Implementation of Religion and Astronomy for Children Through the Reggio Emillia Learning Model

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A B S T R A K

Perkembangan agama dan sains pada anak usia dini perlu mendapatkan stimulasi yang tepat agar berkembang secara maksimal. Penelitian ini bertujuan untuk menganalisis bagaimana pengaruh yang diberikan oleh model pembelajaran Reggio Emillia dalam mengembangkan agama serta sains astronomi pada anak. Penelitian ini tergolong kedalam jenis penelitian kuantitatif dalam penelitian semu (quasi experiment) dengan menggunakan rancangan the posttest only control group design. Populasi dalam penelitian ini yakni 18 anak usia dini yang berusia 5-6 tahun. Penarikan sampel dilakukan dengan teknik sampel jenuh, dimana seluruh anggota populasi dijadikan sebagai sampel penelitian. Pengumpulan data dalam penelitian ini dilakukan dengan menggunakan metode non tes berupa observasi, wawancara, serta penyebaran angket. Adapun instrument penelitian yang digunakan yakni berupa instrument kemampuan agama dan sains anak. Data yang diperoleh dalam penelitian kemudian dianalisis dengan menggunakan teknik analisis deskriptif kuantitatif melalui uji validitas, uji reabilitas, uji normalitas, serta uji hipotesis. Hasil analisis data menunjukkan bahwa nilai f hitung sebesar 3,789 serta nilai signifikansi sebesar 0,007. Hasil yang didapatkan dengan ketentuan sig < 0,05 serta f hitung > f tabel maka hipotesis diterima, dalam penelitian ini memiliki nilai sig sebesar 0,007<0,05 dan f hitung sebesar 3,789>3,63. Berdasarkan hasil tersebut maka dapat diketahui bahwa model pembelajaran Reggio Emillia memberikan pengaruh serta signifikasi positif terhadap nilai agama dan sains astronomi pada anak usai dini.

A B S T R A C T

Developing religion and science in early childhood requires the right stimulation to develop optimally. This study aims to analyze the influence exerted by the Reggio Emilia learning model in developing religion and the science of astronomy in children. This research belongs to the quantitative research in quasi-experimental using the posttest-only control group design. The population in this study were 18 early childhood children aged 5-6 years. Sampling was done using a saturated sample technique, in which all population members were used as research samples. Data collection in this study was carried out using non-test methods in the form of observation, interviews, and questionnaires. The research instrument used was in the form of children's religious and scientific ability instruments. The data obtained in the study were then analyzed using quantitative descriptive analysis techniques through validity testing, reliability testing, normality testing, and hypothesis testing. The results of the data analysis show that the calculated f value is 3.789 and a significance value of 0.007. The hypothesis is accepted by the results obtained with the sig <0.05 and f count > f table; this study has a sig value of 0.007 <0.05 and f count of 3.789> 3.63. Based on these results, the Reggio Emilia learning model positively and significantly influences astronomy's religious and scientific values in early childhood.

1. INTRODUCTION

Early childhood education is a form of formal learning for children aged 0-6 years which is carried out by providing programmed stimulus to develop and increase creativity according to their level of development with the aim that they are ready to receive further education (Retnaningrum, 2021; Suyadi, 2019). Education given in early childhood is used as an alternative to developing potential in children, where child development starts from physical, motor, cognitive, social-emotional, moral, and language

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development (Gunawan et al., 2019; Syaodih et al., 2021; Yuhasriati et al., 2021). One aspect of development that educators can develop is cognitive development through the introduction of religion and science. The theory of religion and science in children is an inseparable unit. Religion can be studied with the help of the human mind, which is seen by observing the five senses (Putri & Nisfa, 2022; Watini, 2019). However, not all religious material can be seen from a scientific perspective because some are only associated with the experience of one's heart. Religious education and science are interconnected, and religion plays an important role in the development of science because religion also discusses science (Meliani et al., 2021; Sanusi et al., 2022). However, not everything can be related to science in religion because some things are related to divine knowledge. Introducing religion and science to children is the initial process of introducing children to the greatness of God by showing everything that exists on earth and the natural surroundings (Daulay & Salminawati, 2022; Widiawati et al., 2022). Science can be introduced by inviting children to get to know their surroundings, introducing various living things around them through observing, classifying, asking questions, formulating problems, and drawing conclusions from occurring events.

Introducing religion and science to children can be done by introducing the solar system to early childhood. This process is fun, where children will get to know the outside of the earth. Introducing the solar system to children includes introducing God's greatness in making planets (Munawaroh et al., 2020; Rifa'i & Choli, 2020). Moreover, teach children simple science through solar system introduction videos. In introducing the solar system to children, children will imagine how to make these planets. Children can sort the size of the order of the planets (Rachmi & Zumi, 2021; Zsalsabilla et al., 2022). The higher the imagination in children, the higher the creativity in children appears. Introducing religion and science to children is currently hampered because children prefer to play with gadgets rather than explore their environment. The impact of using these devices will cause children to imitate often adult behavior that they should not have done (Ananda, 2017; Sumilah, 2021). Additionally, monotonous teaching in introducing religion and science to children is the cause of non-conducive teaching because children feel bored (Gautama et al., 2022; Watini, 2019). The ineffective introduction of religion and science causes boredom in children participating in learning (Retnaningrum, 2021), and the lack of introduction to religion and science in children causes a decrease in children's moral attitudes towards their environment. The current conditions will cause the value of religion and the introduction of science to children to decrease drastically, so various fun methods are needed to introduce religion and science to early childhood. One of the learning models that can be used to improve children's religion and science skills is the Reggio Emillia learning model.

The Reggio Emilia learning model is a form of teaching that prioritizes needs and desires and involves children in manufacturing (Hasanah et al., 2023; Sasmita et al., 2021). This learning model has the right principles for children's religion and science learning because this model is implemented by facilitating children to build their thinking power by combining all of their expressive, communicative, and cognitive languages (Nuraeni & Sharina, 2020; Sartika et al., 2023). The Reggio Emilia learning model has six core principles, including developing critical thinking, involvement, exploration, discussion, hypothesizing, and problem-solving by children (Amal et al., 2019; Madyawati & Maemonah, 2021). This learning model assumes that children from their early years as competent learners deserve every opportunity to fulfill their potential (Sani et al., 2022; Setyowati et al., 2021). In practice, the Reggio Emilia learning model places more emphasis on the use of the environment as material for forming children's knowledge, where the learning process is carried out by inviting children to express themselves through a process of exploration and followed by a process of communication with parents, teachers, and peers and making the environment the third teacher (Hasanah et al., 2023; Masturoh, 2020). Such a learning process is very suitable for science learning because science relates to the universe, its contents, and the environment around children (Setyowati et al., 2021). Children's science deals with many things, from animals, plants, and objects on land, sea, and the solar system (Farida & Rosidah, 2018; Yuhasriati et al., 2021). Several previous studies have revealed that applying Reggio Emilia learning can improve children's interpersonal intelligence. Reggio Emilia learning is learning through a project method that can indirectly stimulate children to work together (Yeni & Zahro, 2020). The results of other studies reveal that the Reggio Emilia approach can increase early childhood creativity (Nuraeni & Sharina, 2020). The results of further research revealed that the Reggio Emilia approach can significantly improve fine motor skills in early childhood (Rusanti et al., 2022). Based on some of the results of these studies, it can be said that the Reggio Emilia learning model can positively influence the development of early childhood abilities. In previous studies, no studies specifically discussed the implementation of religion and science in astronomy for children through the Reggio Emillia learning model. So this research is focused on this study to analyze the influence exerted by the Reggio Emillia learning model in developing religion and the science of astronomy in children.

2. METHOD

This study uses a quantitative approach, which discusses and tests a theory by examining the correlation between variables. Experimental research methods can be carried out in educational research. This research is usually used to provide a positive paradigm and is a laboratory. This method will answer a paradigm of truth in a study. This study explained it using a quasi-experimental quantitative approach (Quasi experiment). The population in this study were children aged 5-6 years in TK ABA 1 Jambu, totaling 18 people. Sampling in this study was carried out using a saturated sampling technique. This was due to the total population being less than 30. So that the number of samples in this study was 18 children aged 5-6 years in TK ABA 1 Jambu. Data collection in this study was carried out using non-test methods in the form of observation, interviews, and questionnaires.

The research instrument used was in the form of children's religious and scientific ability instruments. The relationship between variables was measured using research instruments and obtained results from numbers that were analyzed statistically. This study's independent and dependent variables were the independent variables regarding religion and the science of astronomy, and the dependent variable was the Reggio Emilia learning model. Testing this research instrument or data analysis technique using the validity, reliability, normality, and hypothesis tests to produce a relationship between the independent and dependent variables, as in Table 1.

Table 1. Reggio Emilia Research Instruments, Religion, and Science

Reggio Emillia	Child Religion	Science
Active child	Children are active in answering questions about God's greatness	Children actively answer and ask questions about the scientific phenomena around them
Children think critically	Children can distinguish man-made objects and God's creations	Children can explain natural phenomena that occur around them with their language
environment as a teacher	Children can know God's creatures around them well	Children can name the characteristics of various objects in their environment
Collaboration with others	Children can interact with other people in doing the task of knowing God's creation.	Children can work together to complete projects to make planets with their friends.
Relations with friends, educators, and parents	Children can establish good relationships with friends in doing assignments.	Children can teach and help their friends when they have difficulty making miniature planets.

3. RESULT AND DISCUSSION

Result

Testing the hypothesis in this study was carried out using two tests, the t-test and the F-test. The t-test was used to determine whether the variables of religion and astronomy in children influenced the Reggio Emilia learning model. This calculation uses the help of the SPSS program version 20 for Windows. The provisions in this t-test are if the significance value is <0.05. There is influence from the variables (X1) and (X2) with the variable (Y), and if the t count > t table, then there is the influence of the variables (X1) and (X2) with variable (Y). The results of hypothesis testing X1 and X2 can be seen in Tables 1 and 2.

Table 1. X1 Hypothesis Test (t-test)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	9,.00	2.726		3.338	0.004
RELIGION	0.177	0.091	0.438	2.946	0.007

Table 2. Hypothesis Test X2 (t-test)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	9.100	2.726		3.338	0.004
Astronomical Science	0.177	0.091	0.438	2.946	0.007

The data in Table 1 shows that religion has a significance value of 0.007 and a t table value of 2.946, and the science of astronomy has a significance value of 0.007 and a t table value of 2.946. The hypothesis requirements are accepted sig <0.05 and t table > t count. This study's results were sig 0.007 <0.05 and t table 2.946 > 2.131. So it means that the hypothesis of religion and the science of astronomy for children affect the Reggio Emilia learning model is accepted. Furthermore, hypothesis testing is carried out with the F test to decide whether the hypothesis can be accepted or rejected. This calculation is done with the help of SPSS version 25 for Windows. There are several provisions in this hypothesis test, by comparing the f count with the f table. If f count > f table, the hypothesis is accepted, and vice versa. If f count <f table, then the hypothesis will be rejected. Moreover, if the significance value <0.05, the hypothesis is accepted. The results of the f-test analysis can be seen in Table 3.

Table 3. F Test (Model Feasibility)

	Model	Sum of Squares	df	Mean Square	F	Sig.
2	Regression	3.499	2	3.499	3.789	0.007
	Residual	14.778	16	0.924		
	Total	18.278	18			

This study has a calculated f value of 3.789 and a significance value of 0.007. The sig <0.05 and f count > f table results accept the hypothesis. In this study, it has a sig value of 0.007 <0.05 and f count of 3.789> 3.63. So it can be stated that the hypothesis of religion and science astronomy for children affects the Reggio Emilia learning model is accepted. The coefficient of determination in this study shows the significance of astronomy's religious and science values to the Reggio Emilia learning model 89.1%, where the remaining 10.9% comes from other factors. In more detail, the analysis results of the coefficient of determination can be seen in Table 4.

Table 4. The results of the coefficient of determination

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
2	0.438	0.891	0.641	0.96106

Discussion

Based on the results of the data analysis that has been carried out, it can be seen that the Reggio Emillia learning model positively influences the religious and science values of astronomy in children at an early age. These results show that the Reggio Emilia model effectively uses the child's learning process. The Reggio Emilia learning model is implemented by emphasizing the use of the environment as material for forming children's knowledge, where the learning process is carried out by inviting children to express themselves through a process of exploration and followed by a process of communication with parents, teachers, and peers and making the environment the third teacher (Hasanah et al., 2023; Masturoh, 2020). Such a learning process is very suitable for science learning because science relates to the universe, its contents, and the environment around children (Setyowati et al., 2021). Children's science deals with many things, from animals, plants, and objects on land, sea, and the solar system (Farida & Rosidah, 2018; Yuhasriati et al., 2021).

Astronomy science learning is compatible with the Reggio Emilia learning model, which carries projects as a learning method. In this learning, children will also get to know the greatness of God (Zembat et al., 2019). The Reggio Emilia learning model is designed to be a bridge for students to convey various arguments related to a project and is carried out in groups (Amal et al., 2019; Madyawati & Maemonah, 2021). Using media to teach children will make it easier for them to understand the material presented (Watini, 2019; Zaeriyah, 2022). In addition to developing scientific abilities, the Reggio Emillia model can also improve children's religious abilities, where the introduction of the Creator is very important for children so that they know their God better and make them individuals with a more religious character and high morals (Nuraeni & Sharina, 2020; Sartika et al., 2023). When the child understands by mentioning the greatness of God, the introduction of science will be carried out. One way to mention God's greatness is by introducing heavenly bodies humans cannot make (Soekmono & Ningtyas, 2020). Children will begin to understand the greatness and many things that exist on this earth because of the greatness of God Almighty (Daulay & Salminawati, 2022; Widiawati et al., 2022). Introducing religious values to children can be done in various ways, one of which is by using teaching media in the form of audio-visual, which can be a bridge for children to imagine the power of God (Widiasih & Astuti, 2021). The use of media will help children visualize what the planet created by God looks like (Meliani et al., 2021; Sanusi et

al., 2022). Providing an image that is embedded in his brain can be done with the help of interesting illustrated video media (Syaodih et al., 2021). The results obtained in this study are in line with the results of previous research, which also revealed that applying Reggio Emilia learning can improve children's interpersonal intelligence because Reggio Emilia learning is learning through a project method which can indirectly stimulate children to work together (Yeni & Zahro, 2020). The results of other studies reveal that the Reggio Emilia approach can increase early childhood creativity (Nuraeni & Sharina, 2020). The results of further research revealed that the Reggio Emilia approach can significantly improve fine motor skills in early childhood (Rusanti et al., 2022). So based on some of the results of these studies, it can be said that the Reggio Emilia learning model can positively influence the development of early childhood abilities.

4. CONCLUSION

Based on the research and discussion results, it can be concluded that the Reggio Emillia learning model has a positive influence and significance on the religious and scientific values of astronomy in children at an early age. The Reggio Emillia learning model is suitable for introducing and developing the religious and scientific values of astronomy in children, which is proven to have a good influence on both. This learning model helps children learn about God's power related to the science of astronomy, introducing the planets to children. Project-based activities based on the principles of the Reggio Emillia learning model provide new enthusiasm for children, provide a fun learning atmosphere, and children become active and do not hesitate to ask questions.

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