

**INTEGRATING ISLAMIC VALUES AND SCIENCE FOR MILLENNIAL STUDENTS' LEARNING ON USING SEAMLESS MOBILE MEDIA****E. F. Fahyuni<sup>\*1</sup>, Wasis<sup>2</sup>, A. Bando<sup>3</sup>, M. B. U. B. Arifin<sup>4</sup>**<sup>1,4</sup>Islamic Studies Program, Universitas Muhamadiyah Sidoarjo, Indonesia<sup>2</sup>Science Education Program, Surabaya State University, Indonesia<sup>3</sup>Naval College of Technology, Indonesia**DOI: 10.15294/jpii.v9i2.23209**Accepted: January 25<sup>th</sup> 2020. Approved: June 25<sup>th</sup> 2020. Published: June 30<sup>th</sup> 2020**ABSTRACT**

This research aims to facilitate and assist student learning in finding, gathering and analyzing what is needed to develop spiritual potential, self-control, personality, intelligence, noble character, by using seamless mobile media to get the required help in his life. Integration with guided inquiry learning the values of Islam and science in the phenomenon of natural at millennial students utilize information technology of learning resources available environment. The concurrent triangulation strategy is done by collecting quantitative and qualitative data concurrently, then comparing the two databases related to the presence or absence of convergence, differences, or combination. Based on this multivariate statistic analysis, there are differences in learning outcomes between millennial students who use seamless mobile media and non-seamless mobile media. Efforts to integrate Islamic values and science are realized learning outcomes that are; 1) wisdom of greatness, 2) usefulness in life, 3) artificial projects, 4) written reports, 5) responsibilities, 6) accuracy, 7) curiosity. The results of learning patterns that integrate Islamic values and science using seamless mobile media increase students' skills, abilities, and knowledge. The millennial students can complete artificial projects and report very well their meaningful learning activities to have gratitude to all who made God's creation on Earth. Efforts to integrate Islamic values and science essential to develop knowledge and ethical character. In Islam, every human being born in a sacred environment, and education becomes a deciding factor in the quality of a child's religion by providing learning of meaning to improve the quality of millennial students.

© 2020 Science Education Study Program FMIPA UNNES Semarang

Keywords: seamless mobile media; integration; millennial students

**INTRODUCTION**

The world struck by a disease caused by a coronavirus or called COVID-19. Coronavirus is widespread, and the WHO has established a global pandemic. Viruses affect all fields, especially education. Therefore teachers, students, and parents are required to have an adequate understanding of digital literacy. The impact of COVID-19 in Indonesia involves the readiness of teachers and students to use digital technology, but the reality is currently the teacher still limited to as-

signments to evaluate student learning outcomes. The low level of innovation in teaching strategies affects their interest and learning outcomes, especially since Indonesia's problems with literacy, mathematics, and science skills are still low. As evidenced in 2018, Indonesia ranked 74<sup>th</sup> out of 79 participating countries with an average score of 371 (OECD, 2014).

Based on the results of interviews on students in SMP Sidoarjo district, students who do not like science subjects because it is difficult to understand and also tiresome, too many formulas and principles. The results of interviews with teachers stated the difficulty of teaching science be-

---

\*Correspondence Address

E-mail: eni.fariyatul@umsida.ac.id

cause of the lack of supporting facilities such as thermometers, muschenbroek, dilatori, which are still not balanced with the proportion of students. Based on observations shows that practicum activities are applied limited to students following the "instructions" to prove the concept of science. Students are not given the freedom to control and measure the variables they want to measure. During the practicum, students did not find any findings that made him gain a better understanding than before. Students to be passive as long as instructions. It is due to the teacher's learning patterns that limiting students' creativity, making problem-solving students' ability is merely 25% and still far from expectation (Yigit, 2018).

Science learning material is integrated with the experience of the process. Therefore, it is necessary to change the mindset of the teaching, that students are not as passive but active subjects who can build their understanding through interactions with their learning experiences. Learning in the coronavirus pandemic era is currently above the competencies of teachers using conventional methods, but because they have to innovate using blended learning methods with more e-learning comparisons than using face-to-face. The findings of this study provide innovations in teaching and learning processes that do not transfer knowledge to the extent of theory to students about understanding Islamic and scientific values by maximizing educators, students, and parents who are actively involved in the learning process and engage those who participate (Azhar et al., 2015).

Teacher teaching competencies for millennial students emphasize the knowledge and skills understood. Physics learning must refer to constructivist theory to make students independent and collaborative in applying their knowledge and learning experiences (Fuadiah et al., 2019). Research related to mobile media learning with teaching emphasizing a series of processes and not just relying on formulas, laws, and theories (Salim & Tiawa, 2015). In the millennium era, learning can be done by students anywhere, anytime, and with anyone (Maoto, 2014), by integrating students' moral values (Abu et al., 2015), by the values in the holy Qoran and Hadith, involving the use of technology, information, and communication to facilitate student learning (Kholik, 2018). This mobile application is beneficial and makes it easy for students to read and translate the holy Quran (Mohammad, 2017). Mobile learning an essential part of the life of the millennial era can supports independent learning integrated unlimited learning (Elbarbary, 2015).

E-learning applications must provide adequate visual-based content, attractive appearance so that users can use e-learning comfortably. A stable internet connection is also essential that must be facilitated to carry out learning (Hariyanto et al., 2020). There are six criteria related to mobile technology, there are: 1) learning outcomes, 2) utilizing mobile technology media, 3) efficiency learning, 4) scientific attitudes, 5) learning motivation., and 6) learning tools (Mayer, 2020). Research on students' perceptions of the learning environment in Nigeria has significant learning outcomes. The proposed learning environment is a learning environment using mobile technology that must receive support, cooperation, cooperation, supporting facilities (Isma'ila et al., 2015). Nigeria considers m-learning potential to be the same as m-banking because it is used, facilitated, and offered convenience. The potential m-learning is integrating online learning strategies using text, audio and/or video (Widyanti et al., 2020). Mobile learning formulates educators and students using mobile learning technology. Psychological theory and mobile learning can improve students' knowledge and skills in the future (Bernacki et al., 2020). Seamless mobility leverages the environment into the real world by integrating collaborative learning through cellular media. Seamless mobility focuses on integration components, user experience, security & privacy (Costa et al., 2016).

The novelty of integrating Islamic values and scientific for millennial students with seamless mobile media matches the ability of students to use and search for various information when they are outside and or in the classroom. Students learn actively to determine and map the information, ask various questions that can guide their understanding of problems or benefits for humans life to temperature and heat. A misunderstanding that occurs temperature, students still consider the assessment if a glass of water with a temperature of 80°C if poured into two small glasses, the temperature in each glass is 40°C. Students are encouraged to search and gather various supporting information from the internet or other sources. Seamless mobile learning is that teachers and students not only use technology in their learning systems, but to make students as a true scientist with to search and collect data, compare, and analyze (Fahyuni et al., 2019), use of technologies (Romero-tena & Lopez-lozano, 2020) integrated values, knowledge, and attitudes (Morrison et al., 2014), to various problems (Ramesh, 2019). Flipped classroom innovation can increase student achievement and retention (Al-sancak Sirakaya & Ozdemir, 2018).

Value effective education controls behaviour, spiritual anomalies, and moral supremacy of students (Gani, 2019), in the millennial era (Schwieger & Ladwig, 2018). Seamless learning is a learning model specifically designed to bridge learning across space and time in order to optimize the learning experience to students (Wong, 2015), continuously (Ulfa, 2017). Millennials have different lifestyles, social norms, and cultural values, as well as ways of communication (Sulaiman & Al-Muscatai, 2017).

For this reason, the innovation of this research is not in the variety of technology finesse used, but in the experience gained by students through learning by involving technology (Milrad et al., 2013) such as virtual media with websites or other smartphones (Sung et al., 2016). So students can cogitate their learning with honesty and responsibility (Hester, 2019). Science and religion are inseparable problems in every human life. Knowledge without morality will be paralyzed and religion without science irrational (Crawford, 1997). For this reason, the orientation of the integration of the education curriculum must consist of three elements: religion, science, and skills (Munawar et al., 2018). Thus seamless mobile learning that is applied will actively be able to involve students in searching, finding, studying, and analyzing various problems that occur in everyday life by integrating Islamic values to get meaningful learning for themselves.

## METHODS

### Research Design

This research uses a mixed research method that combines quantitative and qualitative forms (Cresswell, 2014). The quantitative method for population and large sample, there are ten private and public junior high schools in Sidoarjo regency. Still, the sample of this study is ten private and public schools in Sidoarjo regency that have similarities or closeness to student characteristics, parents' socioeconomic status, and school conditions related to available learning facilities and resources. The qualitative methods through observation, interviews, and documents supporting learning activities that integrate Islamic values and science of millennial students learning using

seamless mobile media. This technique uses proportional cluster sampling for grade level with 170 respondents. Quantitative data and assessment of the use of unlimited mobile media applied in schools. Qualitative data through triangulation of data with interviews, observations, and documentary evidence by examining the integrity of the device, media, and learning resources used during learning activities.

### Participants

Before the test, the researcher gave a questionnaire to capture the overall preparation of students with unlimited mobile learning (table 1) 170 students spread across ten junior high schools in the Sidoarjo Regency. Table 1 below shows the distribution of digital literacy preparations to participants at the socioeconomic, class, and gender level.

**Table 1.** Distribution Participants

Participant	Level	Frequency	Percent
Socioeconomic level	Low	35	65
	Moderate	50	86
	High	85	95
Grade school	Junior high school	170	98
Gender	Girl	77	45
	Boy	93	55

Table 1, the distribution of participant digital preparation used by the proportional cluster technique for each group, which have randomly selected 170 students included in the sample in class VII shows the frequency of digital device uses of students coming from families with low, moderate and high socioeconomic levels with the ability to operate smartphones, websites, and email. The results of the questionnaire distribution showed that 98% of students were able to access the internet, send and receive messages with digital devices. Thus improved learning outcomes are analyzed and evaluated by teachers from assignments collected in the form of multiple-choice questions, installations, and online project assignments.

**Table 2.** Multivariate Tests

	Effect	Value	F	Hy- poth- esis df	Error df	Sig.	Partial Eta Squared
Intercept	Pillai's Trace	.989	2053.909 <sup>a</sup>	7.000	161.000	.000	.989
	Wilks' Lambda	.011	2053.909 <sup>a</sup>	7.000	161.000	.000	.989
	Hotelling's Trace	89.300	2053.909 <sup>a</sup>	7.000	161.000	.000	.989
	Roy's Largest Root	89.300	2053.909 <sup>a</sup>	7.000	161.000	.000	.989
Learning media * integration learning	Pillai's Trace	.254	3.365	14.000	324.000	.000	.127
	Wilks' Lambda	.747	3.608 <sup>a</sup>	14.000	322.000	.000	.136
	Hotelling's Trace	.337	3.850	14.000	320.000	.000	.144
	Roy's Largest Root	.333	7.697 <sup>b</sup>	7.000	162.000	.000	.250

a. Exact statistic

b. The statistic is an upper bound on F that yields a lower bound on the significance level.

c. Design: Intercept + Learningmedia \* integrationlearning

Table 2, the types of public and religious schools that implement integrated learning on Islamic values and science and the use of the types of seamless mobile media and non-seamless mobile media effect from learning outcomes students in 1) wisdom of greatness, 2) usefulness in life, 3) artificial projects, 4) written reports, 5) responsibilities, 6) accuracy, 7) curiosity. This statistical value of Fisher (F) Pillai's Trace ( $p = 0.00$ ), Wilks Lambda ( $p = 0.00$ ), Hotelling Trace's ( $p = 0.00$ ), Roy's Largest Root ( $p = 0.00$ ). That the type of school and media used in millennial learning greatly influences student learning outcomes. Based on this analysis, then to improve student learning outcomes in science subjects are students who are accustomed to using unlimited mobile learning in the early grades, they can use technology in their learning at a high-grade level. The results of this study support the application of m-learning, which introduced with traditional teaching and learning activities (Okai-Ugbaje et al., 2020).

The development of digital technology that is increasing, humans seemed unable to escape from the digital world. Therefore, seamless mobile media by emphasizing meaningful learning integrating the values of Islam and science in the millennial era (Schwieger & Ladwig, 2018). Seamless learning is a learning model specifically designed to bridge learning across space and time in order to optimize the learning experience to students (Wong, 2015), continuously (Ulfa, 2017). Millennials have different lifestyles, social norms, and cultural values, as well as ways of communication (Sulaiman & Al-Muscatti, 2017).

For this reason, the innovation of this research is not in the variety of technology finesse used, but in the experience gained by students through learning by involving technology (Milrad et al., 2013) such as virtual media with websites or other smartphones (Sung et al., 2016). So students can cogitate their learning with honesty and responsibility (Hester, 2019). Science and religion are inseparable problems in every human life.

## RESULTS AND DISCUSSION

Based on the results of student learning integrated Islam and science in Sidoarjo district. In learning physics, students are encouraged to find, change, and examine new information received and revise agreements that are no longer appropriate. The basic concept of learning science is dynamic. Participants must build their knowledge. In this process, the teacher can enable students to find their ideas and give flexibility in trying to prove and analyze. The reinforced on qualitative data through observation and interviews teacher and student states of public and religious schools that implement integrated learning on Islamic values and science and the use of seamless mobile media and non-seamless mobile media in millennial learning greatly influences or enhance of student learning outcomes. Based on this multivariate statistic analysis, then to improve student learning outcomes in science students who are accustomed to using unlimited mobile learning in the early grades, they can use technology in their learning at a high-grade level.

The results of this study support the application of m-learning which introduced with traditional teaching and learning activities (Okai-Ugbaje et al., 2020), by involving technology (Milrad et al., 2013) from websites or smartphones (Sung et al., 2016). Integration learning with religion, science, and skills (Munawar et al., 2018). Efforts to integrate Islamic values and science are realized learning outcomes that are; 1) wisdom of greatness, 2) usefulness in life, 3) artificial projects, 4) written reports, 5) responsibilities, 6) accuracy, 7) curiosity. The results of learning patterns that integrate Islamic values and science using seamless mobile media increase students' skills, abilities, and knowledge. The potential m-learning using text, audio and/or video (Widyanti et al., 2020) to improve students' knowledge and skills in the future (Bernacki et al., 2020).

**Table 3.** Media and Integration Learning

Dependent Variable	Learning Media	Integration Learning	Mean	Std. Error	95% Confidence Interval	
					Lower Bound	Upper Bound
Wisdom of greatness	seamless mobile	Public School	73.433	.992	71.474	75.392
		Private School	73.579	1.863	69.900	77.258
	non-seamless mobile	Public School	. <sup>a</sup>	.	.	.
		Private School	68.071	.886	66.322	69.821
Usefulness in Life	seamless mobile	Public School	73.791	1.094	71.631	75.951
		Private School	73.579	2.054	69.524	77.634
	non-seamless mobile	Public School	. <sup>a</sup>	.	.	.
		Private School	66.583	.977	64.655	68.512
Artificial project	seamless mobile	Public School	74.746	1.047	72.680	76.813
		Private School	75.421	1.966	71.540	79.302
	non-seamless mobile	Public School	. <sup>a</sup>	.	.	.
		Private School	68.917	.935	67.071	70.762
Written report	seamless mobile	Public School	73.507	1.023	71.487	75.528
		Private School	74.368	1.922	70.575	78.162
	non-seamless mobile	Public School	. <sup>a</sup>	.	.	.
		Private School	70.310	.914	68.505	72.114
Responsibility	seamless mobile	Public School	75.731	1.119	73.523	77.940
		Private School	74.737	2.101	70.589	78.884
	non-seamless mobile	Public School	. <sup>a</sup>	.	.	.
		Private School	68.250	.999	66.278	70.222
Accuracy	seamless mobile	Public School	75.761	1.136	73.519	78.003
		Private School	75.684	2.132	71.474	79.894
	non-seamless mobile	Public School	. <sup>a</sup>	.	.	.
		Private School	68.452	1.014	66.450	70.455
Curiosity	seamless mobile	Public School	76.149	1.152	73.875	78.423
		Private School	75.842	2.163	71.572	80.112
	non-seamless mobile	Public School	. <sup>a</sup>	.	.	.
		Private School	66.226	1.029	64.195	68.257

a. This level combination of factors is not observed, thus the corresponding population marginal mean is not estimable.

Table 3, media and integration learning in seamless mobile media and non-seamless mobile media types an apply learning that unites Islamic and scientific values. The following of learning activities with a variety of science material that they learn by carrying out a series of understanding learning activities.

Learning activities I, discuss the temperature. A misunderstanding that occurs, students still consider the assessment if a glass of water with a temperature of 80°C if poured into two small glasses, the temperature in each glass is 40 °C. The essence of thermometer scale C, F, and R different numbers; students consider the level of heat of objects to be changed (scale is different). Students are challenged to find the answer “Are humans a reliable gauge of temperature?” to overcome this misunderstanding,. Students are divided into groups to engage, explore, explain, elaborate, and evaluate various they learn. Students are encouraged to search and gather various supporting information from the internet or other sources. Students prove directly through simple experiments. Students learn scientific stories based on the values of the Holy Qur’an and, Hadith. From various procedures carried out, students can communicate the results of the exam to the teacher and classmates. Thermometers, students support making thermometer type maps and clarifying the differences in the temperature scales they produce.

Learning activities II, Introducing the temperature scale of 2 fixed points, fixed point down and a fixed point above. For example, for the Celsius scale, the fixed point is down: 0 °C and the fixed point is above 100 °C (between 100 degrees). Choice of fixed points above and below remain arbitrarily (at will the temperature scale maker), according to the Kelvin scale. On the Kelvin scale, 0 K has no heat energy at all in the body; particles do not move relative to the others. Students are divided into groups to engage, explore, explain, elaborate, and evaluate various they learn. Students are encouraged to search and gather various supporting information from the internet or other sources. Students prove directly through simple experiments. Students learn scientific stories based on the values of the Holy Qur’an and, Hadith. From various procedures carried out, students can communicate the results of the exam to the teacher and classmates. In groups, students scale on a simple thermometer from the liquid. Students Prepare a report and present the workings of a simple thermometer that he made comparing with the accuracy of the scale on a factory-made thermometer.

Learning activities III, It was overcoming temperature changes discussed with the phenomenon of cloud formation and rain. Scientifically the heat of the sun causes the air to evaporate, whether it is sea air, river air or lake water, or water from water sources. Air temperature also plays an essential role in the process of condensation, which is water vapour into vapour. Dew is formed from small dots of air into high air and increasingly compacted into clouds. The existence of wind gusts then makes the clouds that have formed move to another place. Collection of small clouds and then fused to form a more massive cloud. Afterwards, a large cloud moves to the sky, or a place with lower temperatures, and the colour becomes bigger. As the clouds become greyer, the dots become heavier. Releasing the droplets of water is unstoppable and makes drops of air fall to the surface of the Earth. Students are divided into groups to engage, explore, explain, elaborate, and evaluate various they learn. Students are encouraged to search and gather various supporting information from the internet or other sources. Students learn scientific stories based on the values of the Holy Qur’an. The process of passing through rain takes place where rainwater will wet the surrounding area. The holy Qur’an also explains the greatness of God’s creation in the Annur 43.

أَلَمْ تَرَ أَنَّ اللَّهَ يَرْجِي سَحَابًا ثُمَّ يُؤَلِّفُ بَيْنَهُ ثُمَّ يَجْعَلُهُ رُكَامًا فَتَرَى الْوَدْقَ يَخْرُجُ مِنْ جَلْبِهِ وَيُنْزَلُ مِنَ السَّمَاءِ مِنْ جِبَالٍ فِيهَا مِنْ بَرَدٍ فَيُصِيبُ بِهِ مَنْ يَشَاءُ وَيَصْرِفُهُ عَنِ مَنْ يَشَاءُ يَكَادُ مِنْهَا بَرْقٌ يَذْهَبُ بِالْأَبْصَارِ

“Do you not see that Allah drives clouds? Then He brings them together, then He makes them into a mass, and you see the rain emerge from within it. And He sends down from the sky, mountains [of clouds] within which is hail, and He strikes with it whom He wills and averts it from whom He wills. The flash of its lightning almost takes away the eyesight”.

Learning activities IV, the process of expansion in liquids, one of them is related to anomalies water, namely non-linear air expansion. Still, the air has a volume calculated at 4 °C. Smaller than water that will expand, higher than air that will also grow. Students are divided into groups to engage, explore, explain, elaborate, and evaluate various they learn. Students are encouraged to search and gather various supporting information from the internet or other sources. Students learn scientific stories based on the values of the Holy Qur’an. One result of anomalies water: in winter, the river/sea only freezes on its surface, while the inside is not frozen, so fish and

various biomass survive in winter. Anomalous water is beneficial for plant and fish in the poles. Anomalies water makes fish and plants survive of the sea surface freezes, also affects the weather. Anomalous wind will create a balance so that the Earth is neither too hot nor too cold.

إِنَّ فِي خَلْقِ السَّمَوَاتِ وَالْأَرْضِ وَاخْتِلَافِ اللَّيْلِ وَالنَّهَارِ وَالْفَلَاقِ الَّذِي تَخْرُجُ فِي النَّحْرِ بِمَا نَبَغُ النَّاسِ وَمَا أَنْزَلَ اللَّهُ مِنَ السَّمَاءِ مِنْ مَاءٍ فَأَخْيَا بِهِ الْأَرْضَ بَعْدَ مَوْتِهَا وَبَثَّ فِيهَا مِنْ كُلِّ دَابَّةٍ وَتَصْرِيفِ الرِّيْحِ وَالسَّحَابِ الْمُسَخَّرِ بَيْنَ السَّمَاءِ وَالْأَرْضِ لَآيَاتٍ لِقَوْمٍ يَعْقِلُونَ

“Indeed, in the creation of the heavens and earth, and the alternation of the night and the day, and the [great] ships which sail through the sea with that which benefits people, and what Allah has sent down from the heavens of rain, giving life thereby to the earth after its lifelessness and dispersing therein every moving creature,

and directing of the winds and the clouds controlled between the heaven and the earth are signs for a people who use reason”.

Here is the flowchart of integrating Islamic values and science with seamless mobile media. Integration of Islamic and scientific values can be done scientifically by engaging, exploring, explaining, describing, and evaluating. The findings are carried out through scientific research and then integrated into Islamic values displayed in the Holy Qur’an and Hadith by utilizing internet learning resources such as Wikis, social networks, digital holy Quran, blogs, podcasts, and others. Thus students have a vast exploration space without limits on learning outcomes obtained not only in terms of knowledge but more on learning to gather to get integrated for skills, abilities, and knowledge.



**Figure 1.** Integration Islam and Science with Seamless Mobile Learning

Learning activities in Figure 1, involved the action and flexibility of students in engaging, exploring, explaining, elaborating and evaluating with seamless mobile learning in order to make students able to think, do, and care about their environment (Ghamrawi et al., 2015). Research results on how to use in terms of technology. To be able to use technology, it is not necessary to become an expert, ICT first, but more at the time to talk about hospitality and safety using cyberspace. In terms of digital literacy in children, adults who play a crucial role in three main areas: (1) directly responsible for digital literacy. (2) as a role model dealing with cybersecurity. (3) as a reference, children can ask for help from adults and or the environment that can help him (Vélez et al., 2017). In the learning process, students are asked to search, collect, prove, evaluate and conclude the results of their investigations integrated

into Islamic values based on the holy Qur’an and proof of the results of research that have been done to produce new scientists in schools that enable unlimited learning in technology. Mediation (Looi et al., 2019). An event that shows the majesty of God’s creation is the result of rain. During this time, students only learn the process of evaporation from seawater, and so on. Students do not reflect the knowledge they have by integrating Islamic values on the holy Quran and hadith. Students can learn and translate the meaning of this verse with various discussions conducted in daily activities

“Do you not see that Allah drives clouds? Then He brings them together, then He makes them into a mass, and you see the rain emerge from within it. And He sends down from the sky, mountains (of clouds) within which is hail, and

He strikes with it whom He wills and averts it from whom He wills. The flash of its lightning almost takes away the eyesight. (Surah An-Nur /43)”.

One of the materials in science subjects about temperature and heat is explained on the topic of rain. Scientifically the process of removing a shower starts from the process of evaporation of sunlight on the Earth (sea, lakes, rivers, and other objects) evaporating from heat to produce air vapour that is lifted into the air and processes the enrichment process. During the condensation process, air vapour turns into dew which is caused by the temperature around the air vapour being lower than the dew point of the air. Higher temperatures make more dewdrops and condense and make clouds. The difference in the air in the sky causes the movement of air or what we know as wind. The wind moves clouds that bring air droplets to places with lower temperatures. Gathered clouds converge into large grey clouds. With various stages that occur, these students compare and discuss events that happened to Allah in surah An-Nur / 43. By integrating Islam knowledge and science above, students have factual, knowledge, and learning experiences and correlated with miracles of the Qur'an.



Figure 2. Learning Outcome

Integrative Islamic values and science with seamless mobile media effectively increases student's skills, abilities, and knowledge that is not limited by time and space (Nordmark, 2018); (Syawaludin & Rintayati, 2019). It is accordingly shown by the results of the t-test analysis of two paired samples with a significance of  $0,000 < 0,05$ , meaning that there are significant differences in student learning outcomes in the applied and non-applied mobile seamless learning class. Data quantitative obtained through the assessment of learning outcomes derived from the aspects of greatness, score 146 supported by quali-

tative data students can take lessons learned by grateful for the Earth and all its contents that are intended by God to meet human needs. The usefulness of life Aspects and curiosity is 136, which shows the lowest score, causes students to learn that previously could not be given the freedom to search for and prove the truth of the information they obtained. Aspect-made projects received the highest score of 162, followed by the ability to publish reports, responsibilities, and an accuracy rate of 144. Quantitative data obtained or proven qualitative data by conducting interviews, observations, and investigations of research data received reliable and valid truth by what happened in the field. Millennial students can complete the artificial project and report very well about their learning activities that help create gratitude to all who made God's creation on Earth. Efforts to integrate Islamic values and science are significant in developing ethical knowledge and character. In Islam, every human being born in a sacred environment, and education becomes a determining factor in the quality of children's religion by providing meaningful learning to improve the quality of millennial students

## CONCLUSION

The integration of science and Islamic learning with seamless mobile media aims to facilitate and assist student learning processes and active learning atmosphere to develop religious-spiritual potential, self-control, personality, intelligence, noble morals, and the skills needed by himself, society, nation, and state. With seamless mobile media integrating Islamic values and science has proven to be effective in making learning prove religious character that teaches students to have the wisdom of greatness 85.88% towards the creation of God on this Earth. Meaningfulness applied through the use of life by 80%. Not only that, but students also do better artificial projects that are equal to 95.29%. Students can express ideas, direct and find findings in written report cards of 90%. Students have a greater responsibility that is equal to 85.29%. Tasks and projects are undertaken 84.71% of accuracy rate and 80% of curiosity for differences in life and the environment. With various stages that occur, these students compare and discuss the events that happen next in the cross-section of the Qur'an. By integrating Islamic knowledge and science above, students have factual, culture, and learning experiences and correlate with the miracles of the Qur'an. The findings of this study are to produce Muslim



scholars in schools and increase faith and loyalty in whatever they have learned. Thus the application of seamless mobile media integrated values of Islam and science provides assessment not only on increasing student knowledge but also increasing skills of improvement and building students' expected religious attitudes. Some of the obstacles faced in this research were schools are not ready to implement seamless mobile learning due to limited infrastructure and teacher competencies that were not digital literate. For this reason, training, seminars, and workshops need to be held to develop the competencies of teachers and motivate them to have awareness and readiness for developing science and technology. It supports the government's efforts in child-friendly school programs that aim to facilitate and assist the learning of students who are noble, productive, creative, innovative and able to contribute to society, nation, country, and the world.

## REFERENCES

- Abu, L., Mockhtar, M., Hassan, Z., & Suhan, S. Z. D. (2015). *How to develop character education of madrasa students in Indonesia*. Universitas Ahmad Dahlan.
- Alsancak Sirakaya, D., & Ozdemir, S. (2018). The Effect of a Flipped Classroom Model on Academic Achievement, Self-Directed Learning Readiness, Motivation And Retention. *Malaysia Online Journal of Educational Technology*, 6(1), 76–91.
- Azhar, M., Mustapa, S., Ibrahim, M., & Yusoff, A. (2015). Engaging vocational college students through blended learning: Improving class attendance and participation. *Procedia-Social and Behavioral Sciences*, 204, 127-135.
- Bernacki, M. L., Crompton, H., & Greene, J. A. (2020). Towards convergence of mobile and psychological theories of learning. *Contemporary Educational Psychology*, 60, 101828.
- Costa, P. M., Fontes, T., Nunes, A. A., Ferreira, M. C., Costa, V., Dias, T. G., ... & e Cunha, J. F. (2016). Application of collaborative information exchange in urban public transport: The seamless mobility solution. *Transportation Research Procedia*, 14, 1201-1210.
- Crawford, R. (1997). *Managing information technology in secondary schools*. Psychology Press.
- Cresswell, J. W. (2014). *Research Design. Qualitative, Quantitative and Mixed Methods Approaches* (Fourth Edi). Sage Publication.
- Elbarbary, R. S. (2015). Identifying Core Mobile Learning Faculty Competencies Based Integrated Approach: A Delphi Study. *Journal of Education and Learning*, 4(2), 81–95.
- Fahyuni, E. F., Masitoh, S., & Haryanto, B. (2019, March). How the teacher's teaching is? the guided-inquiry-worksheets to enhance science process skills. In *Journal of Physics: Conference Series* (Vol. 1175, No. 1, p. 012136). IOP Publishing.
- Fuadiah, N. F., Suryadi, D., & Turmudi. (2019). Teaching and learning activities in classroom and their impact on student misunderstanding: A case study on negative integers. *International Journal of Instruction*, 12(1), 407–424.
- Gani, A. (2019). Urgency education morals of Sufism in millennial era. *Journal for the Education of Gifted Young Scientists*, 7(3), 499–513.
- Ghamrawi, N. A., Ghamrawi, N., & Shal, T. (2015). Perception of Character Education: The Case of Lebanese School Leaders. *Open Journal of Leadership*, 4(04), 129.
- Hariyanto, D., Triyono, M. B., & Köhler, T. (2020). Usability evaluation of personalized adaptive e-learning system using USE questionnaire. *Knowledge Management & E-Learning: An International Journal*, 12(1), 85-105.
- Hester, J. P. (2019). Values-Based Leadership in a Time of Values Confusion Values-. *The Journal of Values Based Leadership*, 12(1), 1–11.
- Isma'ila, Y. S., Enemali, J. D., Muhammad, M. H., & Nordin, M. S. (2015). Students' psychosocial perception of automobile technology learning environment and attitudinal outcomes in north-eastern Nigeria tertiary institutions. *Procedia-Social and Behavioral Sciences*, 204, 136-142.
- Kholik, A. Y. N. K. A. (2018). *Integration Science and Religion in Physic Subject: An Analysis in Islamic Higher Education*. 5(1), 11–18.
- Looi, C. K., Wong, L. H., Glahn, C., & Cai, S. (Eds.). (2019). *Seamless Learning: Perspectives, Challenges and Opportunities*. Springer.
- Maoto, S. (2014). Creating a child friendly psychosocial learning environment in mathematics: A case of problem solving in grade 6. *Mediterranean Journal of Social Sciences*, 5(23), 1048–1055.
- Mayer, R. E. (2020). Where is the learning in mobile technologies for learning? *Contemporary Educational Psychology*, 60, 101824.
- Milrad, M., Wong, L. H., Sharples, M., Hwang, G. J., Looi, C. K., & Ogata, H. (2013). Seamless Learning: An International Perspective on Next Generation Technology Enhanced Learning.
- Mohammad, M. A., H. (2017). Mobile Applications' Impact on Student Performance and Satisfaction. *The Turkish Online Journal of Educational Technology*, 14(4), 102–112.
- Morrison, L. J., Lorens, E., Bandiera, G., Liles, W. C., Lee, L., Hyland, R., ... & Levinson, W. (2014). Impact of a formal mentoring program on academic promotion of Department of Medicine faculty: a comparative study. *Medical teacher*, 36(7), 608-614.
- Munawar, S., Toor, S. K., Aslam, M., & Hamid, M. (2018). Move to smart learning environment: exploratory research of challenges in computer

- laboratory and design intelligent virtual laboratory for eLearning Technology. *EURASIA Journal of Mathematics, Science and Technology Education*, 14(5), 1645-1662.
- Nordmark, S. (2018). *A Multimodal Seamless Learning Approach Supported by Mobile Digital Storytelling (mDS)* (Doctoral dissertation, Linnaeus University Press).
- OECD. (2014). *PISA 2012 Results : What Students Know and Can Do* (1 ed.). OECD Publishing.
- Okai-Ugbaje, S., Ardzewska, K., & Imran, A. (2020). Readiness, roles, and responsibilities of stakeholders for sustainable mobile learning adoption in higher education. *Education Sciences*, 10(3), 49.
- Ramesh, M. (2019). *Virtual Lab : A Supplement for Traditional Lab to School Students*. 3085(02), 434-436.
- Romero-tena, R., & Lopez-lozano, L. (2020). Types of Use of Technologies by Spanish Early Childhood Teachers. *European Journal of Educational Research*, 9(2), 511-522.
- Salim, K., & Tiawa, D. H. (2015). Implementation of Structured Inquiry Based Model Learning toward Students' Understanding of Geometry. *International journal of research in education and science*, 1(1), 75-83.
- Schwieger, D., & Ladwig, C. (2018). Reaching and Retaining the Next Generation: Adapting to the Expectations of Gen Z in the Classroom. *Information Systems Education Journal*, 16(3), 45-54.
- Sulaiman, S. M. A., & Al-Muscatai, S. R. A. (2017). Millennial Generations & Their Parents: Similarities and Differences. *International Journal of Psychological Studies*, 9(1), 121.
- Sung, Y. T., Chang, K. E., & Liu, T. C. (2016). The effects of integrating mobile devices with teaching and learning on students' learning performance: A meta-analysis and research synthesis. *Computers & Education*, 94, 252-275.
- Syawaludin, A. G., & Rintayati, P. (2019). Enhancing Elementary School Students' Abstract Reasoning in Science Learning Through Augmented Reality-Based Interactive Multimedia. *Jurnal Pendidikan IPA Indonesia*, 8(2), 289-298.
- Ulfa, S. (2017). "Mobile Seamless Learning" Sebagai Model Pembelajaran Masa Depan. *JINOTEP (Jurnal Inovasi dan Teknologi Pembelajaran) Kajian dan Riset dalam Teknologi Pembelajaran*, 1(1), 11-19.
- Vélez, A. P., Olivencia, J. J. L., & Zuazua, I. I. (2017). The role of adults in children digital literacy. *Procedia-Social and Behavioral Sciences*, 237, 887-892.
- Widyanti, A., Hasudungan, S., & Park, J. (2020). e-Learning readiness and perceived learning workload among students in an Indonesian university. *Knowledge Management & E-Learning: An International Journal*, 12(1), 18-29.
- Wong, L. H. (2015). A brief history of mobile seamless learning. In *Seamless learning in the age of mobile connectivity* (pp. 3-40). Springer, Singapore.
- Yigit, M. F. (2018). *Does Higher Education Change Value Perceptions?* 1(1), 1-8.