individuals can evaluate various actions and mindset mistakes on something, so it is hoped that after the contemplation process, individual spiritual intelligence will increase.

The results of the spiritual intelligence level of students on each indicator are used as a reference in collecting research data as summarized in Table 2.

Tabel 2. Result of Spiritual Intelligence Levels on Each Indicator

No	Spiritual Intelligence Indicator	Percentage of Spiritual Intelligence Indicator	Level of Spiritual Intelligence Indicator
1	Ability to be flexible	70,2%	Good
2	Have high awareness	81,7%	Very Good

3	The ability to deal with and get through the pain	79,6%	Good
4	Quality of life inspired by vision and values	67,8%	Good
5	Do not engage in harmful activities	69,1%	Good
6	Have a holistic view	79,8%	Good
7	Tendency to ask and seek answers	75%	Good
8	Have the ability to work independently and fight conventions that violate norms	69,7%	Good

Based on Table 2, it can be seen that the indicator with the highest percentage is having a high awareness of 81.7% in the very high category. A person with high self-awareness will tend to easily control himself and understand other people in various situations and conditions, and it will be easier for him to know his God (Fahrisi, 2020). Seeing the high level of self-awareness in students is by the behavior shown during observation where students tend to be easy to control and able to interact well with new people. Meanwhile, the indicator with the lowest percentage is the quality of life inspired by the vision and values, which is 67.8% in the good category. Someone with a quality of life that is inspired by vision and values will not be easily influenced by persuasion, so they are not easily influenced when facing trials and it is easier to achieve happiness (Fahrisi, 2020). Based on the results of the data in the field, the majority of students tend to have good principles. As for some students who still have unfavorable principles, this is because students are influenced by the lifestyle of their peers.

2. Level of Science Process Skills

The result of science process skills shows on table 3.

Tabel 3. Results of the Average Percentage of Science Process Skills

	Science Process Skill Score	**Science Process Skill**	**Science Process Skill Level**
Maximum Value	18	80	Good
Minimum Value	13	65	Good
Average	15,74 Science Process Skill Score	78,68 Science Process Skill	Good Science Process Skill Level

Based on Table 3, it can be seen that the maximum value of students' science process skills is 65 and the minimum value is 90. The average score of students' science process skills is 15.74 with a value of 78.68 where the value is included in the good category, which is in between the scores of 61-80, so it can be concluded that the science process skills of MA Nahdlatul Muslimin students are in good condition. This value can be increased to a very good level. Several efforts can be made to improve science process skills according to Lela Gusdiantin, et al efforts that must be made to improve science process skills, one of which is by the teacher providing a suitable learning approach to the material to be delivered in the learning process (Gusdiatin, 2017).

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This is in line with the facts in the field that there are still many teachers who use only the lecture method in the learning process, the learning process is often called the teacher center where the teacher is the only source of learning, causing students to become passive and lack of skill development in the learning process.

As for other opinions, according to Poppy Kamalia Devi the teacher's role in improving science process skills, namely: (1) Designing and carrying out various activities by providing opportunities for students to use process skills, (2) Providing encouragement to students in using process skills, (3) Provide guidance in the process of developing process skills (Devi, 2010). Poppy Kamila's opinion is in line with the opinion of Lela Gusdiatin, et al where the main point in improving students' science process skills lies in how the teacher carries out the learning process for students.

The results of the science process skill level of students on each indicator are used as a reference in collecting research data as summarized in Table 4. Based on Table 4, it can be seen that the indicator with the highest score is classified with an average value of 98.7 in the very good category. Classification skills are a fairly important ability in the process of scientific work with the aim that students can show similarities, differences, and mutual relations (Mahmudah, 2016).

Tabel 4. Results of Science Process Skill Levels in Each Indicator

No	Indicator	Average Score	Level of Science Process Skills Indicator
1	Observe	86,8	Very Good
2	Classify	98,7	Very Good
3	Conclude	78,3	Good
	Interpreting	61,8	Good
	Communicate	67,8	Good

Meanwhile, the indicator with the lowest score is interpreting data with an average value of 61.8 in the good category. The skill of interpreting data is the process of giving meaning to something, both phenomena or events based on other events (Suryaningsing, 2017).

The low level of interpreting data can occur due to several factors, such as the students' lack of understanding of the data obtained and the lack of explanation from the teacher regarding how to interpret the data according to the assessment criteria. This is in line with research conducted by Iing Mustain which shows that the lack of level of interpretation of student data is caused by students not receiving well the explanations conveyed by the teacher in practicum activities (Mustain 2015).

3. Effect of Spiritual Intelligence on Science Process Skills

Table 5 explains the magnitude of the correlation/relationship (R) value of 0.364 which means the correlation value is weak. The value of the determinant coefficient (R square) is 0.132 which indicates that the spiritual intelligence variable (X) influences the science process skill variable by 13.2%. These results indicate that there are still 86.8% of science process skills influenced by other factors.

Tabel 5. Correlation of Variable X to Y

R	R Square
0, 364	0, 132

This is to the research conducted by Tisrin Maulina Dewi and Muhrin which shows that several factors influence science process skills, including study habits which have an effect of 86%, the availability of facilities that have an effect of 57%, the Biology Science learning process which takes place in class has an effect of 81.3%, and the Biology Science learning process outside the classroom has an effect of 67% (Dewi, 2020).

Tabel 6. Correlation of Variable X to Y

Constant Value (a)	52.741
Spiritual Intelligence Coefficient	.303

Based on Table 6 above, it is known that the constant value (a) is 52.741, while the regression coefficient value of the spiritual intelligence variable (X) is 0.303, so the regression equation can be written Y = 52.741 + 0.303X. The constant of 9.885 from these results can be interpreted that the consistent value of the participation variable is 52.741 and the regression coefficient of spiritual intelligence (X) is 0.303, which means that for every 1% addition of the value of spiritual intelligence (X) the participation value increases by 0.303. The value of the regression coefficient is positive, so it can be interpreted that the direction of the influence of variable X on Y is positive.

Science process skills or in this study has a significant relationship to spiritual intelligence, because spiritual intelligence can provide encouragement and limits to students in understanding science through process skills, this encouragement is in the form of how these students understand and find concepts related to science so that they can carry out knowledge development and can help and assist humans in understanding scientific principles, while the form of the limitation of spiritual intelligence here is as a barrier to scientific misuse or scientific prostitution, so that the knowledge obtained and developed can be used properly.

CONCLUSION

Based on the results of the data from the assessment instrument in the form of a spiritual intelligence questionnaire, it can be seen that the level of spiritual intelligence of students of MA Nahdlatul Muslimin, Undaan District, Kudus Regency is at a good level with an average percentage of 73.86%, while the results of instrument data in the form of performance tests, can be seen that the level of science process skills of students of MA Nahdlatul Muslimin, Undaan District, Kudus Regency is at a good level with an average score of 78.68.

The level of spiritual intelligence has an influence on students' science process skills with a correlation value (R) of 0.364, which means a weak correlation value. The determinant coefficient value (R square) is 0.132 which indicates that the spiritual intelligence variable (X) influences the science process skill variable by 13.2%, while the regression coefficient value for the spiritual intelligence variable (X) is 0.303, so the regression equation can be written Y = 52.741 + 0.303 X. The constant 52.741

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from these results can be interpreted that the consistent value of the participation variable is 52.741 and the regression coefficient of spiritual intelligence (X) is 0.303 which means that for every 1% addition of spiritual intelligence (X) the participation value increases by 0.303. The value of the regression coefficient is positive, so it can be interpreted that the direction of the influence of variable X on Y is positive.

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BRIEF PROFILE

This research was compiled by two researchers. First, Nila Lailatul Mukaromah was born in Kudus March 16 2001, registered as a student at IAIN Kudus, Faculty of Tarbiyah, Tadris Biology Study Program class of 2019. Second, Dr. Muhamad Jalil, M.Pd, registered as a Lecturer at IAIN Kudus, Faculty of Tarbiyah, Biology Tadris Study Program.

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