Leadership of High School Head Masters in the Province of DKI Jakarta Indonesia in the Era of the Industrial Revolution 4.0

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This exposition article aims to identify the role of the principal in a Senior High School's performance in the industrial revolution 4.0 era using questionnaires and a deep interview method. So, the research was conducted using mixed-methods with quantitative and qualitative approaches. We conducted questionnaires with 50 teacher's that were spread randomly to all public senior high-schools of DKI Jakarta and by conducting interviews with 10 principals from all principals of public Senior High Schools of DKI Jakarta with the assumption that each region is represented by two principals. The results of the data collection show that the principal's performance still leads their school in the era of the industrial revolution 4.0.

Keywords: *leadership, principal, industrial revolution 4.0*

INTRODUCTION

The leadership of a person acts as a driving force in the process of cooperation between human beings in organisations including schools. The leadership of an organisation can make moving directional basis in an effort to achieve the goals that have been set. According to Usman (2013) "leadership influences the leader to move his subordinates to be obedient, respectful, loyal, and easy to do business with". Leadership is at the core of the overall management process, a similar case according to Siagian, because the leadership is 'motor pengerak' of all resources and tools (resources) available for an organisation (Sagala, 2013). These resources are grouped in two parts: (1) human resources; and (2) non-human resources. Therefore, it is one of the principal components of being influential in improving teacher performance. The principal is responsible for the organisation of educational activities, school administration, construction of other personnel, and the utilisation and maintenance of facilities and infrastructure. The maximum principal in building and guiding teachers resulted in the teachers that are still less disciplined in serving, late coming or going home early. Such is the condition being a problem in the institutions.

The principal has a strategic role in the improvement of the quality of the educational unit. Based on the Regulation of Ministry of National Education Number 6 of 2018 on the assignment of the teacher as the principal, the current head of the school is no longer an extra task, but has become one of the basic tasks that must be done wholeheartedly. So, the regulation makes the principal just the leader and Mmnager of the school and is no longer saddled with the task of teaching (Wulandari, 2010). It is aimed so that the principal can focus doing their job to improve the quality of the school. Article 15 paragraph (1) states that: "the principal's workload is entirely to carry out the main tasks of managerial, entrepreneurship development, and supervision of teachers and education staff ". And then paragraph (2): "The workload of school principals as referred to in paragraph (1) aims to develop schools and improve school quality based on 8 (eight) national education standards" (Depdiknas, 2008). As a leader, the principal must lead and empower a number of educators and educational personnel in his school to jointly achieve the vision and mission of the school. There are five competencies that must be owned by the principal, among others: (1) the competence of personnel; (2) managerial competencies; (3) the competence of entrepreneurship; (4) supervision, competence and social competence; and (5) World Education is currently faced with a number of challenges (Agustina, 2002; Wen, 2003).

A school principal visionary of course will have the sensitivity and speed in responding to or answering the challenge (Chung Gavin, 2012; Nwagwu, 2018). One of the challenges that comes before us all is the advent of the era of the industrial revolution 4.0 gave rise to strategic issues 4.0; importance of improving the quality of schools so that human resources can be able to compete with other countries in the world industrial revolution 4.0. Indonesia is one of the developing countries inevitably is indeed a must and can not be denied its human resources must be prepared so that it can adapt in the era of the industrial revolution today. Based on the Global Competitive Report 2017, the competitiveness of Indonesia's position was at number 36 from 100 countries. This indicates that the era of the industrial revolution 4.0 has also changed the way of view about education is viewed. World education, especially the helm of the institution, should formulate

their way back quickly that is able to adapt to the demands of the industrial revolution 4.0. World education especially the helm of institution should formulate their way back quickly that is able to adapt to the demands of the industrial revolution 4.0. With the likes of what Thomas & Cooper (2004); Ghavifekr & Rosdy (2015); Murati & Ceka (2017); Sukartono's (2018) said, education should at least be able to prepare hischildren for the future they are facing withe children three things: (a) prepares children for work that his work there is currently no; (b) prepare children to be able to solve the problem that isthe problem currently emerging; and (c) prepare children to be able to use thecurrent technology that is now the technologyand discover that which has not yet been found.

Based on the opinions of the education world, Sukartono facing a job is not easy. It should be prepared by the leadership of the institution where the responsibility is on the principal. Gray (2016) said the change will not wait for us: business leaders, educators, and Government should all be proactive in upgrading skills and the retraining of people so that everyone can benefit from the industrial revolution 4.0.

The Minister of Education and Culture, Muhadjir Effendy, delivered a clue of the capital needed to enter the 21st century, namely: (1) learners have the ability to think critically; (2) learners have creativity and innovative ability; (3) learners have the ability and skill to communicate; (4) learners have the ability to cooperate and collaborate; and (5) learners have confidence (Rubika, 2018). Baharun (2017) said in an organisation, leaders have a huge role in building relationships between individuals and organisations that value-forming as the Foundation of the basis for the achievement of the objectives of the organisation. While Davies (2009) provide a statement that leadership is about setting the new and inspiring others to make the journey to a new and improved state of the school.

Then what are our expectations from the leader? Bush and Mariannae (2000) give the direction of how the leader should provide the expected leadership is a leadership-oriented future. Based on these opinions, is the perception from all the stakeholders in order to prepare a realistic plan based upon the performance of the younger generation of Indonesia to be ready to meet the enforcement of the industrial revolution 4.0.The urgent issues of the industrial revolution 4.0 must be considered by the leaders of the school institution, for it is they who act and handle directly the future direction of the human resources. It is appropriate that Rivai (2011) stated that the institution was a place that serves to prepare children to deal with life. In tune with that, the head of the Centre for information and communication technology education and culture (Kapustekkom) Kemendikbud Suharwoto Gogot says, the industrial revolution 4.0 is not only approaching, but it has happened and become a part of life, "The question is how we in the education sector, ranging from the teacher, principal, Office of education, the Central Government and the regions, as well as other stakeholders, in order to adjust to the changing times that fast,"(nasional.sindonews.com) Therefore, the changes that occur in the 21st century are mainly in the industrial revolution 4.0. It is a challenge at the same time opportunities for leaders of the school or school principal to improve the quality of its leadership. As Shipman in Franklin (2000) said, the principal challenges in the era of the industry revolution 4.0 "is remaining focused on teaching and learning, rather than resorting to being managers".

REVIEW OF THE LITERATURE
Principal Leadership

The understanding of the concept of leadership is not so difficult, because the lead is the essence of the interactions that happen in life itself while influencing other people (Bush, 2008). At its core is the influence that emerges from the process of interaction. Human relationships offer a wide range of opportunities and momentum life.

Syafaruddin (2017) says there are three skills that a leader should have, namely: engineering skills, human relations skills, and conceptual skills. The third of these skills become an absolute requirement for the effectiveness of the leadership of someone in the organisation to achieve the desired goals. Likewise, leadership as a process or skill of influencing others to do something voluntarily also takes place outside of the organisation, as well as in the household that was implemented and enabled the elderly. So the influence given to school staff, teachers, and employees is to do their job properly so that they are truly involved in those situations (Williams, 2005). It means that leadership is a process or skill affecting others to conduct that is expected to have a variety of items. In the process, there is an element of the leader, the led, the atmosphere/context, and results.

Organisational change includes a complex process of communication between a broad scope of members in the organisation (Downs, 1996; Tsui, 1999). The members of the organisation obtain information about the changes and feel that they become part of the decision-making. It is important that the management in one organisation more clearly understands organisational problems, adjusts the support for all business changse and prepares for handling the crisis effectively. Effective leadership is essential in the process of change (Katherine Miller, 2012).

One factor of effective leadership is communication., Communication is an important thing and becomes a basic need. This is due to the existence of mankind requiring intense communication to others and directing efforts to meet normal life as well as the need to eat, sleep and love. Communication involves an interaction with the environment, biology and social elements (Pradhan and Chopra, 2008; Black, Groombridge, & Jones, 2011; Dwiyono, 2018). Similarly, the principal, with the intellectual ability, authority, care, attention and example of giving rewards and punishment, is capable of affecting the personnel of the school to do his job properly and that it produces the expected performance. The school, in turn, can only be developed by developing, quality, and superior resource personnel; with the support of high-performing schools, and is responsible for the progress of their school (Hoyle, 2014; Nirenberg, 2012).
For the climate be conducive, because management and their leadership have credibility, involves personnel with good, shared decision-making to the staff, the staff feel taken care of to thrive, the students get excited about learning, protected and watch out for your interests and talents in all the programs and activities of the school (Bush, 2017; Olayiwola, 2012; Robertson, 2009).

Hermann et al (2016) says there are four design principles of the industrial revolution 4.0. First, interconnection (connection), namely the ability of machines, devices, sensors, and people to connect and communicate with each other via the Internet of Things (IoT) or the Internet of People (IoP). This

principle requires collaboration, security, and standards. Secondly, transparency information is the ability of information systems to create a virtual copy of the physical world with the digital model enriching data with sensors including data analysis and provision of information. Third, technical assistance which includes: (a) the ability of the aid system to support humans by combining and evaluating information knowingly to make the right decisions and solve pressing issues in a short time; (b) the ability of the system to support human to do various unpleasant task, is too exhausting, or unsafe; and (c) includes a visual and physical assistance. Fourth, decentralised decisions. Simply, the principle industrial revolution 4.0 according to Hermann et al (2016); Bramley (2003); Kagermann et al, (2013) can be described as follows. 4.0 industry has introduced flexible mass production technologies. Machines canoperate independently or coordinate with humans (Sung, 2017). The industrial revolution 4.0 is an approach to control the production process by performing a time synchronisation by the unification and the adjustment of production (Kohler & Weisz, 2016). Furthermore, Zesulka et al (2016) adds, the industrial revolution 4.0 is used on three interrelated factors, namely: (1) digitising and economic interaction with the simple technique towards economic network with complex techniques; (2) digitisation of products and services; and (3) new market models.

The Impact of the Industrial Revolution 4.0 to Education in Indonesia
Nowadays, information and technology affect the activity of the school massively (Trilling & Hood, 1999). Information and new knowledge spreads easily and is accessible to anyone who needs it. Education is experiencing a very good disruption. The role of the teacher as the sole provider of knowledge has shifted away a bit. In the future, the role and presence of the teacher in the classroom will be more challenging and require very high creativity (Figlio, 2007; Asikin, 2019; Shahroom & Hussin, 2018; Trinh, Tran, & Nguyen, 2019).

The 21st century is marked by an era of the industrial revolution 4.0 as a century of globalisation, openness in human life that the 21st century is experiencing fundamental changes with a different life to the previous century. The 21st century is the century which asks for quality in all efforts and the work of man. It asks for human resources quality, produced by the institutions that are professionally managed as superior to fruition. The claims that the new Department asks for various breakthroughs in thinking, preparation of drafts, and actions. In other words, a new paradigm is needed in the face of new challenges, said philosopher Khun. According to philosopher Khun, if the new challenges are faced by using the old paradigm, then all efforts will be met with failure. New challenges demand a breakthrough thinking process when the desired output quality is that it can compete with the work in the world with a versatile openness (Tilaar, 1998; Arends, 2004).

The era of the industrial revolution 4.0 will have an impact on the role of education in particular the role of the teacher. If the role of the educator still retains the messenger of knowledge, then they will lose the role along with technological developments and changes in the methods of analytical study. These conditions must be addressed by increasing the competence of educators that supports knowledge in the exploration and creation of independent learning. In this era, the weight is a challenge for Indonesia at the same time the leadership of the school. Jack Ma in the annual meeting of the World Economic Forum 2018, stated that education is the greatest challenge of this century. If

it does not change the way of educating and teaching-learning, the next 30 years will experience great difficulty. Education and learning that is laden with loads of knowledge skills attitudes and charges exclusion, as currently implemented, will produce students who are not able to compete with the machine. The dominance of knowledge in education and learning must be changed so that future young children of Indonesia are able to outperform the intelligence machines at the same time capable of being wise in using the machine for the benefit.

In the context of 21st century learning, learning that applies creativity, critical thinking, cooperation, communication skills and civic and character skills should still be maintained that as an institution the students stay requires the ability of the technique. The utilisation of a variety of learning activities that support the industrial revolution 4.0 is a must with the model of resource sharing with anyone and anywhere, learning classroom and lab with augmented with virtual, interactive nature, is challenging, with a rich learning content rather than just being complete.

P21 (Partnership for 21st Century Learning) developed a learning framework in the 21st century leader who demanded to have the skills, knowledge and ability in the field of technology, media and information, skills and learning, innovation and life skills and career (P21, 2015). This framework describes the skills, knowledge and skills that must be mastered in order for students to succeed in life and work.

As for the description of framework learning, 21st century skills according to (BSNP: 2010) are as follows: (a) the ability of critical thinking and problem solving (Critical-Thinking and Problem-Solving Skills), are being able to think critically, laterally, and systemically especially in the context of problem solving; (b) the ability to communicate and cooperate (Communication and Collaboration Skills), that is, they are able to communicate and collaborate effectively with the various parties; (c) the capability of creating and renewing Creativity and Innovation Skills, by being able to develop creativity to produce an innovative breakthrough; (d) information and communication technology Literacy (Information and Communications Technology Literacy), by being able to utilise information and communication technologies to improve performance and daily activities; (e) the ability of contextual learning (Contextual Learning Skills), is being capable of undergoing self-contained contextual learning activities as part of their personal development; and (f) information and media literacy ability, is being able to understand and use various communication media to convey the diverse ideas and carry out the activities of the collaboration and interaction with diverse parties. To cope with learning in the 21st century, every leader must have the critical thinking skills, knowledge and abilities of digital literacy, information literacy, media literacy and mastering information and communication technology (Frydenberg & Andone, 2011). Details of 21st century skills-based learning, as follows:

1. Communication. Communication is the transfer of activity information whether oral or written. However, not everyone is able to communicate well. Sometimes there are people who are able to convey all the information orally but not in writing or otherwise.
2. Collaboration. Collaboration is the ability to collaborate or work together, synergise, adapt to a variety of roles and responsibilities; work productively with others; put empathy into place;

respect for different perspectives. The collaboration also means being able to exercise personal responsibility and flexible personally, at work, and public relations; setting and achieving high standards and goals for yourself and others.

3. Critical thinking and Problem Solving. This is the ability to understand a complicated problem, connect the information with other information, so that a variety of perspectives emerges to find the solution to a problem. Critical thinking also means reasoning and the ability to understand and make choices that are complex; being able to understand the interconnection between systems, compile, disclose, analyse, and resolve the problem.

4. Creativity and innovation is the ability to develop, implement, and deliver new ideas to others; be open and responsive to new and different perspectives. Creativity is also defined as a person's ability in creating a new merge. Creativity will greatly depend on the creative thinking of a person, i.e. a person's mind in the process of creating new ideas. Creativity that can generate new discoveries (and usually economically valuable) is often referred to as innovation.

METHODS

Research of principal leadership in the era of the industrial revolution 4.0 including evaluation was carried out using quantitative-qualitative methods (mixed methods). As a whole, the research design used was explanatory research or sequential design combination models. Research on combination with sequential design research is explanatory combining quantitative and qualitative research methods in sequence, where the first stage of the research is done using quantitative methods and the second stage is done by using qualitative methods (Cresswel, 2009). Quantitative methods play a role in obtaining measurable quantitative data, which can be descriptive, comparative and qualitative method while associative acts to prove, deepen, and broaden the quantitative data have been obtained in the early stages.

Based on an illustration in the picture above, it can be explained that this research planned to use mixed methods research(mixed methods) and a sequential approach to explanatory design. In the early stages, research carried out using quantitative methods was aimed at teachers in Jakarta. A conceptual framework in Figure 3 shows that the leadership of the principal as a variable is affected by variables, personal, managers and social principals in the industrial revolution 4.0.

On the final stage, researchers will use qualitative methods (in Figure 1 symbolised by the box with black spots). Qualitative data obtained at the final stage will be used to establish, expand and deepen the quantitative data so the obtained research results are more complete.

RESULTS

This research obtained information related to principals' leadership of Senior High Schools in the province of DKI Jakarta (State schools) where most principals are in the State of the Senior High School province of DKI Jakarta (90%) included in this category in terms of leadership. This shows that the majority of Senior High School teachers from the province of DKI Jakarta (State schools) have been assessing the headmaster in his leadership as well.

The professional competence of the leadership of the headmaster of Senior High Schools in theprovince of DKI Jakarta obtained information that the majority of teachers (68%) rate principal leadership in the Senior High School of province of DKI Jakarta in good requirements and about 32% are included the lesser category. The low ratings shows that teachers still need coaching and empowering from principal leadership in Senior High Schools in theprovince of DKI Jakarta associated with improved performance towards the era of industrial revolution 4.0. Through coaching in terms of mastery of the material, the structure, the concept and the scientific mindset in favor.

Based on these aspects of the personality the leadership competencies of the principal of the Senior High Schools in the province of DKI Jakarta obtained information that the vast majority (86%) of teachers to assess the performance of principals and included both categories, while a small proportion (14%) included in the category of less. This shows that the execution of duties as head of the school has been supported by a proud feeling of the task entrusted to him to prepare future school management. Education is a process which is planned to have evolved through a process of learning. Teachers as educators should be influenced toward that process in accordance with the values that are considered both and applicable within the community.

The personality of the head teacher of the Senior High School province of DKI Jakarta which is reflected in the norms, moral, aesthetic, and science, will affect the behavior of the conduct of the citizens of the school as a person and as a member of the community. The application of discipline both in the educational process will generate a mental attitude, character and a strong personality (Aritonang, 2005; Fullan, 2001).

The results of the analysis of the interviews to some principals of the Senior High Schools in the province of DKI Jakarta provides information that most principals state that they have done leadership with professional performance.

From the aspect of the relationship with the industrial revolution 4.0, most principals of Senior High Schools in the province of DKI Jakarta says it has to do school performance for optimal work and achievements to the development of his professionalism. Next the teacher's view, from a large majority (76%) of the survey proved that the principal has not showed the performance toward the industrial revolution 4.0. Teachers have that view by way of seeing how the principal leverages existing technology and information to support the management of the school.

CONCLUSION

The aim of this research was to identify the role of the principal on the Senior High School's performance in the industrial revolution 4.0 era using questionnaire and the deep interview method. Also then, the results show that the principals is still in performance to leads their school in the era 4.0 industrial revolution.

Suggestions

1. Coaching and mentoring is needed for principals of Senior High School of province DKI Jakarta to maximise their role to meet the industrial revolution era 4.0.

2. It takes leadership patterns with clear and measurable competencies and training delivery so that the headmaster is encouraged to perform more optimally.

3. Need to upgrade the capabilities of the principal so that it is focused on the process of how to be a leader in the era of the revolution industry 4.0.

4. It requires education and training continuously for the principal of the Senior High School in the province of DKI Jakarta to increase professionalism in the managerial field to bring the school community in the direction of the industrial revolution 4.0.
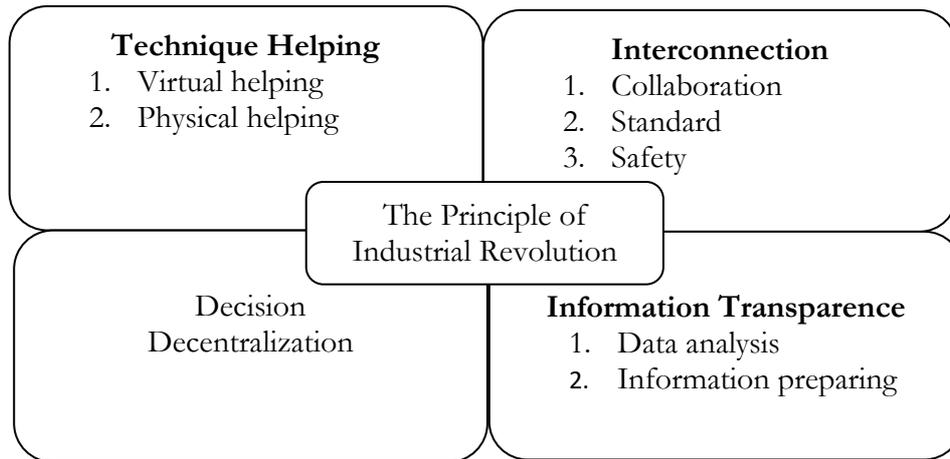
The 4.0 Industrial Revolution

Figure 1. Principles of The Industry 4.0 (Source: Hermann et al, 2016)
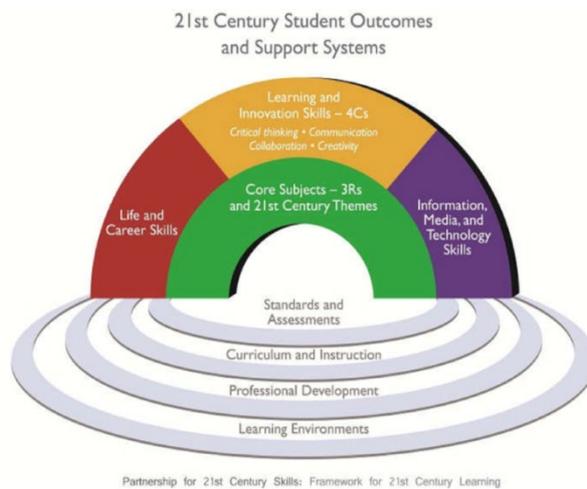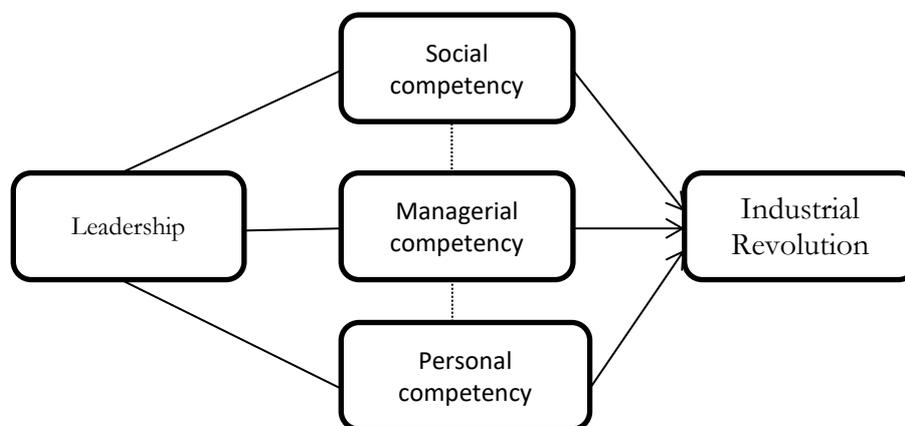

Figure 2. 21st Century Learning framework

Figure 3. The Leadership of the Headmaster of the Era of the Industrial Revolution 4.0

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