

# Principal Leadership for Private Schools Improvement in the Industrial Revolution Era 4.0

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**Abstract**—The purpose of this study is determining the leadership of principals to facing the challenges industrial revolution era 4.0 in private schools and how a leader responds to the challenges of the industrial revolution era 4.0. Workers in all fields in the era of industrial Revolution 4.0 are required to have digital skills, both technical and managerial workforce. This research method uses a qualitative approach with the type of research used is a case study conducted at private school, collecting data through interviews and document analysis, analysis techniques using interactive analysis. The results this research is Innovative and visionary principals that are suitable to be applied to private schools in facing the challenges of the industrial era 4.0 to prepare students who are strong and ready to face the era of industrial revolution 4.0.

**Keywords**—Industrial Revolution 4.0; leadership of principals model; educational challenges

## I. INTRODUCTION

Since 2011 terms of Industry 4.0 has been used, the concept of the Industrial Revolution 4.0 was introduced by Prof. Klaus Schwab, founder and Executive Chairman of World Economic Forum (WEF) in German, which introduced the concept of Revolution industry 4.0. In his book, "The Fourth Industrial Revolution", Schwab describes the Industrial Revolution 4.0 has changed the lives and fundamental human labour. Industrial Revolution 4.0 characterized by artificial intelligence (artificial intelligence), super computers, genetic engineering, nanotechnology, automatic cars, and innovation. That change will impact on the economy, industry, government, politics and education [1].

Education of Indonesia will be facing the challenges the global era of Industry 4.0 in 2019. Minister of Research, Technology and Higher Education (Mohammad Nasir) in the official website Riskedikti 2018 stated that the challenges of the industrial revolution 4.0 must respond quickly and appropriately by all stakeholders in order to raise the competitiveness of Indonesia in the middle of the competition. The Minister of education and culture (Muhajir Efendy) also said the same thing that the capital needed to enter and dominate the 21st century industrial revolution 4.0 must have 1) critical thinking skills; 2) creativity and innovative capabilities; 3) ability and communication skills; 4) ability to cooperate and collaborate; and 5), confidence. Beside that also

necessary the ideal principal leadership that can answer the challenges of globalization.

Leadership is process of influencing and directing the employees to do the best work that was assigned to them. Leadership in the organization have a very big role in building relationships between individuals and forming of organizational values that serve as the foundation for the achievement of organizational goals. In an advanced education school leadership where school quality benchmarks.

The principal has a strategic role in the improvement of school quality. Based Permendikbud 2018 No. 6 on the Assignment of Teachers as the principal, the principal is not additional task, but as a fundamental duty.

Chapter 1 Permendikbud 2018 No. 6 that "the principal is a teacher who was given the task to lead and manage educational unit which includes kindergarten (TK), a kindergarten outstanding (TKLB), elementary school (SD ), primary school outstanding (SDLB), junior high school (SMP), a junior high school outstanding (SMPLB), secondary school (high school), vocational schools (SMK), high school outstanding (SMALB), or Schools Abroad Indonesia."

Permendikbud 2018 No. 6 makes full principal as a leader and manager of the school, without the task of teaching. It is intended that principals can focus its duty to improve the quality of schools. article 15 verse (1) states that "The workload of the Principal fully to carry out basic tasks of managerial, entrepreneurial development, and supervision to teachers and educators." Then in sound (2) states that "The aim of the principal is to develop and improve the quality of the school by 8 standard process [2].

Leadership in organizations has a very big role in build relationships between individuals and forming organizational values used as a basic foundation for achievement of organizational goals. Influence leadership to effectiveness organization can be seen as an effect direct leadership and not directly.

The principal can interpret the leader of the school or institution. The principal is a teacher who has the ability to lead all sources power that is in a school so can be utilized maximally for achieve common goals [3].

Principals who are experienced in carry out his main duties, then easier to provide speed, ease, accuracy and integration in providing performance services [4]. More and more one's work experience there will be more benefits which has an impact on the breadth of insight knowledge in the field of work as well as increasing one's skills.

## II. LITERATURE REVIEW

### A. *The Industrial Revolution 4.0*

The merger between the real world with the virtual world increasingly heavy blaze in recent decades, where this technology combines elements of two elements namely the real world with a different technology. This concept is known as the Industrial Revolution, the industrial revolution is the integration of Cyber Physical Systems (CPS) and the Internet of Things and Services (IOT and iOS) into the process industries including manufacturing and logistics as well as other processes.

Industrial Revolution starting with the invention of the steam engine around 1784. Then along with the times and the need for production increases, was discovered a means of mass-production process, which begins around 1870 2.0 industry where the work is dangerous and the weight began to be replaced by machines. The next stage is referred to as industrial 3.0, at 3.0 industrial era is characterized by the presence of the computer that will facilitate the work so that the machine is already using a computerized system. Then the 20th century called the industrial age 4.0, the use of the term industrial 4.0 starts in 2011, which is marked by revolution digitalization, network Siber, IOT, and Internet. Machines replaced by artificial Intelligence (AI) that are connected using the network.

Industrial 4.0 is required to have digital skills, both technical and managerial manpower. In addition to the demands of the appropriate skills, it is also very necessary social skills to work in the era of the Industrial Revolution 4.0. A review of some developed countries shows an increase in the needs of non-routine analytical skills and non-routine skills interactively. While the need for routine cognitive skills, non-routine manual and routine manual decreased.

### B. *Leadership and Principals*

Leadership is the process of directing and Influencing the task related activities group of members [5]. Leadership is the process of directing and influencing members in a variety of activities to do. Furthermore, the sense of leadership are two concepts, namely as a process, and as an attribute. As a process, the leadership is focused on what is done by the leaders, which is a process where leaders use their influence to clarify the purpose of the organization for employees, subordinates, or lead, motivate them to achieve these goals, and to help create a productive culture in the organization , The terms of attributes, leadership is a collection of characteristics that should be possessed by a leader. Therefore, leaders can be defined as a person who has the ability to influence the behaviour of others without the use of force, so that the people he leads accept himself as someone worthy to lead them.

Leadership in the field of education also have the understanding that a leader must have the skills to influence, encourage, guide, direct, and mobilize others to do with the implementation and development of education and teaching or training so that all activities can be run effectively and efficient which in turn will achieve the goal of education and instruction set [6]. Leadership expected future is leadership oriented (transformation leadership) [7].

Principals can be defined as a functional power of teachers assigned to lead an organized school where the learning process or a place where there is interaction between the teacher who gave lessons and who receive lessons [3].

### C. *Principal Leadership Styles*

The leadership style is the way a leader of influence, directing, motivating, and controlling subordinates in a way that subordinates can complete these tasks effectively and efficiently. There are several types of leadership styles according to Robbins [8], namely:

1) *Charismatic leadership*: A leadership makes the followers triggered by the ability of the leader of the heroic or extraordinary when they observe certain behaviors leader. Charismatic leader can influence their followers a way to express a clear vision of exciting, this vision correspondence between the present to the future so that employees are interested to follow, then the leader communicates the expectation of high performance and states that employees can achieve such performance with good, makes employees more confident and self-esteem goes up, then the leader reveals his words and actions are filled with values, in addition to the leader give an example of good behavior so that employees can imitate

2) *Transformational leadership*: Transformational leadership style that inspires leaders followers to do things beyond their personal interests for the sake of the company and is able to provide in-depth and impact beyond to employees. Leadership transformasioanl can change the mindset of employees of mindset to solve the problem by a long way is converted into solving problems in new ways better, than that transformational leaders capable of making employees enthusiastic about working, uplifting and makes employees make an extra effort to achieve corporate goals ,

3) *Transactional leadership*: Leaders who motivate their followers to go to defined by requirements and tasks. Transactional leaders to own a distinctive character that rewards contingent that promises rewards for good performance and leaders recognized the accomplishments achieved by the employee, and then take corrective action, and avoid any decision to be taken.

4) *Visionary leadership*: The ability to create and articulate a vision that is realistic, credible and attractive about the future of the organization

The main characteristics of visionary leadership are:

- Forward future: visionary leaders have a clear view towards a vision to be achieved, so that organizations

can flourish that he entered. In accordance with the vision that he wants to accomplish.

- Dare to act in achieving the goal, confident, and always ready to face the risks. At the same time, a visionary leader also shows the calculation of a careful, thorough and accurate.
- Able to raise someone else's hard work and cooperation in reaching the goal.
- Able to formulate a clear vision, inspirational and evocative, manage the 'dream' come true:
- Able to turn vision into action: he can formulate a vision into a mission which can then be absorbed by the organization's members. Which can make a reference in every step forward.
- Hold to the spiritual values he believes
- Build a relationship effectively: visionary leader is good at building relationships between members, in terms of motivating, giving, create more advanced and independent members.
- Innovative and proactive

#### *D. Challenges of Education in Indonesia*

Lee et al explain, industry 4.0 is characterized by increased digitization of manufacturing is driven by four factors: 1) an increase in the volume of data, computing power, and connectivity; 2) the emergence of the analysis, capabilities, and business intelligence; 3) the occurrence of new forms of interaction between man and machine; and 4) improving the digital transfer instructions to the physical world, such as robotics and 3D printing [9]. The basic principles of industrial 4.0 is merging engine, workflow, and system, by applying intelligent network throughout the chain and production processes to control each other independently.

During the industrial 4.0 revolution changed the concept of work, structural work, and competence needed the world of work. A survey of international recruitment firm Robert Walters Salary Survey 2018 titled mentioned, the focus on business transformation to the digital platform has fuelled the demand professional human resources (HR) has competence much different than before. The era of the industrial revolution 4.0 also changed the way of education. Changes not just to teach, but it is much more essential, namely changes in the perception of the concept of education itself.

Education should at least be able to prepare their students face three things: a) preparing children to be able to work the job uncurrent; b) prepare the child to be able to solve problems that the problem has yet to emerge, and c) prepare the child to be able to use the technology that is now the technology has not been found. It's a chore that is not easy for education. To be able to face these challenges, important requirements that must be met is how to set the qualifications and competence of qualified teachers

### III. RESEARCH METHOD

This research method uses a qualitative approach to the type of research is a case study carried out in Elementary school, junior high school, and senior high school Al-Ma'soem. The data were obtained from two sources, primary sources and secondary data sources. Sources of primary data obtained from interviews and observations. Interviews were conducted with the principal Elementary school, junior high school, and senior high school Al-Ma'soem. Primary data were also obtained from existing events among the sites that have a direct link with the role of school leadership. As for the secondary data obtained from the study documentation written sources and photographs in the research area, as well as another off-site document-related research.

Qualitative researchers when conducting analysis showed discoveries are always denoted with accurately descriptive. A qualitative approach is chosen because of the symptoms, information and a description of the observations during the process of research on: "principal leadership model to facing industry challenges 4.0 in private school" would be more appropriate to be disclosed in the form of words. In accordance with the characteristics of qualitative research that has a natural setting, the researcher as a lead instrument, descriptive, and data collected in the form of a description of words, put the data directly, without interrupting participation and inductive analysis conducted continuously since entering the field.

### IV. RESULTS AND DISCUSSION

The era of the industrial revolution 4.0 will have an impact on the role of education, especially the role of the school. If the school still maintains as a transmitter of knowledge, then they will lose the role in line with technological developments and changes. This condition must be overcome by increasing the competence of a principal who supports the exploration and creation of knowledge through ability.

The world of education in the era of the industrial revolution is the knowledge age with the acceleration of knowledge is incredible. Acceleration of knowledge is supported by the application of media and digital technology called the information super highway [10]. Style learning activities at the time of knowledge age should be needs. Learning materials should provide a more authentic designs for through a gauntlet where learners can collaborate to create a solution to solve the problem lesson. Troubleshooting leads to the question and seek answers by learners who can then look for the solution of problems in the context of learning to use the resources available information [11].

To anticipate this challenge will require a strong vision appropriate to the context, mastery of the power of information in order to have a high understanding of the situation. Clarify with the use of the model, frame work, simplification and creative and innovative in finding the best solution tactics so agile and adaptive to change. Schools as the spearhead of education should be able to compensate for the changes of the era. A leader must be able to respond by setting up a school stakeholder are able to answer the challenges of the industry 4.0.

The principal is a professional who lead a school where interaction between teacher, students, parents as hopeless, the graduates as recipients of satisfaction and the general public as the pride.

The best school is depending of the principal. The principal must be understanding of school with the existence as a complex and unique. The principal must have carried out responsibility. The principal is a person who has knowledge of the duties and functions in managing a school.

Style leadership of principal able to influence and drive the education stakeholders to jointly achieve school success tied into a common vision. Leadership by Terry is an activity that can affect people so that it can be directed in achieving organizational goals [12]. The success of the principal as visible leader of the seven indicators: Educator, manager, administrator, supervisor, leader, innovator and motivator, which is often shortened to "EMASLIM" [13].

Warren Bennis and Burt Nanus in his book *The Leader's Edge: The seven Keys to Leadership in Turbulent World 1989*, stated that traits - traits of effective leadership among other things (1) a leader as carrier responsibility, seeking the implementation of tasks, have dreams and translated into reality. (2) The leaders strive together committed members, providing encouragement to them and transform the organization into a new entity that has a greater strength to survive, grow, and succeed. In other words, effective leadership is a strength for the organization in achieving prosperity, both to its members and society at large.

According to Burt Nanus in *Leadership* said that effective leaders always have a plan, result-oriented, always adopt a vision - a new vision challenging but reachable, communicate the vision - the vision to all members [14]. A strong vision will lead to successful leadership, because of successful leadership is the key to organizational success. Successful organizations are organizations that could produce leaders with a strong commitment and have a vision of the future.

## V. CONCLUSION

The role of principal leadership is very important as key to the success of the school to face of the challenges the era of Industry 4.0. The principal is the professional competent in building and developing the school to produce a quality education so that increasing the quality of education.

The ideal leadership is that follow the demands of the industrial revolution 4.0. Leaders who keep up with technology leaders must have the skills to influence, encourage, guide, direct, and mobilize others to do with the implementation and development of education and teaching in the era of the Industrial Revolution 4.0.

The era of the industrial revolution 4.0 or Globalization was inevitable and unavoidable. The principal innovative and visionary that is compatible to the private schools in the face of the challenges of the industrial era 4.0 in order to prepare students who are strong and ready to face the industrial revolution 4.0.

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