

The Discourse Of Integrated Quality Management System Of Education In Industrial Revolution 4.0 Era

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Abstract.

This article aims to describe the discourse of integrated quality management system of education in the industrial revolution 4.0 era. The advancement of information, communication and technology is an opportunity and hope to implement qualified and competitive educational programs by utilizing automation technology and cyber technology. This study used a qualitative method with a descriptive approach through library research. The writing technique was carried out through several stages starting from data collection to data processing and analysis stage that were considered relevant and had relationship with the problem. The results of this study indicate that the integrated quality management system of education in the industrial revolution 4.0 era can realized through: 1) the planning of qualified educational program, 2) organizing integrated human resource, 3) flexible and transparent communication, 4) harmonious and comfortable coordination, and 5) tight and accountable supervision.

Keywords: *Discourse of Systems, Integrated Quality Management System of Education, and the Industrial Revolution 4.0*

1. INTRODUCTION

Modern life in industrial revolution 4.0 era is certainly inseparable from various kinds of challenge and obstacle in achieving success in life, except for individuals who have high competence in adapting to the changes. In educational system, the competence of school and educational stakeholders greatly determine the success of implementing qualified educational program. Its implementation can be achieved by mastering science, information, and technology during the process of making changes, improvements, and updates to the management of educational institutions [1].

The mastery of science, information, communication, and technology is fundamental in discussing the integrated quality management system with a sustainable and permanent ways. There are many things that school and educational stakeholders need to discuss when they try to make changes, improvements, and updates from traditional systems to modern systems, from human resources in work to machine work, from direct communication to technology communication, and from manual work to automation technology and cyber technology in the management of educational institutions [2].

The discourse of the implementation of integrated quality management system in the industrial revolution 4.0 era has become the demands of the time. It can be realized through the planning of qualified educational program, organizing integrated human resources, flexible and transparent communication, harmonious and comfortable coordination, and tight and accountable supervision in educational programs. It also expects the involvement and responsibility of all parties in building a fundamental and comprehensive value in the management of educational institutions based on science, information and technology [3].

The planning of qualified educational program can be designed, formulated, and determined in an integrated ways by involving all elements of the school and educational stakeholders. The planning program focuses on managing institutional governance, quality of academic services, and qualified and competitive graduates to get a good job or involved in the politics and society [4]. Planning a qualified educational program is a series of important steps that must be taken by school and educational stakeholders during determining the activities to carry out, suitable methods, and procedures to ensure the quality of education.

The quality of education must be supported by the quality of human resources. Qualified human resources are individuals who have competency and master science and technology in carrying out the tasks and functions that they have. Organizing human resources is not only limited to the delegation of authority and assignment of tasks, but also to their placement in accordance with their fields of expertise, so that they can work based on the applicable laws and regulations [5].

Organizing human resources requires clear and transparent communication with all elements of the school and educational stakeholders. Flexible communication always delivers information in a tone of gentle, correct, and accurate related to the smooth running of educational programs. The flexible communication can ease the school and educational stakeholders to carry out their duties and functions [6]. Moreover, the transparency is an open attitude between leaders and other school stakeholders. The transparency can encourage school stakeholders to work with enthusiasm, sincerity, avoid negative prejudice and become an advisor for the leaders in an educational institution.

Smooth order in carrying out duties and functions as school stakeholders are strongly influenced by harmonious and comfortable coordination between leaders and subordinates, and subordinates with colleagues and peers. The harmonious and comfortable coordination can eliminate the gap between all elements of the school stakeholders. The coordination must always be connected from one field to another, so that it grows and develops a spirit of cooperation, and helps other school stakeholders in increasing work productivity [7]. Through harmonious and comfortable coordination, it will open the opportunities and a strong network with all parties to support the implementation of educational programs in schools.

Tight supervision of the program that has been planned is the key to success in the management of educational institutions. Supervision must be carried out continuously and thoroughly on everything that has been planned and implemented to ensure the achievement of educational programs. The supervision needs to carry out in a democratic, comprehensive, constructive, objective and sustainable ways through collegial, clinical, individual and artistic approaches that are in accordance with the situations and conditions of the school environment. Furthermore, the supervision that has done must be academically accountable to all parties, especially leaders, education stakeholders, and public society [8]. The tight supervision can ensure the harmony of implementation of the program with the applicable laws and regulations.

The lack of competence in carrying functional management from the leaders, teachers, employees and other educational stakeholders becomes the big problem nowadays. So that, there is less connected between one function and another in the management of educational institutions. This problem is because of the weak ability of leadership and school stakeholders in managing, organizing, planning, actualizing, coordinating, and supervising educational activities and programs in an integrated ways [9].

Theoretically, integrated quality management system of education is a series of thought activities (attitudes and ideas), and practical activities (methods, procedures, and techniques) that can encourage improvement and renewal in totality and continuity in the management of educational institutions [10]. The leaders of educational institutions and school stakeholders as public servants must have the competence in implementing the integrated quality management system of education in accordance with the development of the era [11].

II. METHODS

The method of the research was qualitative descriptive approach with a literature review. The reference materials were taken from journals, books, magazines, bulletin, and other sources related to the topic [12]. The article was arranged systematically which described the background of the problem, study of related theories, and analyzed the results of the study of these theories to get the new knowledge in this article [13].

III. RESULT AND DISCUSSION

The Concept of Integrated Quality Management System of Education in the Industrial Revolution 4.0 Era

Integrated Quality Management of Education

Integrated quality management is a philosophical view used as a sustainable system and an effort to improve the quality of services and / or products offered to the customers / clients [14]. According to HadariNawawi, integrated quality management is a functional management with an approach that is continuously focused on improving quality, so that the products are in accordance with the standards of quality

and people who are served in the implementation of public service tasks and community development [15].

The very basic benefits of implementing integrated quality management of education are providing the best service to external and internal customers, fulfilling general accountability in education reform, fostering an exciting learning environment, coordinating the better learning systems for students and teachers , and supporting a bright future [16].

There are four basic pillars in the application of integrated quality management They are: 1) customers' satisfaction; the step to provide satisfaction to the consumers is identifying the customers of schools and also the needs and desires of students, parents, community and educational stakeholders, 2) continuous improvement; it means being able to follow the changing needs and desires of students, parents, community and educational stakeholders, 3) respect for everyone; this means to treat well, and give the opportunity to actively participate in decision making, and 4) management based on facts; it means that the data and information taken to the consumers must be objective, complete and curate data and information [17].

Furthermore, the implementation of integrated quality management will get maximum results if it has clear and directed work guidelines by referencing to the efficiency attributes, namely 1) commitment; it provides the efficient educational services and gives the benefit to the institution. 2) Consistency; it means that educational institutions must provide educational services with the consistent performance, 3) competence; it means that educational institutions must provide educators and educational stakeholders who have superior abilities at their work [18].

Industrial Revolution 4.0

The term "industrial revolution" was introduced by Friedrich Engels and Louis-Auguste Blanqui in the middle of 19th century. This industrial revolution is also an ongoing process from time to time. This current decade is already entering the fourth phase of 4.0. The changes from phase to phase give important differences in terms of its usefulness. The first phase (1.0) takes the discovery of a machine that emphasizes the mechanization of production. The second phase (2.0) has moved to a massive production stage that is integrated with the quality control and standardization. The third phase (3.0) enters the massive uniformity stage that focuses on computerized integration. The fourth phase (4.0) has presented digitalization and automation of internet combination and manufacturing [19].

The industry of 4.0 is a continuation of industry of 3.0 which adds connectivity instruments to acquire and process data, automatic network devices, Internet of Things (IoT), big data analytics, and cyber security as the main elements. The connectivity device is connected to industrial physical devices. Its purpose is to receive and send data according to specified orders, either manually or automatically based on the machine artificial intelligence. IoT devices in the industrial revolution 4.0 is also

known as IIoT (Industrial Internet of Things) which are very useful for internal monitoring [20].

The concept of industrial revolution 4.0 in the IoT can be connected to a WAN network through a cloud environment. The data can be processed and distributed to other parties. In this stage, automation and orchestration are needed in a hybrid cloud environment with the aim of facilitating development and operations to continuously improve performance and services [21].

The industrial revolution 4.0 is an opportunity and challenge in managing current educational institutions. The management of educational institutions and the implementation of educational programs must adapt to the advances of science, information, communication and technology. Nowadays, the phenomenon of disruptive innovation has caused a lot of work that was previously done by educators and education has been replaced by mechanical power, such as the use of automation technology and cyber technology in students' reporting, finance, facilities and infrastructure as well as public relations administration as the efforts to discuss the integrated quality management system of education in the industrial revolution 4.0 era [22].

Conceptual Framework of the Integrated Quality Management of Education in the Industrial Revolution 4.0 Era

The conceptual framework of integrated quality management system of education in the industrial revolution 4.0 era can be seen as follows:

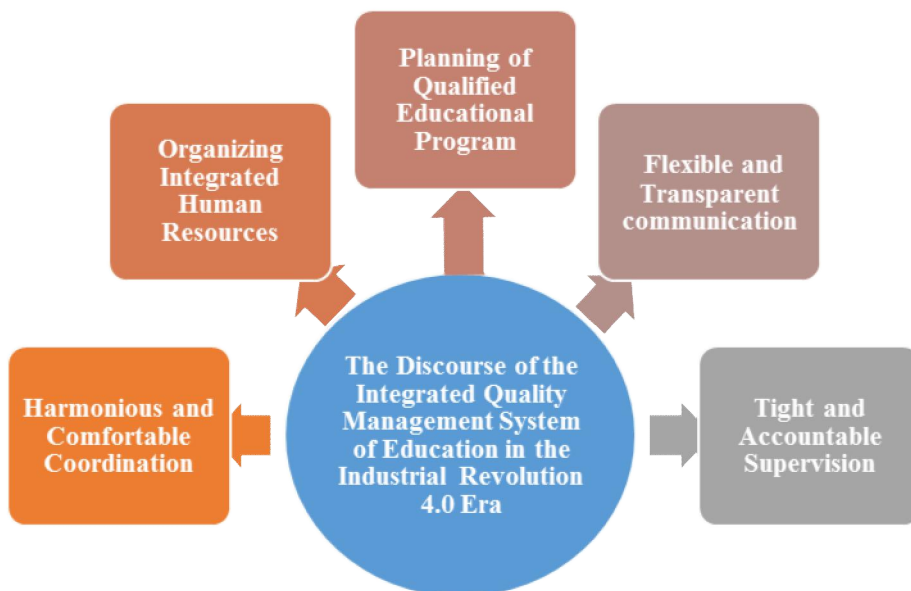


Fig 1. The Design of Integrated Quality Management System of Education in the Industrial Revolution 4.0 Era

The five indicators mutually binds because they form an inseparable unit in building an integrated quality management system in an educational institution.

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The planning of Qualified Educational Program

The planning of integrated educational program includes all aspects that relate to the elements of the development plans of national education. The plans of national education can be seen on a macro or national basis which is an integral part of the overall national development process [23]. The school and educational stakeholders are expected to realize all education problems when they compile, formulate, and determine the plan of qualified educational program.

The planning of qualified educational program contains the entire process which will be implemented, suitable methods and procedures which are needed to ensure. In planning the educational programs, a strategic approach can be used. This approach focuses on the priorities of qualified and highly competitive educational development [24]. The priority of qualified educational development must be understood in an integrated ways and totality by all school and educational stakeholders.

The planning of qualified educational program is not only limited to calculating the money, people, and activities to do, but also the customers' satisfaction, teamwork, engagement, empowerment, participation, leader involvement, long-term orientation, data-based decision making, facts, quality of human resources, work procedures, and quality of assurance systems [25]. The planning of qualified educational program must be able to adapt and utilize information, technology and communication (ICT).

Organizing Human Resources in an Integrated Ways

Organizing is one of the management functions that regulates the duties, powers and responsibilities of each individual in an educational institution. It also regulates other resources such as financial, facilities and infrastructure, public support, and time allotment with the aim of ensuring everything run based on the plans [26]. Organizing human resources in educational institutions concerns on the performance of the staff and the quality of graduates.

Organizing human resources in schools emphasizes the satisfaction of students, parents, and community. So, it must always focus on improving the process systematically and sustainably and involving all elements of the community in the implementation of educational programs [27]. The emphasis on this focus is to guarantee that the educational program services provide optimal satisfaction to the users of education services in schools [28].

Organizing school and educational stakeholders is not only relying on the physical energy of school members (principals, teachers, and employees) which is very limited in the terms of labor and time, but also focusing on the transition of human labor to machine power by means of automation technology and cyber technology in

carrying out their duties [29]. Therefore, the organization of human resources must be directed to the use of automation technology and cyber technology in carrying out the tasks and functions. It is hoped that the optimal use of automation technology and cyber technology in all activities of educational institutions can be digitized, online, and designed with various kinds of artificial intelligence (AI) applications to help them do specific and individual work and they can also present the information in a fast, accurate and accountable ways [30].

Flexible and Transparent Communication

Communication connects all elements of school stakeholders in the integrated quality management system of education. The communication also serves as the glue for the unity of school members from the roots to the top leaders, and from the lower to the upper structures. A successful integrated quality management system of education requires a good communication that contains the value of information, instructions, and advice for all stakeholders, as well as for the users of educational services. The communication in integrated quality management system of education always includes the truth, justice, and togetherness and it is far from misinformation and misleading for the school stakeholders [31].

The success of an educational institution in operating integrated quality management system is largely determined by the ability of a leader to communicate with the school stakeholders. The leaders need skills in developing open, honest and trustworthy communication between school members and their leaders or making downward and upward communication, as well as side communication to facilitate the educational service for students, parents, and community[32].

The communication system in education is not sufficient to use oral communication only, but must be able to use computer-mediated communication and cellphones. In work spaces and social cyberspace, everyone can play various roles as educators and different educational jobs at the same time [33]. The ideal communication is influenced by means of computerization and digitalization, social relations, and the actors involved in producing a rational communicative action [34]

Harmonious and Comfortable Coordination

Coordination is very crucial in the management of educational institutions because the quality of education is always produced by the harmonious and comfortable coordination in schools. For this reason, coordination between individuals and work units, other different fields, and types of work is required in an educational institution [35]. The educational institutions will move forward and develop if all units and fields in education can operate their activities in an integrated way. The coordination can also synchronize with various parts of work as well as jobs from various types of fields in the educational institution.

Coordinating is not only preventing the chaos and confusion between the teaching staff and education, adapting to work and rules, and aligning the educational goals only, but also utilizing information, technology, and communication (ICT) to carry out all tasks and jobs that are integrated with automation technology and cyber technology in the management of educational institutions [36].

The coordination in the implementation of integrated quality management system of education is not only seeking relationships between individuals and groups, between fields and work units, and between types of work and their areas of expertise, but also utilizing the automation technology and cyber technology in improving coordination with school stakeholders. Coordinating through the automation technology and cyber technology can improve human relations, create harmonization in carrying out main tasks, and support in an integrated manner by educators and education staff in schools.

Tight and Accountable Supervision

The key in achieving the quality of education depends on the supervision system applied in the educational institution. The essence of supervision is the dimension of support. The dimension shows the nature of the supervisory activities carried out by the supervisors in supporting schools to evaluate the real conditions. Therefore, the supervisor together with the school can analyze the strengths, opportunities and threats to improve and develop the quality of education in the future [37].

The supervision can increase trust in educational stakeholders and public society, because it is carried out by the supervisor as a person who is given the trust to oversee the course of education in schools [38]. The supervision in the integrated quality management system of education always minimizes bureaucratic processes because it will hinder the potential for the development of educational institutions themselves [39].

The supervision of educational administration can urge information-based discourse and communication technology (ICT) in the industrial revolution 4.0 era because these days, it is no longer traditional and manual ways of supervision, but it must take the advantage of advances in science, technology, communication, and information. It is very crucial to supervise education based on the information and communication technology (ICT) through internet connectivity, webinars, Gmail, online meeting applications, zoom cloud meetings, video conferencing, and virtual video, both in conducting meetings and in checking and examining educational reports, as well as conducting field assessments.

IV. CONCLUSION

The discourse of the integrated quality management system of education in the industrial evolution 4.0 era can be realized through the planning of qualified educational programs by focusing on customers' satisfaction, teamwork, involving all

elements, and participation, as well as monitoring work programs, and decision making based on the real data and facts. The organization of educational human resources is focused on the transition from using human power to machine power by using automation technology and cyber technology in carrying out the tasks. The educational communication can use the computer communication (computer mediated communication) and cellphones to run the duties of educators. The coordination with other different fields can take advantage of automation technology and cyber technology to improve human relations and harmonization in carrying out duties as school stakeholders. Furthermore, supervision of the administration of educational programs should be based on information, and communication technology (ICT) which is connected to communication technology.

REFERENCES

- [1] Oey, Mayling, et al. **Era disrupsi peluang dan tantangan pendidikan tinggi Indonesia**. 2017, pp.13.
- [2] Haris, Muhammad. *Manajemen Lembaga Pendidikan Islam dalam Menghadapi Revolusi Industri 4.0*. **Mudir: Jurnal Manajemen Pendidikan**, 1:1, 2019, pp. 45-57.
- [3] NASUTION, Mulyadi Hermanto. *Manajemen Mutu Terpadu (MMT) Dalam Pendidikan Islam*. **Al-Muaddib: Jurnal Ilmu-Ilmu Sosial Dan Keislaman**, 4: 2, 2019, pp. 228-248.
- [4] Rosdiana, Rosdiana. *Gambaran Pengembangan Program Studi Pendidikan Agama Islam (PAI) pada Fakultas Tarbiyah dan Keguruan UIN Alauddin Makassar*. **Jurnal Inspiratif Pendidikan**, 6:1, 2017, pp. 285-304.
- [5] Kreitner, Robert. **Management Houghton Mifflin Company**. Boston Massachusseyys, 1986, pp. 7.
- [6] Herman, Herman. *Perilaku Komunikasi Kepala Sekolah Dalam Peningkatan Kinerja Guru*. **Idarah (Jurnal Pendidikan dan Kependidikan)**, 4:1, 2020, pp. 59-72.
- [7] Oktarina, Cut Dara, et al. *Koordinasi Dan Hubungan Kerja Tenaga Kependidikan Dalam Pengelolaan Administrasi Akademik Jurusan Keperawatan Politeknik Kesehatan Kementerian Kesehatan Aceh*. **Jurnal Administrasi Pendidikan: Program Pascasarjana Unsyiah**, 2017, pp. 5.4.
- [8] Rahmah, Syarifah. *Pengawas sekolah penentu kualitas pendidikan*. **Jurnal Tarbiyah**, 25, 2018, pp. 2.
- [9] Hasnadi, Hasnadi. **The Importance of Supervision Implementation in Educational Institution**. **Jurnal Dedikasi Pendidikan**, 5:1, 2021, pp. 1-10.
- [10] Rosdiana, Rosdiana. *Gambaran Pengembangan Program Studi Pendidikan Agama Islam (PAI) pada Fakultas Tarbiyah dan Keguruan UIN Alauddin Makassar*. **Jurnal Inspiratif Pendidikan**, 6:1, 2017, pp. 285-304.
- [11] Fitriyah, Nurul; Suliyadi, Agus. *Membangun Kompetensi Pemimpin Dalam Mengelola Organisasi Publik: Strategi Dan Aplikasi*. **Madani Jurnal Politik Dan Sosial Kemasyarakatan**, 10:1, 2018, pp. 79-91.
- [12] Kartini Kartono, **Pengantar Metodologi Riset Sosial**, Bandung: Mandar Maju, 1996, pp. 6
- [13] Nazir Mohammad, **Metode Penelitian**, Jakarta: Chalia Indonesia, 1988, pp. 202

- [14] HP, Sutarto. **Manajemen mutu terpadu (MMT-TQM) teori dan penerapan di lembaga pendidikan**. 2014. Pp. 9
- [15] Nawawi, Hadari. **Manajemen Strategik**. Yogyakarta: Gadjah Mada Pers, 2005. pp. 46
- [16] HP, Sutarto. **Manajemen mutu terpadu (MMT-TQM) teori dan penerapan di lembaga pendidikan**. 2014. Pp. 9-10
- [17] Listyawati, Indri Hastuti. *Penerapan Total Quality Management (TQM) Sebagai Upaya Membangun Kepuasan Pelanggan*. **Jurnal Bisnis, Manajemen, dan Akuntansi**, 2:2, 2014, pp. 75-82
- [18] Listyawati, Indri Hastuti. *Penerapan Total Quality Management (TQM) Sebagai Upaya Membangun Kepuasan Pelanggan*. **Jurnal Bisnis, Manajemen, dan Akuntansi**, 2:2, 2014, pp. 75-82
- [19] Suwardana, H. *Revolusi Industri 4. 0 Berbasis Revolusi Mental*. **Jati Unik**, 1:2, 2017, Pp. 102-110
- [20] Haris, Muhammad. *Manajemen Lembaga Pendidikan Islam dalam Menghadapi Revolusi Industri 4.0*. **Mudir: Jurnal Manajemen Pendidikan**, 1:1, 2019, pp. 45-57.
- [21] Haris, Muhammad. *Manajemen Lembaga Pendidikan Islam dalam Menghadapi Revolusi Industri 4.0*. **Mudir: Jurnal Manajemen Pendidikan**, 1:1, 2019, pp. 45-57.
- [22] Kasali, Rhenald. **Disruption: Menghadapi lawan-lawan tak Kelihatan dalam Peradaban Uber**. Jakarta: Gramedia, 2017. Pp. 16
- [23] Abrari, Syaury, et al. **Supervisi Pendidikan Islam**. 2016. Pp. 395
- [24] Syaefudin, Udin; Makmun, Abin Syamsuddin. **Perencanaan Pendidikan. Suatu Pendekatan Komprehensif**, Bandung: Remaja Rosdakarya, 2005. pp. 18-19
- [25] HP, Sutarto. **Manajemen mutu terpadu (MMT-TQM) teori dan penerapan di lembaga pendidikan**. 2014. Pp. 230
- [26] PASTIKA, I. Wayan Lanang; Santanu, Gede; Marheni, Kadek Eni. *Penerapan Konsep Pengorganisasian dan Pengarahan pada PT Bayus Cargo Badung, Bali*. **Jurnal Bisnis dan Kewirausahaan**, 12:3, 2017, pp. 197-205.
- [27] Nasution, Mulyadi Hermanto. *Manajemen Mutu Terpadu (MMT) Dalam Pendidikan Islam*. **Al-Muaddib: Jurnal Ilmu-Ilmu Sosial Dan Keislaman**, 4:2, 2019, pp. 228-248.
- [28] Herman, Herman. *Keterampilan Kepemimpinan Kepala Madrasah Dalam Pengelolaan Guru Dan Karyawan*. **Bidayah: Studi Ilmu-Ilmu Keislaman**, 2021, pp. 177-187.
- [29] Syafaruddin, Syafaruddin; Wijaya, Candra; Mesiono, Mesiono. **Manajemen Organisasi Pendidikan: Perspektif Sains Dalam Islam**. 2015. pp. 4.
- [30] Zulela, Zulela. *Transformasi Pendidikan Karakter Di Era Disrupsi Bagi Pendidik: Guru Dan Dosen*. In: **Prosiding Seminar Nasional STKIP PGRI Bandar Lampung**. 2020. pp. 1-14.
- [31] Herman, Herman. *Perilaku Komunikasi Kepala Sekolah Dalam Peningkatan Kinerja Guru*. **Idarah (Jurnal Pendidikan dan Kependidikan)**, 4:1, 2020, pp. 59-72.
- [32] Kading, Meylani Selvi; Pangemanan, Sifrid S.; Gerungai, Natalia YT. *Implementasi total quality management terhadap kualitas produk pada pt. Tri mustika cocominaesa amurang*. **Going Concern: Jurnal Riset Akuntansi**, 13:4, 2018, pp. 95
- [33] Piliang, Yasraf Amir. *Masyarakat Informasi Dan Digital: Teknologi Informasi Dan Perubahan Sosial*. **Jurnal Socioteknologi**, 11:27, 2012, pp. 143-155.
- [34] Piliang, Yasraf Amir. *Masyarakat Informasi Dan Digital: Teknologi Informasi Dan Perubahan Sosial*. **Jurnal Socioteknologi**, 11: 27, 2012, pp. 143-155.

- [35] Oktarina, Cut Dara, et al. *Koordinasi Dan Hubungan Kerja Tenaga Kependidikan Dalam Pengelolaan Administrasi Akademik Jurusan Keperawatan Politeknik Kesehatan Kementerian Kesehatan Aceh*. **Jurnal Administrasi Pendidikan: Program Pascasarjana Unsyiah**, **5: 4**, 2017, pp. 241-247
- [36] Siprianus Edi Hardum, *Teknologi Informasi Pengawas Ketenagakerjaan*, <https://www.beritasatu.com/ekonomi/321397/teknologi-informasi-lengkapi-pengawas-ketenagakerjaan>, diakses tanggal 30 Januari 2021
- [37] Iskandar, Dedi. *Peran pengawas pendidikan dalam peningkatan mutu pendidikan SMP di Kabupaten Bima, Nusa Tenggara Barat*. **Jurnal Penelitian Ilmu Pendidikan**, **9: 2**, 2016, pp. 179-195.
- [38] Iskandar, Dedi. *Peran Pengawas Pendidikan Dalam Peningkatan Mutu Pendidikan SMP di Kabupaten Bima, Nusa Tenggara Barat*. **Jurnal Penelitian Ilmu Pendidikan**, **9: 2**, 2016, pp. 179-195.
- [39] Nasution, Mulyadi Hermanto. *Manajemen Mutu Terpadu (MMT) Dalam Pendidikan Islam*. **Al-Muaddib: Jurnal Ilmu-Ilmu Sosial Dan Keislaman**, **4: 2**, 2019, pp. 228-248.