# A Study on Problems in Developing Essential Skills for School Administrators in the 21st Century of Schools under the Bangkok Metropolitan Administration Using Quality Control Tools and 5W1H Technique

Chutima Pongpattana[1], Wannaubon Singyoocharoen[2], Karun Chaivanich[3*]

[1]Plookchit School Phatumwan District Department of Education Bangkok Metropolitan Administration

[2]General Education, Maejo University Phrae Campus

[3]Chulachomklao Royal Military Academy, Nakhonnayok

Corresponding Author e-mail: kchaivanich@gmail.com

## Abstract

The objective of this study was to investigate problems in developing essential skills for school administrators in the era when technology and society are changing rapidly. Quality control tools and the 5W1H Technique were used for problem analysis. The data in this qualitative research were collected by using in-depth interviews with 437 school administrators of schools in the Central Bangkok Group under the Bangkok Metropolitan Administration.

The results revealed that the main problems in developing essential skills for school administrators included the lack of effective leadership skills, insufficient technological and innovation competencies, and poor communication skills are key challenges. It is recommended that school administrators adapt and enhance their skills in leadership, communication, and the use of digital technology to meet the demands of the modern era. It is also suggested that school administrators adapt and develop skills related to leadership, communication, and the use of digital technology. Moreover, they should also develop a network for skill development cooperation. These recommendations can be used as the guidelines for developing essential skills for school administrators in the 21st century.

**Introduction**

As economic, social, and technological changes in the 21$^{st}$ century have impacted education systems worldwide, school administrators should develop and enhance their skills to meet the rapidly changing needs of learners and society (Senge, P. M. 2006).

Moreover, education systems must be adjusted and improved continuously. One of the key factors for the transformation of education systems is development skills or development of school administrators to align with the needs and challenges in this era. Specifically, school administrators under the Bangkok Metropolitan administration must support the diversity of learners and community expectations. Therefore, school administrators must improve their administrative skills, strategic thinking as well as other essential skills to promote the educational development of learners to meet international standards and support a changing society.

Schools under the jurisdiction of the Bangkok Metropolitan Administration play a crucial role in providing education to a large number of students. School administrators face various challenges, such as strategic management, the integration of technology, the development of teachers and educational personnel, and the promotion of lifelong learning. Therefore, the essential skills of administrators in the 21st century are key to enhancing the quality of education.

Educational administration in the 21$^{st}$ century requires administrators who are skillful, knowledgeable, adaptable, and able to cope with rapid changes in technology, economy, and society. Complexity and diversity of factors affecting educational systems require school administrators to develop essential skills in management, strategic capabilities: a deep understanding of social and cultural contexts to ensure academic quality that meets the needs of learners in The digital era.

This research is significant for the development of Thailand education. It has applied quality control tools from engineering, The 5W1H technique is a problem-solving method that uses six key questions – Who, What, Where, When, Why, and How – to gather information and gain a comprehensive understanding of a situation or problem (5W1H technique) in identifying and comprehending factors related to essential skills development. These tools empower problem analysis from multiple perspectives and distinguish complexity of the problem. The research findings identify the causes, solutions, and factors affecting the development of essential skills for school administrators. The findings are useful for planning skills development with a clear and specific target.

Furthermore, the research prepares administrators of schools in the central area of Bangkok to apply the knowledge gained for developing their organizations to achieve the highest quality. It is also a guideline for contributing to the United Nations Sustainable Development Goals (UNESCO, 2017).

**Research Objectives**

A study on problems in developing essential skills for school administrators in the 21$^{st}$ century of schools in the Central Bangkok Group under the Bangkok Metropolitan Administration by using quality control tools and the 5W1H technique.

**Research Methods**

### 1. Research Design

This qualitative research aimed to investigate the problems in developing essential skills for school administrators in the 21$^{st}$ century, focusing on schools in the Central Bangkok Group under the Bangkok Metropolitan Administration. The research employed quality control tools and the 5W1H technique as research instruments. The study area comprised schools under the Bangkok Metropolitan Administration.

### 2. Population and Sample

The Data collection was conducted from the entire population for this research consisted of 437 school administrators from schools in the Central Bangkok Group under the Bangkok Metropolitan Administration.

### 3. Data Collection Tools

Quality Control Tools (QCT) were used for collecting data. Mongkol (2018) stated that quality control tools were essential for solving quality-related problems with precision and efficiency. These tools assisted in defining problems, collecting data, analyzing potential causes, finding appropriate solutions, monitoring continuous improvement, and preventing the recurrence of similar problems. Aphichit et al. (2021) suggested that quality control tools could be effectively applied for conducting root cause analysis and developing solutions, such as check sheets and cause-and-effect diagrams, which displayed the relationships between causes and effects. The diagrams systematically identified root causes of problems and classified the ideas into thematic categories. Once potential causes were identified, the 5W1H data analysis technique was used to brainstorm root causes and develop effective solutions.

### 4. Data Collection Process

**Stage 1**: A survey on current problems in developing essential skills for school administrators in the 21st century was conducted through interviews with 437 school administrators of schools in the Central Bangkok Group under the Bangkok Metropolitan Administration. The data obtained were used for categorizing problem topics according to research procedure. A check sheet as a quality control tools was utilized applied to collect data between January, 2023 – 2024.

**Stage 2:** The problem in developing essential skills for school administrators in the 21st century was analyzed by using a cause-and-effect diagram as a quality control tools to identify potential causes and develop solutions for solving the problems.

**Stage 3:** The problem in developing essential skills for school administrators in the 21st century was analyzed by using the 5W1H technique in identifying the importance and

conducting root cause analysis from various perspectives. The root causes were identified to develop appropriate solutions to the problems in developing essential skills for school administrators in the 21st century.

## Research Results

The results of the study on the problems in developing essential skills for school administrators in the 21st century, by applying quality control tools and the 5W1H technique are as follows:

1. Results of identifying the potential causes. The current problems were surveyed through interviews with 437 school administrators of schools in the Central Bangkok Group under the Bangkok Metropolitan Administration. The data were collected by using a check sheet to record and tally the occurrences of problems in developing essential skills for school administrators in the 21st century. The detailed results were shown in Table 1.

**Table 1.** Data from the interviews with school administrators by using a check sheet.

| Causes | Details of Causes | frequency of occurrence | Cited sources |
|---|---|---|---|
| 1 | Lack of skills in technology and innovation | 274 (62.70%) | UNESCO, 2016 |
| 2 | Lack of efficient leadership skills | 319 (72.997%) | Leithwood, K., & Riehl, C. 2003 |
| 3 | Lack of skills to adapt to and manage change | 112 (25.629%) | Kotter, J. P. 1996 |
| 4 | Lack of communication skills | 228 (52.173%) | Fullan, M. 2014 |
| 5 | Lack of strategic thinking skills | 52 (11.989%) | Senge, P. M. 2006 |
| 6 | Lack of support from external agencies | 134 (30.663%) | Bush, T. 2008 |
| 7 | Lack of personnel development and management skills | 67 (15.331%) | Hargreaves, A., & Fullan, M. 2012 |

| Causes | Details of Causes | frequency of occurrence | Cited sources |
|---|---|---|---|
| 8 | Lack of diversity management skills | 201 (45.995%) | Ainscow, M., & Sandill, A. 2010 |
| 9 | Lack of skills in evaluation and outcome management | 142 (32.491%) | Marzano et al., 2005 |

Table 1 shows the data collected from the interviews with school administrators regarding the problems in developing essential skills for school administrators in the 21st century. They were summarized into 9 potential causes. ตัดออก

According to the analysis of data by using quality control tools - check sheet and a cause-and-effect diagram, 3 main causes of problem were identified a lack of effective leadership skills, technology and innovation skills, and communication skills. The details were as follows:

The analysis of the problem in developing essential skills for school administrators in the 21st century by using a cause-and-effect diagram revealed that the first cause of this problem was in Lack of efficient leadership skills. The experts identified 4 sub-causes contributing to this problem: a lack of strategic thinking skills, skill to adapt to and manage change, diversity management skills, and personnel development and management skills as shown in figure 1.
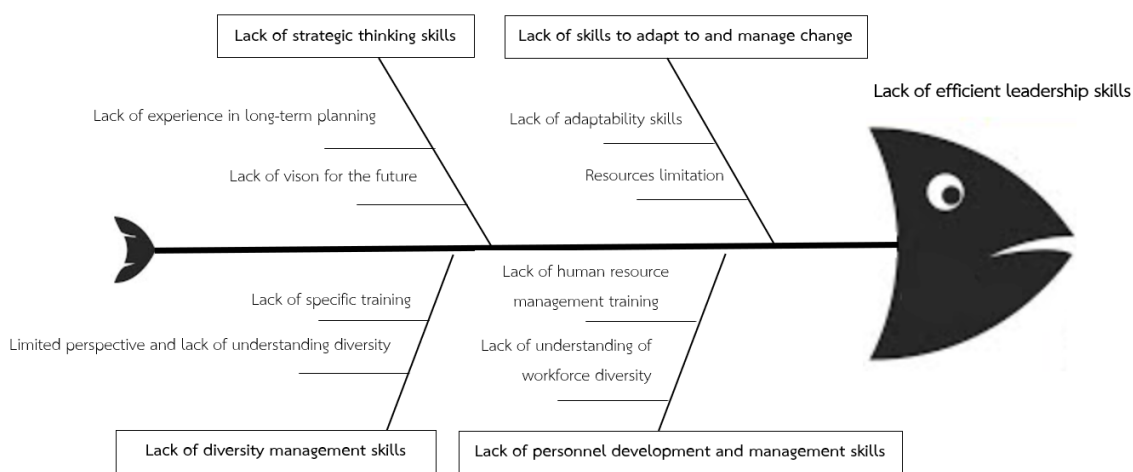


**Figure 1**- A cause-and-effect diagram of the first cause

From figure 1, there were 8 sub-causes contributing to a lack of efficient leadership skills that included a lack of experience in long-term planning, a lack of vison future, a lack of specific training, limited perspective and lack of understanding diversity, a lack of human resource management training, and a lack of understanding of workforce diversity. These sub-causes of the problem could be improved through various approaches such as organizing continuous training programs to enhance essential skills like decision-making, communication, team management, and inspiration. Moreover, the creation of an environment that promotes learning, self-improvement, and provides opportunities for exchanging experience to enhance all dimensions of leadership, including support from the parent organization as well as ongoing evaluation of development.

The analysis of the problems in developing essential skills for school administrators in the 21$^{st}$ century, by using a cause-and-effect diagram revealed the second potential cause of this problem a lack of skills in technology and innovation. The experts identified 4 sub-causes contributing to this problem: a lack of knowledge and basic skills, a lack of effective training program, resistance to change, and the rapid technological change, as shown in figure 2.
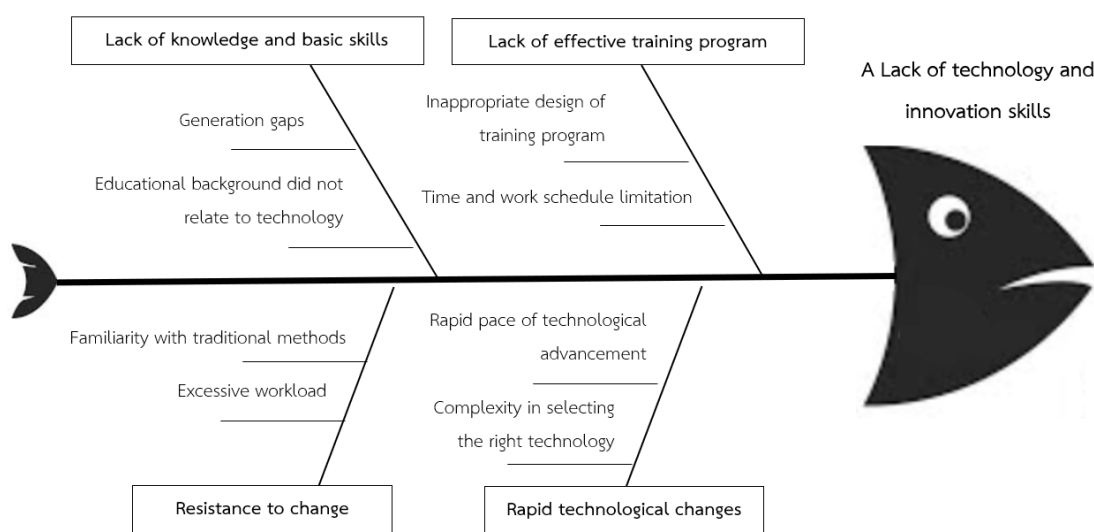


**Figure 2**- A cause-and-effect diagram of the second cause

From figure 2, shows 8 sub-causes that contributed to a lack of technology and innovation skills: generation gap, educational background did not relate to technology, Inappropriate design of training program, time and work schedule limitation, familiarity with traditional methods, excessive workload, rapid pace of technological advancement, and complexity in selecting the right technology. These problems could be solved by organizing continuous training programs to develop technological skills, fostering a culture of utilizing technology within the organization, developing learning network for sharing experiences, and promoting the utilization of technology for creating educational innovations. Moreover, the parent organization should encourage school administrators to apply technology and innovations for effective education development.

The analysis of the problems in developing essential skills for school administrators in the 21$^{st}$ century, by using the quality control tool of a cause-and-effect diagram, showed the third potential cause of this problem a lack of communication skills. Experts identified 4 sub-causes contributing to this problem: a lack of communication skills training, digital communication skills, Excessive workload and Misunderstandings about communication as shown in figure 3.
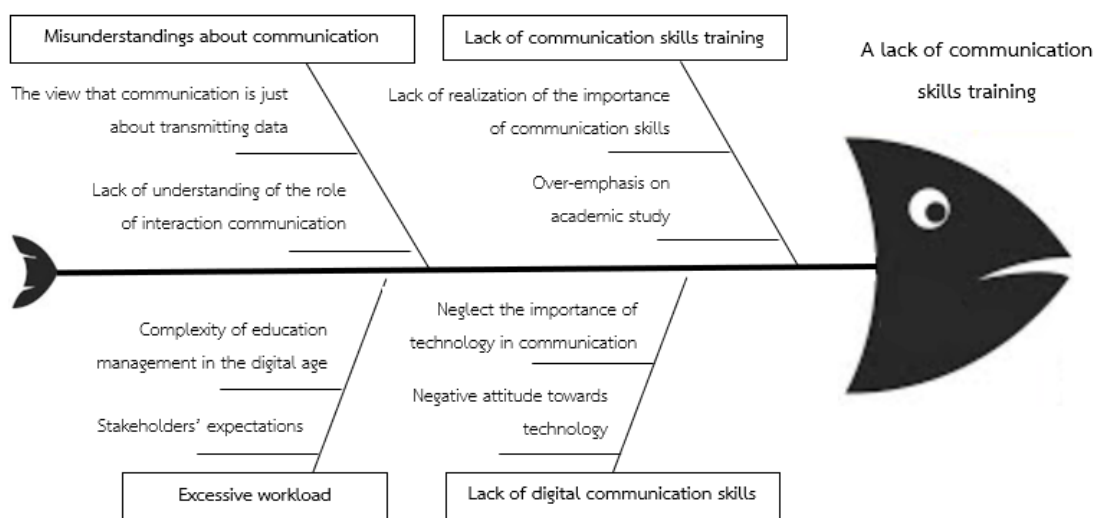


**Figure 3** A cause and effect diagram of the third cause

According to figure 3, there were 8 sub-causes contributing to a lack of communication skills. They consisted of the view that communication is just about transmitting data, a lack of understanding of the role of interaction communication, complexity of education management in the digital age, stakeholders' expectations, a lack of realization of the importance of communication skills, over - emphasis on academic study, neglect the importance of technology in communication, and negative attitude towards technology. These causes should be resolved by organizing training programs to improve communication technology skills, building strong interpersonal skills, using strategic communication, and creating transparent work environment. Frequent evaluation of communication performance is one of resolutions for effective communication development.

The results obtained from data analysis on current problems in developing essential skills for school administrators in the 21st century by using quality control tools, which included check sheet and cause-and-effect diagrams, had revealed overall problems. Then the 5W1H technique was used to uncover the root causes of the problem and develop practical solutions that aligned with the actual problem conditions. The 5W1H technique could be used for analyzing problem situations, gathering information, and defining a problem correctly. The details of applying 5W1H were shown in Table 2-4.

**Table 2** The analysis results of the problem caused by a lack of effective leadership skills by using the 5W1H technique.

| 5W1H | A lack of effective leadership skills |
|---|---|
| What | Lack necessary skills for team management, effective decision-making, inspiration creation, conflict management, and effective communication in the organization. |
| Who | School administrators who lack effective leadership skills, school director, vice director, or senior school executives. |
| Why | - Lack of leadership skills and training program for developing leadership skills.<br>- Parent organizations did not provide support for training programs. |

| 5W1H | A lack of effective leadership skills |
|---|---|
| | - Lack of understanding in the importance of effective leadership. |
| | - Excessive workloads affect time for developing leadership skills |
| When | -The problem occurs when the administrators do not attend the training or develop their leadership skills continuously. |
| | - The problem may occur during changes in the learning environment, when faced with challenging situations. |
| Where | Occur in educational institutes, from primary school to secondary school, and in all contexts of educational organizations. |
| How | These problems could be solved by organizing continuous training programs to develop technological skills, fostering a culture of utilizing technology within the organization, developing learning network for sharing experiences, and promoting the utilization of technology for creating educational innovations. Moreover, the parent organization should encourage school administrators to apply technology and innovations for effective education development. |

**Table 3** The analysis results of the problem caused by the lack of technology and innovation skills using the 5W1H technique.

| 5W1H | A Lack of technology and innovation skills |
|---|---|
| What | Lack of skills in using technology and innovation in education management, The application of online learning management system, The use of software, Application of technology for developing learning process, Using digital tools in decision-making and communication. |
| Who | School administrator, Director, Deputy Director, Senior school administrator. |
| Why | - Lack of training and skills development in technology and innovation among administrators. |
| | - Lack of resources and supports from parent agency in technology training |
| | - Lack of understanding and positive attitude towards using technology for education management. |
| | - Some administrators lack digital literacy and digital skills. |
| | - Excessive workloads affect time for digital development. |

| 5W1H | A Lack of technology and innovation skills |
|---|---|
| When | - The problem occurs during the period of technological change or the adoption of new educational technology whereas the administrators are unwilling to adopt it.<br>- It may occur when schools apply advanced technology and innovation, but the administrators still lack skills for effective application. |
| Where | The problem occurs in all levels of educational institutes, from primary school to secondary school as well as educational organizations. |
| How | These sub-causes of the problem could be improved through various approaches such as organizing continuous training programs to enhance essential skills like decision-making, communication, team management, and inspiration. Moreover, the creation of an environment that promotes learning, self-improvement, and provides opportunities for exchanging experience to enhance all dimensions of leadership, including support from the parent organization as well as ongoing evaluation of development. |

**Table 4**. The analysis results of the problem caused by a lack of communication skills training by using 5W1H technique.

| 5W1H | A lack of communication skills training |
|---|---|
| What | - Lack of essential communication skills, communication in the organization, communication with parents, using technology for communication, communication in crisis, and strategic communication.<br>- Lack of ability to convey information or clear vision that leads to misunderstandings and uncooperative works. |
| Who | - School administrators, school director, vice director, or senior school executives who lack effective communication skills.<br>- Teachers and staff who work with these administrators may be affected from the lack of communication skills. |
| Why | - Lack of training or development on professional communication skills, using technology for communication, communication in crisis.<br>- Lack of understanding in the importance of effective communication for educational administration.<br>- Excessive workloads affect time for practicing and developing communication skills. |

| 5W1H | A lack of communication skills training |
|---|---|
|  | - Lack of evaluation or suggestions in the aspect of communication skills of the administrators. |
| When | - Administrators do not receive adequate training or development in communication skills.<br>- When there are changes in the educational system or using new technologies in learning and teaching.<br>- During crisis, epidemic, or changes in educational policy that require effective and concise communication. |
| Where | - Occur with primary and secondary schools.<br>- Occur in educational organizations that the administrators, teachers, students, and parents work together. |
| How | These causes should be resolved by organizing training programs to improve communication technology skills, building strong interpersonal skills, using strategic communication, and creating transparent work environment. Frequent evaluation of communication performance is one of resolutions for effective communication development. |

**Research Discussion**

The results revealed that the main problems in developing essential skills for school administrators included the lack of effective leadership skills, insufficient technological and innovation competencies, and poor communication skills are key challenges. It is recommended that school administrators adapt and enhance their skills in leadership, communication, and the use of digital technology to meet the demands of the modern era. It is also suggested that school administrators adapt and develop skills related to leadership, communication, and the use of digital technology.

The study on the problems in developing essential skills for school administrators in the 21st century of schools under the Bangkok Metropolitan Area District Office indicates the limitations and obstacles that school administrators must face in the process of skills development in order to deal with challenges caused by technological and social changes

in this era. This study plays a crucial role in helping the researchers analyze problems systematically and logically (Ishikawa, K. 1985) especially the 5W1H technique, which helps break down elements within the problem and propose possible solutions by defining the problem, identifying the root causes of problem, and finding appropriate solutions (Leithwood et al., 2004).

The research findings reveal that most school administrators in Bangkok lack strategic thinking skills, proper resource management, and the ability to integrate information technology into school management (Fullan, M. 2001). These limitations are due to a lack of continuous training, an absence of support from relevant agencies, and insufficient educational resources which prevent school administrators from achieving necessary skills development. This reflects the need for the development of strategies and policies to support administrators in accessing knowledge resources and opportunities for suitable and up-to-date training (Leithwood, K., & Riehl, C. 2003)

Moreover, communication skills development and adaptability to changes in the modern educational environment are key factors that promote school administrators to build trust and gain support from teachers and the community (Senge, P. M. 2006). In developing essential skills for school administrators to align with the Sustainable Development Goals (SDGs), there should be regular evaluation and progress monitoring to ensure that the administrators are well-equipped to deal with challenges of the 21st century. (UNESCO, 2017).

**Research Suggestions**

**1.Recommendations**

1. Develop strategic training programs for school administrators. The educational service area office and the Ministry of Education should develop training programs that focus on enhancing strategic thinking skills and proactive planning to align with the needs of the 21st century.

2. Support Information and Communication Technology (ICT) Artificial Intelligence (AI) skills. As school administrators need ICT skills to deal with technological changes and administration in the digital age, the educational service area office should organize training and workshops on using information technology for administration, utilizing digital platforms in the workplace, data analysis, and using technology for communication and building networks in educational institutions.

3. Promote networking and collaboration among administrators of the central Bangkok educational service area office should encourage the exchange of knowledge and best practices. Administrators can learn from each other's experiences as well as develop coordination and communication skills, which are essential for leading schools to success.

4. Develop a system to evaluate and monitor school administrators' skills. The criteria should be measurable and progress monitoring should be conducted frequently. The feedback provided will help the administrators see clearer directions to their personal development goals.

## 2. Recommendations for Future Research

1. Expand the scope of study to other education zones or schools in provincial areas. The research should expand to other education zones or schools in provincial areas to provide a broader understanding of the challenges in developing skills for school administrators in different contexts. This could enhance guidelines for skills development that are suitable for each area.

2. Further study about the influence of cultural and social factors on skills development. Future research should study cultural and social factors affecting skills development of school administrators. These factors may affect the readiness and adaptability of administrators in developing various skills.

3. Comparative study of the skills of administrators in different countries. A comparative study should be conducted to identify the essential skills of school administrators in Thailand versus those in other countries to perceive the best practices and case studies from foreign countries that could be adapted in Thai context.

# References

Ainscow, M., & Sandill, A. (2010). Developing Inclusive Education Systems: The Role of Organizational Cultures and Leadership. International Journal of Inclusive Education, 14(4), 401 - 416. https://doi.org/10.1080/13603110802504903.

Aphichit et al., (2021). Quality Control and Loss Reduction in the Front Side Fender Model Assembly Process Using Poka-Yoke Techniques. Rajamangala University of Technology Phra Nakhon (RMUTP) Research Journal, 15(2), 103 - 117.

Bush, T. (2008). Leadership and Management Development in Education. London: SAGE Publications Ltd.

Fullan, M. (2014). The Principal: Three Keys to Maximizing Impact. Hoboken , NJ: Jossey-Bass Inc Pub.

Fullan, M. (2001). Leading in a Culture of Change. Retrieved January 20, 2025, from https://www.csus.edu/indiv/j/jelinekd/edte%20227/fullanleadinginacultureofchange.pdf

Hargreaves, A., & Fullan, M. (2012). Professional Capital: Transforming Teaching in Every School. New York, NY: Teachers College Press.

Kotter, (1996). Leading Change. Boston: Harvard Business School Press.

Leithwood, K., & Riehl, C. (2003). What We Know About Successful School Leadership. Retrieved January 22, 2025, from https://olms.ctejhu.org/data/ck/file/What_we_know_about_SchoolLeadership.pdf

Leithwood, K., et al., (2004). How Leadership Influences Student Learning. Retrieved January 22, 2025, from https://wallacefoundation.org/sites/default/files/2023-07/How - Leadership-Influences-Student-Learning.pdf

Ishikawa, K. (1985). What is Total Quality Control the Japanese Way. New Jersey: Prentice Hall Direct.

Marzano, R. J., et al., (2005). School Leadership That Works: From Research to Results. Alexandria, VA: Association for Supervision and Curriculum Development.

Mongkol, K. (2018). Application of Analytic Hierarchy Process to Select Quality Improvement for Defect Reduction Projects: A Case Study of Air Tank Manufacturer. Journal of Engineering RMUTT, 16(2), 71 - 83.

Senge, P. M. (2006). The Fifth Discipline: The Art & Practice of the Learning Organization. New York: Doubleday.

UNESCO. (2017). Education for Sustainable Development Goals: Learning Objectives. United Nations Educational, Scientific and Cultural Organization. Retrieved January 28, 2025. from  https://unesdoc.unesco.org/ark:/48223/pf0000247444

UNESCO. (2016). Teachers in the Digital Age: Developing Skills for 21st Century School Leadership. Paris: UNESCO. Retrieved January 28, 2025. from https://unesdoc.unesco.org/ark:/48223/pf0000250117_eng