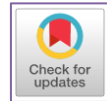


Islamic religious education learning innovations in strengthening character education in the Industrial Revolution Era 4.0



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Abstract: This research is based on the role of Islamic Religious Education (PAI) subjects in strengthening student character in the era of Industrial Revolution 4.0 at SMK Muhammadiyah 1 Bantul. In connection with this, this research aims to determine Islamic religious education (PAI) learning innovations in strengthening the character of the Industrial Revolution 4.0 at SMK Muhammadiyah 1 Bantul. This research uses qualitative research methods, which are delivered descriptively. Sources of information in this research include school principals, teachers, education staff, and students who participate in learning activities in class XI of the Automotive Light Vehicle Engineering Skills Program (TKRO) at SMK Muhammadiyah 1 Bantul. The primary data source is in the form of the words and actions of the subject, which is the focus of the research; the rest is in the form of additional data such as documents, photos, and others. This research concluded that the "Kaizen" method, which originates from Japanese, the Japanese concept of Continuous Incremental Improvement, can strengthen character education and become a PAI learning innovation in the era of the Industrial Revolution 4.0. The "Kaizen" method includes five stages with the prefix "S": Seiri, Seiton, Seiso, Seiketsu, and Shitsuke.

Keywords: Islamic Religious Education, Learning Innovation, Strengthening Character Education, Industrial Revolution 4.0

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INTRODUCTION

The rapid advancement of information and communication technology has ushered in a new pattern in all aspects of human life, including education (Kholifah et al., 2021). The progress or decline of a nation's civilisation is not only determined by the wealth of its natural resources, but what is most important is the quality of its human resources and the integrity of its society (Syam & Arifin, 2018). Like it or not, the world of education must be able to keep up with the acceleration of changes instantly to keep up with the industrial era 4.0 (Suhartono, 2021).

As pioneers of education, teachers are the leading figures of change in education (Retnaningsih, 2019). This requires teachers to prepare and strategise as they face future challenges. Teachers must be able to manage their students well, along with the increasing complexity of technology, and operate it well (Utomo, 2019).

Some teaching staff are less prepared to face the Industrial 4.0 era, becoming insensitive to the learning process and Islamic education. We have yet to meet the challenges of Industry 4.0, but now, the era of Society 5.0 is here. This era aims to provide comfort and prosperity to humans by using data-based technology information (Retnaningsih, 2019). The Industrial Era 4.0 has given birth to fundamental changes in

how we live, work and relate to others. Many areas of life are being intervened by new technological advances such as artificial intelligence (AI), the Internet of Things (IoT), robots, automated vehicles, three-dimensional (3D) printing, nanotechnology, biotechnology, materials science, energy storage, and quantum computing (Abdullah, 2020; Vuksanović et al., 2016).

Islamic religious education (PAI) is part of the national curriculum, which is taught from early childhood education to higher education. Entering the era of Industrial Revolution 4.0, what needs to be understood is not how to turn humans into robots but what is hoped is how this technology can be used to improve human welfare. Technology is positioned as only a medium or instrument for humans. The rapid changes in life and the demands of a globalised world must be anticipated and responded to by the world of education (Keputusan Menteri Agama Republik Indonesia Nomor 184 Tahun 2019, 2019). This is the role and function of developing Islamic education and human resource processes with the guidance of revelation, forming individuals with adequate character, spirituality and competence (Gunawan, 2013).

When a character crisis occurs, accusations are often directed at religious education as the cause. This also happened at SMK Muhammadiyah 1 Bantul. If students are disorganised, impolite, lie, skip prayers and teaching and learning activities (KBM), they will undoubtedly be brought to the PAI teacher for guidance. This is reasonable considering that PAI is at the forefront in preparing quality human resources, both hard and soft skills.

In general, PAI in schools aims to grow and improve faith through providing and cultivating knowledge, appreciation, practice and experience of students regarding the Islamic religion so that they become Muslim people who continue to develop in terms of their faith, purity, nation and state, and to be able to continue to the next level higher education (Majid & Andayani, 2004).

In this case, the new paradigm of national education also really emphasises that Islamic educational institutions are generally community-based, community-based education. Several new PAI modernisation paradigm concepts include: (1) Ideological norms and several ideological orientations expressed in national norms (for example, Pancasila) require the education system to expand and strengthen students' national awareness. For relatively newly independent countries where national integration is the central agenda; (2) Political advocacy, modernisation, and development needs require an education system to train and produce modern leaders and innovators who can maintain and increase momentum; (3) Economic dynamics, a reliable workforce, and an education system are needed to prepare students to become superior human resources capable of completing various jobs created in the development process; (4) Social mobilisation and increasing expectations of social mobility in modernisation require education to provide access and a place in that direction; (5) Cultural mobilisation, modernisation which causes cultural change, requires the education system to maintain stability and develop a cultural heritage that is conducive to development (Azra, 2017).

The question that arises is, how can Islamic religious education (PAI) learning innovations strengthen the character of the Industrial Revolution 4.0 at SMK Muhammadiyah 1 Bantul? This question must then be answered as a challenge to PAI's existence in the era of Industrial Revolution 4.0. Strengthening character education through PAI significantly contributes to national education ideals as a form of educational investment in realising a golden generation in the era of Industrial Revolution 4.0.

METHODS

This research uses qualitative research methods which are delivered descriptively. This research aims to describe Islamic religious education (PAI) learning innovations in strengthening the character of the industrial revolution 4.0 at SMK Muhammadiyah 1 Bantul.

This research was conducted in class XI of the Automotive Light Vehicle Engineering Skills Program (TKRO) at SMK Muhammadiyah 1 Bantul. Basically, this research was carried out by researchers focusing on Islamic Religious Education (PAI) learning innovations and strengthening student character. The survey period is from February to March 2022, from morning to afternoon during teaching and learning activities at school. The main data source is in the form of the words and actions of the subject which is the focus of the research, the rest is in the form of additional data such as documents, photos and others. The researcher creates a complex picture, examines the words, detailed reports of the respondents' views and conducts studies on the situations experienced. Bogdan and Taylor define qualitative research methodology as a research procedure that produces descriptive data in the form of written or spoken words from people and observable behavior (Moleong, 2007). Meanwhile, data analysis in this research uses data analysis techniques consisting of data collection, data reduction, data presentation, and drawing conclusions.

RESULTS AND DISCUSSION

Industrial revolution 4.0 has become a main topic and received a rapid response throughout the world, including Indonesia. The Industrial Era 4.0 stimulates scientific and technological progress. The Indonesian government appeals to the Indonesian people in all aspects of technological literacy, especially in the educational aspect (Anwar et al., 2018). The world of education is designed to produce graduates who have life skills, the ability to reason (critical thinking), find solutions (problem solving), build communication (communication), create cooperation and networks (collaboration and social networks), create creativity (creativity) and Innovation is necessary to produce students who are capable and have character (Qurtuby, 2021).

Education has a role in cultivating character values, including: (1) character development is one of the main tasks in education. The main task of education is not only providing knowledge and skills, but also character development. Character development will give birth to someone who is superior in character and will produce students who are wise in dealing with the problems and challenges they face; (2) Changing bad habits, through character education a student will be able to understand and be able to differentiate between good and bad actions. So, through education, students can change the bad habits they previously had, step by step; (3) Character is a character that is stored in a person's soul and through this character it can be easily seen how a person will behave towards other people. Through character education, students are formed to have good character. A student's character can be said to be good, it can be seen through the way they behave and how they treat other people. (4) Character is a trait that is created from within a person to show commendable behavior and contains elements of virtue. The cultivation of character shown through this behavior can be obtained in various ways, such as the process of instilling values carried out through education at school. Furthermore, the values instilled will form attitudes and behavior that are carried out continuously and form habits (Putri, 2018).

Learning (instruction) is an activity effort to teach a person or group through methods and strategies towards goals as planned. Learning is considered necessary as a teacher activity in instructional design to facilitate student learning. Learning is a structured combination, including human elements, facilities, equipment and procedures that influence each other to achieve learning goals (Oemar, 2010).

Learning innovation is a change in education that is based on conscious, planned, patterned efforts in learning which aims to direct, according to the needs faced and the demands of the times. In learning innovation, new ideas as a result of rethinking must be able to solve problems that cannot be solved by traditional methods (Madyo & Kasihadi, 1993).

Innovation in PAI learning refers to educational innovation, because learning is a component of education itself. One of the serious problems facing the world of education today is the low quality of learning, including PAI learning. The religious education learning process that occurs is often just simple, routine, formal, dry, stiff and lacking in meaning. Lesson material information obtained from teachers relies more on the sense of hearing.

As per research by Abadi (2015) in the Tasyri Journal with the title "E-Learning Based Islamic Religious Education Learning Innovations". The results of the research state that there is an educational system or concept that utilizes information technology in the teaching and learning process which is called e-learning. E-learning in its implementation has advantages and disadvantages. One of the advantages is that students can learn about teaching materials at any time and anywhere if needed considering that the teaching materials are stored on the computer. Meanwhile, one of the negative impacts is the lack of interaction between teachers and students or even between students themselves, which slows down the formation of values in the learning and teaching process.

Nurdin (2016) in the Tadris Journal with the research title "Innovation in Islamic Religious Education Learning in the Era of Information and Communication Technology". The results of this research are that educational technology can be interpreted as theory and practice in designing, developing, utilizing, managing and assessing processes and resources for learning. The internet is a relevant media if used to support the quality of PAI. Because it can provide convenience and speed in conveying information so that the PAI learning process can run effectively and efficiently. The internet can provide several facilities and services or applications such as: web blogs, email, e-learning, etc. to be utilized in the PAI learning process in schools and madrasas. Learning Islamic Religious Education (PAI) based on Information and Communication Technology (ICT) can be a solution for Islamic Religious Education (PAI) teachers who have experienced difficulties in the learning process, especially aspects of learning methods.

Nurhidayati (2016) in her research shows that the theory of the Multiple Intelligences theory emerged as a form of criticism of the IQ theory which limits intelligence to Logical-Mathematical and Linguistic intelligence only while in MI theory there are nine human intelligences, namely: (a) Linguistic Intelligence; (b) Logical-Mathematical Intelligence; (c) Visual-Spatial Intelligence; (d) Kinesthetic Intelligence; (e) Musical Intelligence; (f) Interpersonal Intelligence; (g) Intrapersonal Intelligence; (h) Naturalist Intelligence; (i) Existentialist Intelligence. Multiple Intelligences-based learning is a form of learning innovation that can be an option for Islamic Religious Education (PAI) teachers in Indonesia. Applying Multiple Intelligences-based learning means using an interdisciplinary approach in developing learning material content, using multiple learning

models, and using authentic assessment in evaluating learning. This is intended to accommodate the diversity of intelligence possessed by students.

Lia Oktavia's (2022) research with the title "Learning in the Era of the Industrial Revolution 4.0 in Islamic Education at SD Negeri 10 Ujan Mas" in the Journal of Islamic Religious Teacher Professional Education. The results of the research explain to PAI teachers that the challenge is that students are taught in the form of moral messages by teachers, but many students ignore it and don't care about it. From this it can be seen that students do not really pay attention to the advice given and are busy with themselves which results in the birth of an individualistic nature or a tendency to be less sensitive to the environment. In fact, many students today live alone, which leads to the birth of competitive individuals. Technological developments are certainly a characteristic of the Industrial Revolution 4.0 era. With the proliferation of smartphones and internet connections, users, especially students at SD Negeri 10 Ujan Mas, will not care about others. In this way, they become individuals who are less sensitive to the environment. Of course, in a broader sense, this has an impact on the difficulty for universities to develop the tri dharma of higher education.

Furthermore, Taufik's (2020) research in the ISLAM FUTURA Scientific Journal titled "Strategic Role of Islamic Religious Education in Strengthening Character Education in The Era of Industrial Revolution 4.0." This research aims to analyze and examine the strategic role and function of Islamic Religious Education (PAI) in strengthening character education, especially in the era of industrial revolution 4.0. Era 4.0 is marked by the rapid development of automation trends, data exchange, artificial intelligence, internet of things, 3D printing, robots and intelligent machines which are massively replacing human labor. Open access to information allows people to receive a variety of information and can influence or even change their character, way of thinking and behaving. PAI acts as a facilitator who carries out cultural functions and the ideal function of controlling values and directing the development of society. Strengthened by the social reconstruction curriculum which focuses learning on the problems faced in society so that students are able to adapt to developments in the modern world and are highly competitive but still have an integrative religious-holistic character so as to be able to fortify the morale of the nation's generation from the negative influences of globalization. Strengthening character through PAI is an educational investment in realizing the character of the golden generation by building a balance of hard skills and soft skills which in turn will create a culture of learning society.

From several studies that have been carried out, it can be concluded that innovation in PAI learning needs to be carried out and PAI teachers are expected to be able to lead their students to become students with character and morals. Because just being armed with knowledge is not enough. Students' morals are also influenced by customs, heredity, environment, and so on. So to change student behavior requires support from many things, not just teachers at school. The challenge faced by PAI teachers in the industrial era 4.0 is a very difficult task to restore religious knowledge so that it is more highly respected by society, especially through the world of education. However, despite these challenges PAI teachers also have opportunities within the school.

Islamic education

Etymologically, Islamic religious education (PAI) is often interpreted as education that is based on Islamic teachings in the form of guidance and care for students so that after completing their education, they can understand, appreciate and practice the

teachings of the Islamic religion, which they believe in thoroughly, and make the teachings Islam as a way of life for the safety of life in this world and the afterlife (Shaleh, 2005; Tafsir, 1992). The essence of PAI is defined as the process of trans-internalizing Islamic knowledge and values to students through teaching, habituation, guidance, cultivation, supervision, direction and development of their potential to achieve harmony and perfection in life in this world and the hereafter, physical and spiritual (Astuty & Suharto, 2021).

The 2004 Islamic Religious Education (PAI) Curriculum explains that PAI is a conscious and planned effort to prepare students to know, understand, appreciate and have faith, purity and noble character. Islamic teachings and its primary sources, the Koran and al-Hadith, through guidance, teaching practice, and the use of experience. So, PAI is an educational process that leads to the formation of good character or morals. The internalisation of values in PAI includes the values of the Koran, creed, sharia, morals and the history of Islamic civilisation (tarikh) (Taufik, 2020). PAI is an effort to change knowledge in cognitive or religious aspects to create affective or attitudinal elements. Also, it has a role in controlling psychomotor elements to create a complete human personality (F. Setiawan et al., 2021).

PAI provides religious knowledge and shapes students to live according to Islamic teachings or guides their body and soul based on Islamic laws towards forming a leading personality according to Islamic standards. Meanwhile, what is meant by the primary personality is a Muslim personality, namely a personality with Islamic religious values who chooses, decides and acts based on Islamic values and is responsible according to Islamic values (Marimba, 1989).

In practice, so far, PAI learning has had many problems, such as incorrectly defining religion, the paradigm used in religious learning, and the objectives of spiritual knowledge. Religion is only interpreted as rituals and readings, and even though it is in-depth, it can be interpreted as the whole of human behaviour in life. This behaviour forms human integrity with noble character based on faith in God and personal responsibility in the future (Hidayat et al., 2007).

The PAI learning process in schools can be carried out directly by delivering religious teachings or procedures and materials, including concepts. From a process perspective, PAI develops students' potential to become faithful, devout, and knowledgeable servants of God based on the sources of Islamic teachings. Physically, PAI is a document or material used in learning activities that contain material about the Koran, fiqh, creed, ethics and history of Islamic culture or civilisation (Anam, 2021). Every learning process is the result of learning assimilation, if necessary, reducing the lecture method by making students the centre of learning and finding enthusiasm for learning and their activities so that the learning methodology concept that is created is learning, not teaching (Mauliya, 2021). This is the challenge PAI teachers face in innovative PAI learning to strengthen character at SMK Muhammadiyah 1 Bantul.

Strengthening Character Education

Strengthening character is very important in the era of digital science and technology, such as today, where science is not value-free, and there is no statement that humans are like robots without humans who are gifted with a conscience by God. This is in line with the aim of education, which is not only to transfer knowledge but also to form individuals with noble morals and strong character (Anwar et al., 2018).

Character education is an essential need for Indonesia. The openness of information, globalization where everything is digital, and anyone can gain knowledge without a teacher. This is a big challenge in strengthening character (Mukhtar, 2021). Character education is the essential part of realizing the formation of a generation with superior qualities and is the key to producing Indonesian children who have good qualities so that they can be implemented in everyday life (Sholekhah, 2019).

Character comes from the word "Kharasein" (Greek), which means to make a sketch or a tool for making carvings, a sign that indicates a stamp, or a characteristic that distinguishes children in the family (Iswan & Bahar, 2018). Good character has three related parts, namely moral knowledge, moral feelings, and moral actions. Moral knowledge consists of ethical awareness, knowledge, moral values, understanding other points of view, moral reasoning, decision-making, and self-knowledge. Honest feelings include conscience, self-respect, empathy, love, self-control, and humility. Meanwhile, moral actions consist of competence, desires and habits (Lickona, 2012).

Republic of Indonesia Presidential Regulation Number 87 of 2017 concerning Strengthening Character Education, article 1 states that "Strengthening Character Education, from now on abbreviated as PPK, is an educational movement under the responsibility of the education unit to strengthen the character of students through harmonization of heart, feeling, thinking and sports with involvement and cooperation between educational units, families and communities as part of the National Mental Revolution Movement (GNRM)."

The PPK movement places character education as the deepest or core dimension of national education so that character education becomes the axis for the implementation of primary and secondary education (Kementerian Pendidikan dan Kebudayaan Republik Indonesia, n.d.). Article 3 of Presidential Decree no. 87/2017 explains that PPK is implemented by applying Pancasila values in character education, mainly including religious values, honesty, tolerance, discipline, hard work, independent creativity, democracy, curiosity, national spirit, love of the country, respect for achievements communicative, peace-loving, fond of reading, cares about the environment, cares socially, and is responsible. These values are the embodiment of five main interrelated characters: religiosity, nationalism, independence, cooperation and integrity (Kementerian Pendidikan dan Kebudayaan Republik Indonesia, 2016).

The implementation of PPK in schools must also be based on three basic principles, namely: first, oriented towards developing students' potential in a comprehensive and integrated manner; second, exemplary implementation of character education in each educational environment; and third, it takes place through habituation and over time in daily life (Article 3 of Minister of Education and Culture Regulation 20/2018). Through character education, students learn to differentiate between right or wrong, good or bad behaviour, and become accustomed to behaving according to existing character values so that it is ingrained in them constantly to carry out good habits based on character values. If character values are instilled early, students can protect themselves against bad things and be better prepared to face the 4.0 era (Sofiasyari et al., 2019).

Strengthening character education cannot be avoided and must be implemented to face the challenges of the industrial era 4.0. This is because the Industrial Revolution 4.0 era provides opportunities and challenges different from previous periods. In the 4.0 era, massive use of Internet technology has become necessary in all dimensions of life, including education. Industrial Revolution 4.0 provides new challenges for Indonesia's young generation. Theoretical and practical knowledge alone is not enough to equip

them to survive in the current era of advanced technology (W. Setiawan et al., 2018). The implementation of character education in schools is an effort to restore the cultural values of the Indonesian nation, which have been lost due to the progress of the times, one of which is the value of noble morals or good character (Faiz & Kurniawaty, 2020).

Industrial Revolution 4.0

Industrial revolution consists of two words, namely revolution and industry. Revolution in the Big Indonesian Dictionary (KBBI) means rapid change, while the definition of industry is the effort to implement the production process. So, if these two words are combined, they represent a change in the production process that is taking place quickly. This rapid change is not only aimed at increasing the number of goods produced (quantity) but also at improving the quality of production (quality) (Priatmoko, 2018).

The Industrial Revolution 4.0, driven by technological advances, has transformed various industries. These changes require people to acquire the skills needed in the era of Industrial Revolution 4.0 to maintain life. To respond to these changes, educators have a big responsibility to develop intelligent, responsible, modern humans. This requires perspectives and characteristics of learning in the era of Industrial Revolution 4.0. Adaptation of the learning perspective refers to the meeting place between educational features of the Industrial Revolution 4.0 era in the learning process (Prasetyo & Trisyanti, 2018). The concept of Industry 4.0 was first introduced in Germany as a proposal to develop a new industrial policy based on a state-of-the-art technology strategy held in Hannover in 2011 (Antunes et al., 2018).

The history of the first industrial revolution occurred in England in the mid-18th century and was strengthened by James Watt's discovery of the steam engine. At this time, human labour was replaced by mechanical machines that used water and steam energy. In the second half of the 19th century, there was an industrial revolution in both Europe and America. This revolution was characterized by mass production and replacing steam with chemical and electrical energy. In this phase, there was an increase in production, so various industrial and mechanization technologies were developed, such as assembly with automated machines, allowing for increased performance. In the late 1960s, advances in computing and electronics enabled more optimized and automated production, known as programmable logic control systems (Ślusarczyk, 2018).

Friedrich Engels and Louis Auguste Blanqui introduced the term industrial revolution in the mid-19th century. This industrial revolution also occurred from time to time. This last decade has entered the fourth phase (4.0). Changing phase to phase provides an articulate difference in terms of use. The first phase (1.0) involves the discovery of machines which emphasize (stress) the mechanization of production. The second phase (2.0) has moved on to the mass production stage, which is integrated with quality control and standardization. The third phase (3.0) enters the stage of mass uniformity, which relies on computerized integration. The fourth phase (4.0) has brought digitalization and automation, combining the Internet with manufacturing (Suwardana, 2018).

The era of Industrial Revolution 4.0 is a term used to refer to an era or period in which technology combines and brings physical, biological and digital dimensions. Almost all work must be done during this period using digital technology such as computers, gadgets and internet networks. For example, office workers, teachers, motorbike taxis,

and even photocopiers who used to transfer files using flash drives can now send documents they want to print or copy using the WhatsApp application. Undoubtedly, the convenience of this technology will make a big difference in people's lives. This is in line with Heraldin's opinion in its journal entitled "Redesigning the Islamic Higher Education Curriculum: Strategies Facing the Industrial Revolution Era 4.0", and quotes the ideas of Professor Klaus Schwab, who revealed four stages of the Industrial Revolution, each stage of which can change human life and the way people work. Industrial Revolution 4.0 is the final stage in this concept after the stages in the 18th, 20th and early 1970s (Suneki, 2020).

Era 4.0 is also known as the digital era or era of disruption because fundamental and massive changes have occurred in society in technology, affecting various aspects of life. Era 4.0 is very close to advances in internet technology, offering many things such as information, news, entertainment, economics, etc. (Nasution, 2021). With technological advances, learning must respond to changes in student behaviour. Education actors must redefine public education to respond to innovation and education in the 4.0 era. Innovation and education in the 4.0 era are not enough to define 21st-century skills but also consider learning management and virtual aspects of social learning; its graduates will become intellectuals and ultimately help build an intelligent nation. Including efforts to develop society with new technological innovations. An appropriate learning management model is a challenge for the world of education to prepare students' competencies and skills to face future challenges (Puncreobutr, 2016). The industrial revolution has changed the way we live, work and interact with each other (Shahroom & Hussin, 2018). Industrial changes change industrial methods, techniques and technological developments which then have an impact on paradigm changes not only in the industrial world but also in the world of education (Taufik, 2020).

Islamic Religious Education Learning Innovations in Strengthening Character Education in the Industrial Revolution Era 4.0 at Muhammadiyah 1 Vocational School Bantul

Industrial Revolution 4.0 has become a central topic and has received a rapid response worldwide, including in Indonesia. The Industrial Era 4.0 stimulates scientific and technological progress. The Indonesian government appeals to the Indonesian people in all aspects of technological literacy, especially in the educational element (Anwar et al., 2018). The world of education is designed to produce graduates who have life skills, the ability to reason (critical thinking), find solutions (problem-solving), build communication (communication), create cooperation and networks (collaboration and social networks), create creativity (creativity) and Innovation is necessary to produce students who are capable and have character (Qurtuby, 2021).

Education has a role in cultivating character values, including (1) character development is one of the main tasks in education. The main task of education is not only to provide knowledge and skills but also to develop character. Character development will give birth to someone superior in character and will produce students who are wise in dealing with the problems and challenges they face; (2) By changing bad habits through character education, students can understand and differentiate between good and bad actions. So, through education, students can change their previous bad habits; (3) Character is a character stored in a person's soul, and through this character, it can be easily seen how a person will behave towards others. Through character education, students are formed to have good character. A student's character can be said to be good; it can be seen through how they behave and treat others; (4) Character is a trait

created from within a person to show commendable behaviour and contains elements of virtue. The cultivation of character shown through this behaviour can be obtained in various ways, such as by instilling values carried out through education at school. Furthermore, the values instilled will form attitudes and behaviours carried out continuously and form a habit (Putri, 2018).

Learning (instruction) is an activity that teaches a person or group through methods and strategies towards goals as planned. Learning is considered necessary as a teacher activity in instructional design to facilitate student learning. Learning is a structured combination, including human elements, facilities, equipment and procedures that influence each other to achieve learning goals (Oemar, 2010). Learning innovation is a change in education that is based on conscious, planned, patterned efforts in learning which aims to direct, according to the needs faced and the demands of the times. In learning innovation, new ideas as a result of rethinking must be able to solve problems that traditional methods cannot solve (Madyo & Kasihadi, 1993).

Innovation in PAI learning refers to educational innovation because learning is a component of education. One of the severe problems facing the world of education today is the low quality of learning, including PAI learning. The religious education learning process is often just simple, routine, formal, dry, stiff and meaningless. Lesson material information obtained from teachers relies more on the sense of hearing.

As per research by Ghafiqi Farook Abadi (2015) in the Tasyri Journal with the title "Inovasi Pembelajaran Pendidikan Agama Islam Berbasis *E-Learning*". The results of the research state that there is an educational system or concept that utilizes information technology in the teaching and learning process, which is called e-learning. E-learning, in its implementation, has advantages and disadvantages. One of the advantages is that students can learn about teaching materials at any time and anywhere if needed, considering that the teaching materials are stored on the computer. Meanwhile, one of the negative impacts is the need for more interaction between teachers and students or even between students themselves, which slows down the formation of values in the learning and teaching process.

Nurdin (2016) in the Tadris Journal with the research title "Inovasi Pembelajaran Pendidikan Agama Islam Di Era *Information And Communication Technology*". The results of this research are that educational technology can be interpreted as theory and practice in designing, developing, utilizing, managing and assessing processes and resources for learning. The internet is a relevant media used to support the quality of PAI. Because it can provide convenience and speed in conveying information so that the PAI learning process can run effectively and efficiently, the internet can provide several facilities and services or applications, such as web blogs, email, e-learning, etc., to be utilized in the PAI learning process in schools and madrasas. Learning Islamic Religious Education (PAI) based on Information and Communication Technology (ICT) can be a solution for Islamic Religious Education (PAI) teachers who have experienced difficulties in the learning process, especially aspects of learning methods.

Nurhidayati (2016) in the journal Pendidikan Agama Islam with the title "Inovasi Pembelajaran PAI Berbasis *Multiple Intelligences*." The results of this author's research, the Multiple Intelligences Theory, emerged as criticism of the IQ theory, which limits intelligence to Logical-Mathematical and Linguistic intelligence only. In MI theory, there are nine human bits of intelligence, namely: (a) Linguistic Intelligence; (b) Logical-Mathematical Intelligence; (c) Visual-Spatial Intelligence; (d) Kinesthetic Intelligence; (e) Musical Intelligence; (f) Interpersonal Intelligence; (g) Intrapersonal Intelligence; (h)

Naturalist Intelligence; (i) Existentialist Intelligence. Multiple Intelligences-based learning is an innovation that can be an option for Islamic Religious Education (PAI) teachers in Indonesia. Applying Multiple Intelligences-based learning means using an interdisciplinary approach in developing learning material content, using multiple learning models, and using authentic assessment in evaluating learning. This is intended to accommodate the diversity of intelligence possessed by students.

Next, Oktavia (2022) conducted research with the title "Pembelajaran Era Revolusi Industri 4.0 dalam Pendidikan Islam di SD Negeri 10 Ujan Mas" which was published in the Journal Pendidikan Profesi Guru Agama Islam. The research results explain to PAI teachers that the challenge is that teachers teach students in the form of moral messages, but many students ignore it and don't care about it. From this, students need to take advantage of the advice given. They are busy with themselves, which results in the birth of an individualistic nature or a tendency to be less sensitive to the environment. Many students today live alone, which leads to the birth of competitive individuals. Technological developments are certainly a characteristic of the Industrial Revolution 4.0 era. With the proliferation of smartphones and internet connections, users, especially students at SD Negeri 10 Ujan Mas, will not care about others. In this way, they become less sensitive to the environment. Of course, this impacts universities' ability to develop the tri dharma of higher education.

Research conducted by Taufik (2020) in the Journal Ilmiah ISLAM FUTURA by title "*Strategic Role of Islamic Religious Education in Strengthening Character Education in The Era of Industrial Revolution 4.0.*" This research aims to analyze and examine Islamic Religious Education's strategic role and function (PAI) in strengthening character education, especially during the Industrial Revolution 4.0 era. Era 4.0 is marked by the rapid development of automation trends, data exchange, artificial intelligence, the internet of things, 3D printing, robots and intelligent machines, which massively replace human labour. Open access to information allows people to receive various information and can influence or even change their character, thinking and behaviour. PAI acts as a facilitator who carries out cultural functions and the ideal function of controlling values and directing the development of society. Strengthened by the social reconstruction curriculum, which focuses learning on the problems faced in society so that students can adapt to developments in the modern world and are highly competitive but still have an integrative religious-holistic character to be able to fortify the morale of the nation's generation from the negative influences of globalization. Strengthening character through PAI is an educational investment in realizing the character of the golden generation by building a balance of hard skills and soft skills, which will create a culture of learning in society.

From several studies that have been carried out, it can be concluded that innovation in PAI learning needs to be carried out, and PAI teachers are expected to be able to lead their students to become students with character and morals. Because just being armed with knowledge is not enough. Customs, heredity, environment, etc, also influence students' morals. So changing student behaviour requires support from many things, not just teachers at school. The challenge faced by PAI teachers in the industrial era 4.0 is a challenging task to restore religious knowledge so that it is more highly respected by society, primarily through the world of education. However, despite these challenges, PAI teachers also have opportunities within the school.

Digitalization era 4.0 is known as the Industrial Revolution, where cyber activities are increasingly massive without the limitations of space and time, even with the creation

of artificial intelligence (AI), autonomous robots, and intelligent machines to support human activities. In this generation, humans have grown up side by side with the digital world, so they have become very familiar with advanced technology such as tablets, laptops, gadgets, and the internet as tools for accessing information anytime and anywhere.

With society's sociological and psychological changes, education must be able to revolutionize PAI and find new ways of understanding science in learning activities. Therefore, new patterns must be formed in the learning process to make things easier for teachers and students. By learning using internet technology, students become more active and able to interact with peers or experts in their field.

PAI in Indonesia has adapted and transformed its paradigm, methods, and development strategies to make it relevant to current global conditions and situations. However, PAI must remain in the corridor of educational goals and ideals guided by the Al-Qur'an and Hadith, aiming at national educational goals, philosophy, and state principles. Of course, PAI must also have the principle of maintaining good traditions and adopting better innovations, creating an advanced, sustainable, open paradigm with various innovations in transferring knowledge and technology that is beneficial to the development of Islamic education.

The problems faced by PAI cannot be separated from modernization and globalization factors that impact all aspects of life, economic, social, and educational. The influence of modernization has played a significant role in changing people's styles and lifestyles. PAI is the primary milestone that can be used as the main support in forming a generation ready to be deployed into a global world of challenges.

From this description, it can be seen how vital PAI is in educating individuals by the Shari'a, especially in the current era of globalization where everything is fast and precise; challenges cannot be avoided, so how can PAI prepare the generation to face the 4.0 era which is different from the previous era, namely the era a classic that is all done by human hands.

Muhammadiyah 1 Bantul Vocational School is one of the leading vocational schools in Bantul Regency, Yogyakarta Special Region Province, so PAI learning values are directly applied in daily activities. The habits students make at school will impact student behaviour wherever they are.

Applying PAI learning values is called "Kaizen," which comes from the Japanese concept of continuous incremental improvement. "Kai" means change, and "Zen" means good. Hence, the meaning of "Kaizen" is improvement and continuity that involves everyone (Restuputri & Wahyudin, 2019). Kaizen includes five stages, which have the prefix "S". The stages are Seiri, Seiton, Seiso, Seiketsu, and Shitsuke. The following is an explanation of each 5S movement, namely: Seiri (concise), Seiton (neat), Seiso (clean), Seiketsu (careful), and Shitsuke (diligent) (Siswanto et al., 2023).

Seiri or concise is the first principle in 5S, which means separating materials from unused materials. Unused items are separated from the work area. Seiri means separating needed and unneeded items into different places or throwing them away. All items at the work site, only items that are genuinely required for work activities (Suwondo, 2012). This aims to make the storage area more efficient and look neater and less messy. The following are the results of sorting items in the workplace, shown in Figure 1.

Seiton means placing items according to their type, function, and use. Seiton means creating a standard place for storing goods. After sorting all items that are not reused,

the next step is to put them in the specified position (Suwondo, 2012). Jiménez et al. believe that the Seiton concept is trying to eliminate useless activities, eliminate errors in placing items, and reduce the possibility of loss or misplacement, grouping items, arranging space, arranging places, identifying items (Jiménez et al., 2015). The aim is to find out more quickly if there are irregularities, make it easier to retrieve goods, and speed up their return storage. Below are several pictures of the arrangement of practical tools for determining the place, giving a number or colour and a layout according to the shape shown in Figure 2.



Figure 1. Summarizing sorting equipment according to its place



Figure 2. Arrangement of goods according to type, function and use

Seiso is operating cleaning equipment and work areas so that work equipment remains in good condition. A clean work environment will feel comfortable and pleasing to the eye, thus increasing work morale. Seiso is an activity to clean equipment and work areas so that all work equipment is maintained in good condition. Seiso means a process of supporting facilities, equipment and documents by cleaning them from dust and dirt that can cause damage (A. Setiawan & Ghani, 2023). Seiso is carried out so that the work environment is clean, healthy and comfortable, thereby preventing work motivation from dropping due to a dirty and messy workplace. The Figure 3 is the implementation of seiso by determining the officer as the person responsible.

The principle in seiketsu is to try to maintain already good work. A well-maintained workplace will minimize problems as early as possible. In essence, seiketsu is the maintenance of an efficient and orderly workplace as the 3S discipline has been implemented. One way that can be implemented to maintain 5S in the work environment is by displaying 5S reminders as a reminder (A. Setiawan & Ghani, 2023). The reminder display is designed with a simple design so that it is easy to stick to and easy for the

school community to remember and at the same time reminds how influential the 5S and Safety reminder display that was implemented.



Figure 3. Cleanliness of facilities and practice equipment



Figure 4. Good and safe workplace



Figure 5. Summary of the implementation of industrial culture which has become a habit

Shitsuke is the final step taken to encourage all work or school communities to participate and take part in ongoing maintenance and care activities and train all work or school members to follow the rules diligently. Shitsuke is the most challenging stage compared to the other four stages. This stage requires awareness of how vital 5S is in the school environment (A. Setiawan & Ghani, 2023). Shitsuke means getting used to and encouraging people to continuously maintain and improve correct procedures. This aims to prevent a decline in environmental conditions from 4S and maintain habits. The way that can be done is by becoming self-aware of work ethics, namely being disciplined towards standards, respecting each other, being ashamed of committing violations, and being happy to make improvements (Figure 5).

CONCLUSION

Based on the results of the research and discussion, it can be concluded that strengthening Character Education through Islamic education is a strategic step and innovation in PAI learning to shape the character of the younger generation in the era of the industrial revolution 4.0. Apart from that, the "Kaizen" method which originates from the Japanese concept of Continuous Incremental Improvement can strengthen character education and become a PAI learning innovation in the era of the industrial revolution 4.0. The "Kaizen" method includes five stages that have the prefix "S", namely: Seiri, Seiton, Seiso, Seiketsu, and Shitsuke.

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