

## MANAGEMENT OF EARLY CHILDHOOD EDUCATION AS BIG DATA-BASED HUMAN CAPITAL TOWARDS SOCIETY 5.0 IN THE PERSPECTIVE OF EARLY CHILDHOOD ISLAMIC EDUCATION

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### ABSTRACT

Society 5.0 is the answer to the challenges of the industrial revolution 4.0 which many people are worried about because it will degrade the role of humans. The focus of Society 5.0 which places more emphasis on the convenience of human life with the help of information-based technology, artificial intelligence, and management of big data requires the formation of a super-intelligent society in dealing with the latest technology. Human Capital is the latest form of understanding that places humans as capital that plays an important role in every aspect of life in all fields, including education. Management of Early Childhood Education is a form of effort to realize human capital through investing in education from an early age, especially Early Childhood Islamic Education. The main objective of the research is to analyze the extent to which early childhood education management, especially early childhood Islamic education, utilizes big data. The research method used is a qualitative approach. Data were collected through document studies and in-depth interviews at PAUD institutions in Semarang District, Central Java Province, Indonesia. The results obtained in this study are the role of big data in the Management of Early Childhood Education (PAUD), especially in terms of Islam as a provider of information for the implementation of learning by PAUD educators, a learning resource for students other than teachers and a source of inspiration for PAUD policymakers. In the future, big data will become a source of information for the development of more interactive and multiple sensory-based learning media for PAUD educators and parents in educating early childhood, especially in teaching Islamic values. The nation's noble values will of course be the main guardians of learning media content so that the golden generation of the Indonesian nation still has the noble character as aspired to.

**Keywords:** *Big data, early childhood education management, early childhood Islamic education, human capital*

### INTRODUCTION

Society 5.0 is the answer to the challenges of the industrial revolution 4.0 which many people are worried about because it will degrade the role of humans. The focus of Society 5.0 which places more emphasis on the convenience of human life with the help of information-based technology, artificial intelligence, and management of big data requires the formation of a super-intelligent society in dealing with the latest technology. The concept of Society 5.0 was initiated by the Japanese government at a time when other countries were enjoying the success of the Industrial Revolution 4.0. This concept focuses on the role of humans in transforming big data into new wisdom which ultimately increases the human ability to create opportunities for humanity and achieve a meaningful and easier life. This condition is motivated by the impact of information technology which has changed human habits from existing to non-existent or vice versa from non-existent to existing and must create something new based on values based on complete humanity (Suswandari, 2019). In addition, industrial revolution 4.0 has a focus that is only oriented toward the business sector, while society 5.0 erases gaps in society in terms of social, age, generation, gender, and language and provides services for various individual personal and public needs (Nastiti & Abdu, 2020).

To be able to realize society 5.0, a super-intelligent society is needed to be able to take advantage of the latest technological products. The embodiment of this super-intelligent society is in line with the theory of human capital which emphasizes increasing human knowledge to improve their standard of living. By definition, human capital is all the knowledge, skills, skills, and creativity embodied in workability that can be used to produce professional services and economic value. Human capital is in principle a part of human resource management, it's just that the management and development of human capabilities as a resource focuses more on increasing knowledge and skills that can support the development of an organization or company.

Human capital places human resources at a higher degree level than just resources, but valuable assets that are of value and benefit to an organization or company. As a valuable asset, human capital can even be compared to an investment portfolio that can be developed and its performance multiplied. Therefore, human capital does not view human resources as liabilities or costs that burden finances and reduce the level of organizational profits. Human capital is now the starting point for discussing human resource development. Human capital is also part of human resource management. It's just that, human capital views and treats employees not only as human resources that support the implementation of the company's tasks or operations but also at the same time become the main asset or capital for the company in achieving its goals. As capital, human capital tends to be intangible because it is in the form of knowledge, expertise, skills, and intelligence attached to human resources. Humans who are one of the capital in organizational development efforts must have qualified capacity. Education is the main requirement to achieve this. Even this education starts early, namely Early Childhood Education in general, and specifically Islamic Early Childhood Education.

Early childhood education or PAUD is a coaching effort aimed at children two years up to the age of six which is carried out by providing educational stimuli to help physical and spiritual growth and development so that children are ready to enter further education. Meanwhile, Early Childhood Islamic Education is more emphasized the process of guiding early childhood in understanding and practicing Islamic values. In its implementation, PAUD requires governance so that the educational goals to be achieved can be realized. To what extent does early childhood education management utilize big data? This study tries to observe the phenomena of using technology resulting from the industrial revolution 4.0 including big data in the current governance of early childhood education in Indonesia towards Society 5.0.

## **METHODOLOGY**

This study uses a qualitative approach. The research objective is to analyze the extent to which early childhood education management utilizes big data. Researchers conducted a document study and in-depth interviews at PAUD institutions in Semarang Regency, Central Java Province, Indonesia. The PAUD institutions that were partially studied were Islamic religious-based institutions that taught their students Islamic values, as well as general/national PAUD institutions.

The research subjects were educators and education staff using interview guidelines and documentation research instruments. The number of respondents studied was 20 people who developed the initial plan according to the development of data/information obtained during the research activities. Analysis of the data used is descriptive analysis, namely analysis that provides an overview of the things that have been studied. The approach used in this research is qualitative to produce an in-depth analysis of the matter being researched (Sukestiyarno, 2020).

## **RESULTS AND DISCUSSION**

Based on the results of document studies and in-depth interviews, it was found that the use of big data by PAUD institutions, especially in the management process, is still limited to providing information as needed and using various platforms. Information needs from the internet based on big data, especially used in learning management. PAUD educators at several of the institutions studied often seek additional information about a topic to be taught to children. An example is information about how butterfly insects metamorphose from eggs into adult butterflies. Information obtained from the internet is often clearer and can be in the form of videos or three-dimensional images. Children often also study

alone at home with their parents by exploring the virtual world via the internet. During the Covid-19 pandemic, the use of the internet for study purposes was more pronounced than before in normal conditions. The need to access information via the internet also remains an option for everyone during the post-Covid 19 pandemics. The use of information obtained from the big data-based internet is also carried out by PAUD educators and parents to support Islamic religious materials that will be taught to children. Discussion of these materials is more interesting for children when compared to just books or two-dimensional learning media.

Utilization of data sources and their processing in PAUD institutions in the field is still limited to applications that do not require technology such as artificial intelligence. Manual data processing by collecting data from various big data sources. Data analysis also still uses devices that do not require high technology. During the pandemic and after the Covid 19 pandemic, the use of communication applications such as WhatsApp was widely used by PAUD educators to manage learning programs. Parents at home get information about what topics children will learn in one week, suggested learning methods, and what material tools can help children understand the material. In the future, big data processing in early childhood education management can be further assisted by technology such as in Marzuki's research (Marzuki, 2015) which examined the clustering method in information indexing using K-means clustering. When PAUD educators find information, it will be easier because there is information clustering according to needs.

Early Childhood Education Management carried out by the PAUD institutions studied also did not use an academic information system that utilizes the internet. School administration still uses manual methods with bookkeeping and computer assistance with data that cannot be accessed online. Ponco and Rizky's (2016) research on the academic information system of Annafi PAUD institutions can inspire other PAUD institutions in the future so that the effectiveness and efficiency of managing early childhood education can be further improved. Administrative activities that can be assisted by the information system in this research are registration, billing, payment, contact book, attendance, making activities, filling in grades, and filling in feedback from parents.

The Indonesian government, in this case, the Ministry of Education and Culture, also utilizes existing big data as a consideration in determining PAUD policies. The One PAUD One Village Program is an example of a policy originating from the consideration that PAUD is not evenly distributed in Indonesia. Data on the shortage of PAUD institutions comes from a collection of data that is scattered in cyberspace big data. Both structured and unstructured data. One form of data utilization that can inspire PAUD policy is strengthened by Maharani's research (Maharani, 2019) which found that the application of the Basic Education Data System (DAPODIK) can help provide information about early childhood education problems in Indonesia, namely inequality of access to the quality of education delivery, lack of availability of facilities and infrastructure, shortage of teachers and their inappropriate qualifications, curriculum, institutional organization, Human Resources (HR).

The further development of big data for PAUD management can be a source of information for the development of more interactive and multiple sensory-based artificial intelligence learning media for PAUD educators and parents in educating early childhood. An example is the use of artificial intelligence gadgets, such as the Smart Pen, which can demonstrate how to read or recite a verse or sura several times to ensure that children hear it clearly with the assistance and guidance of their parents. This smartphone can help parents for similar purposes by downloading applications that are in line with Islamic educational goals, such as reading the Qur'an (El-Laudza, 2021).

The use of big data in early childhood education management can also be further developed in the field of educational psychology as in the Dirgantoro article, (2016) which suggests that the use of Big Data can be used as a data center that can record student achievement, through a programming system that presents recaps information on the development of student learning outcomes. The existence of complete information about learning outcomes and early childhood development can help educators to design learning that is more in line with children's characteristics. Parents can also access information about the child's development, so that harmonious relationships and collaboration can be formed between schools and parents in educating children.

The development of learning technology based on big data, of course, has other requirements, namely teacher competence. Teachers as educators must have the required competencies. Efforts that can be made to increase teacher professionalism are to have the competence to carry out comprehensive assessments, to have 21<sup>st</sup>-century competencies (character, literacy skills/competencies) to be able to

present learning that is by the characteristics of students, to be able to carry out innovative authentic learning. (Maulana and Nurhafizah, 2019). In addition, teachers are required to be able to utilize e-learning (Arti, 2020), especially during the Covid 19 pandemic which has hit almost all parts of the world post-pandemic. To be able to achieve this, digital-based education and training are needed, so that teachers can master digital literacy to transfer knowledge and skills to students (Wulandari and Syunu, 2020).

## CONCLUSION

The role of big data in Early Childhood Education Management (PAUD), both public/national institutions, and Islamic-based PAUD institutions, has so far been a provider of information for the implementation of learning by PAUD educators, a learning resource for students other than teachers and a source of inspiration for PAUD policymakers. In the future, big data will become a source of information for the development of more interactive and multiple sensory-based learning media for PAUD educators and parents in educating early childhood. The nation's noble values will of course be the main guardians of learning media content so that the golden generation of the Indonesian nation still has the noble character as aspired to.

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