Technology Approaches to School Supervision: The Way to Improve School Supervision Practice in Remote/Disadvantaged Areas

Ikhfan Haris[1], Fory A. Naway, Wiwy T. Pulukadang
Faculty of Education, Universitas Negeri Gorontalo, Indonesia
Email: [1]ifanharis@ung.ac.id

This paper explores a review of using Information Communication Technology (ICT) to improve the quality of school supervision practices in remote/disadvantaged areas from the national and international perspective. The recent manuscript was the result of a literature review of the International Research Collaborative and Scientific Publication, which was undertaken by one of UNG's researcher teams under the RISTEK-DIKTI scheme funding. The paper will be focused on the approaches of technology to school supervision that have been applied by other countries, as well as in Indonesia, that may be applicable for school supervision in Indonesia's 3T or special regions. In addition, the paper will examine and provide information on approaches to school supervision for remote, disadvantaged and border/outlying areas utilised in other countries and it may be adopted or adapted to the unique environment in the '3T' areas in Indonesia.

Keywords: *information, communication, technology, supervision, supervisor, school.*

I. INTRODUCTION

Education supervision is a strategic process that assures quality education for all Indonesian students. With the support of the School Supervisor, the school Principal, the teachers and the community, it is ensured that students develop to their full potential; that is, to become faithful religious citizens who believe in God Almighty. Students graduating will be healthy, educated, skilled, creative, and independent citizens who are democratic, accountable, and possess noble intentions that embrace the cultural systems of their tribe (ACDP, 2014; Djafri & Badu, 2019; Storey, 2018). Through the process of formative supervision, educational organisations including schools commit to contribute to bring the nation to its ideology through the achievement of the eight (8) education national standards (Sellers & Walker, 2018; Watkinson, Goodman-Scott, Martin, & Biles, 2018).

School supervisors have an important role to play in supporting Principals and teachers to improve the quality of education delivered in Indonesia's schools, and in strengthening the capacity of Principals and teachers to deliver on this goal (Schultz, Kininger, & Shipp, 2018). The School Supervisor is part of the overall educational personnel that is strategically positioned in national education quality improvement (BPS, 2016). To achieve its main task, the School Supervisor must be equipped with personal competencies such as managerial and academic supervision, education evaluation, research and development and social capabilities (deRee, et all, 2015; Saber, 2018).

II. CURRENT ROLES AND IMPLEMENTATION OF SCHOOL SUPERVISION

School Supervisors are responsible for reviewing Principal and teacher performance, student academic and wellbeing outcomes, curriculum implementation approaches, financial and administrative management, maintenance of buildings, the health of the learning and work environment, and adequate resourcing of the school (Basith & Fitriyadi, 2017; Newell, Reed, & Zwolski, 2018). They will evaluate and make judgements referencing MoEC policy and direction, the National Education Standards, the National Education Minimum Standards, and the National Principal and Teacher Standards. They will use the MoEC guidelines for Principal and Teacher Appraisal in making judgements about overall performance, as well as the Principal and individual teacher's impact on school improvement and student improvement annually (Florell, 2018).

The School Supervisor will analyse data and review evidence to ensure their judgements and those of the school Principal, teachers and community members are transparent and in line with public accountability principles (Joshi, 2010) (No. 12/2010 Article 188 point 1 & 2). With the support of the community they will provide constructive feedback and formal recommendations to the appropriate local governing bodies and Divisions (Law No. 20/2013 Sisdiknas Article 66).

The School Supervisor is responsible for providing leadership and guidance to the school Principal, teachers and community members, and delivering professional learning programs in regards to MoEC and school priorities (Ringold, 2012; (Haris, Naway, & Pulukadang, 2018).

The Principal is responsible for leading the academic program and management of the school. They liaise with the School Supervisor, their staff and community to ensure rigour, transparency and quality school and student outcomes (SMERU, 2010; OECD, 2014; Suryadarma, et all, 2004) (Permenpan RB 21/2010; Permendikbud 143/2014; Joint Regulation by Mendiknas and Head of BKN 01/111/PB/2011, No. 6/2011; Perpres 131/2015, Permendikbud 34/2012). They are responsible for school supervision program plans, implementation and evaluation. Supervision is conducted collaboratively through face to face meetings, observation and through the gathering of evidence to inform judgement (SMERU, 2004).

The Principal is responsible for leading the management of the school through the development of the school plan with reference to the Minimum Service Standards, National Education Standards, and the National Principal and Teacher Standards.

III. THE PURPOSE OF SUPERVISION OF SCHOOLS

School supervision leads to improved teaching and learning via two intermediate mechanisms: (1) Setting expectations for schools and stakeholders. Research (Suryahadi & Sambodho, 2013) shows that supervision criteria and procedures influence schools and their stakeholders to align their expectation of what constitutes good education to the standards in the supervision framework. Schools and stakeholders are expected to use these standards in their daily management of, and or activities in the school; (2) Schools and stakeholders accepting supervision feedback. Schools align their education to the standards they failed to meet during the latest supervision visit as outlined in supervision feedback. Schools use supervision feedback when conducting self-evaluations and when taking improvement actions. Likewise, stakeholders are expected to use the supervision feedback (as publicly reported) to take actions that will motivate the school to improve (SMERU, 2010).

These two intermediate mechanisms can improve the self-evaluations of schools; building schools' capacity to improve that in turn will lead to more effective teaching and learning conditions. Likewise, improvement actions will (when successfully implemented) lead to more effective school and teaching conditions. In turn this process, should, logically, result in higher student achievement (OECD, 2014; Suryadarma, et all, 2004). A review conducted by MoNE in 2015 regarding School Supervisors in special regions (3T) identified several issues, among others: (1) lack of capacity building for units of education by the School Supervisor; (2) lack of

School Supervisor visits to target schools due to geographical and infrastructure obstacles, such as the surrounding terrain, distant school location, and limited transportation; and (3) lack of operational funds to implement supervisory tasks in the special regions. In addition, the review also identified causes for supervision problems in the special regions, such as (1) the number of School Supervisors is less compared to the number of target schools which will supervised by the supervisor; (2) the education background and work experience of supervisors do not match the main tasks of a School Supervisor (Bjerstedt, 2017; Wilson, McCallum, & Shupp, 2019); (3) the local Provincial/ District Education Office (PEO/ DEO) offers not enough opportunity to train and build the competency of School Supervisors; (4) lack of operational funding for school supervision; (5) lack of monitoring on Minimum Service Standard (MSS) for the implementation of school supervision by the central and local government (Bates & Burbank, 2019; Smith, 2017); (6) lack of community/ school committee involvement in supporting the school supervision implemented in schools; (7) the distance between target schools and School Supervisor's office (local PEO/ DEO) and (8) the limited transportation facilities for school supervision (UNICEF, 2012; World Bank, 2013).

IV.   USING ICT FOR FACILITATING SUPERVISION: A WIDE WORLD EXAMPLE

Electricity, communication and technology solutions are viewed as critical for quality supervision processes. Communications for schools in remote areas typically requires the use of SSB radio or acts of 'physical communication'— walking or riding a motorbike to find a mobile telephone signal or going to a DINAS at the kecamatan or kabupaten centre. Internet access is also very limited and costly, via dial-up or satellite (Suryahadi & Sambodho, 2013; (Defaru & Asrat, 2015; "PDA calls emergency meeting to discuss 'threat of remote supervision,'" 2017).

The quality of communication—whether voice or data—is generally poor. Reliance on satellite 'backbone' networks implies limited and high-cost transmission capacity or 'bandwidth' available for communications (UNICEF, 2012; Prasetyo, 2017).

Table 1 summarises approaches that could be utilised or further investigated to facilitate supervision.

In addition, some supervisors in Indonesia have on their own initiative established e-supervision platforms to enable more frequent communication and guidance for schools under their supervision. They developed their supervision approach with Electronoc-Supervision (E-Supervision). This E-Supervision approach requires: (1) Electricity from various sources; (2) Laptops for School Supervisors and Principals; (3) Mobile phones that use various solutions, e.g. 3G, 4G, Satellite and its variations, radio; (4) A data backup solution. Cloud technologies should

be considered and (5) Access to the internet whether at school or at a location identified for school use on a routine basis – i.e. through an agreed calendar of non-face to face supervision (Ahmad & Nasution, 2017; Schultz et al., 2018; Sellers & Walker, 2018).

V.   CONCLUSION

This paper presented some examples of school supervision models used in other countries that could be adapt and/or adopted to improve the effectiveness of school supervision in remote (terpencil) and disadvantaged (tertinggal) schools, and those schools lying on and near Indonesia's borders (terdepan/terluar) using technological approaches. These are known as 3T areas. The review has considered a range of national and international examples. The review assessed country reports and various literature evaluations of school supervision from Australia, Bangladesh, the Philippines, the Solomon Islands, Srilanka and Zanzibar as well as Indonesia.

In reviewing the policies and practices from other countries it became quickly apparent that many are on the same learning journey as Indonesia and that Indonesian supervision policies and guidelines were comparable with many of these countries

Acknowledgment

Table1. Approaches that could be utilised or further investigated to facilitate supervision.

Approach	Country	Description
Sustainable local electricity generation: solar power	Indonesia	TNP2K is piloting an *Electricity for the Poor* program that leverages off Corporate Social Responsibility programs to address current disparity in electricity coverage. Criteria used to determine inclusion in the pilot includes: Poor households (priority to 10% poorest households) Regions off the electricity grid 100 districts/municipalities with the lowest social development indicators. TNP2K piloted in three villages in Timur Tengah Selatan district (TTS), NTT, with 283 households.

		In the Tanimbar Islands (a group of 65 remote Indonesian islands only 500km north of Darwin) an Australian NGO is currently resourcing homes and schools with solar-powered LED lanterns enabling children to study at night and adults to work after sundown [12]. On Matakus, Papua, the island's 700 people have shifted from using kerosene lamps and an old diesel generator to solar lit homes. The project also included rebuilding the island's school and the supply of a small solar system to power a number of laptop computers.
Fibre-optic/satellite expansion	Indonesia	The Palapa Ring Phase II project, which consists of three sections (the West, Central and East sections), is one of Indonesia's priority infrastructure projects. It involves a huge undersea fiber-optic cable network that will offer faster broadband to the entire archipelago. The project is scheduled to be completed by 2018 and rolled out in 2019. The E. Palapa Ring will replace satellite-based transmission close to the "landing points" of the fibre-optic network but schools situated in the *highlands and other remote areas* will continue to use satellite for the immediate future.
Drones	Australia	In Australia drones are now used by Australia Post to distribute mail and parcels to remote properties. This technology would provide the opportunity for sharing of resources and information between the school and the School Supervisor.
Existing internet based platforms: *Jardiknas*	Indonesia	In Papua, the primary means of communication between DINAS is the *Jardiknas* network, which was established to serve as an internal network (intranet) and to facilitate dissemination of learning resources. *Jardiknas* is also used to provide connectivity to

		nearby schools via Local Area Networks (LAN). *Jardiknas* theoretically provides each district centre with a 256kbps connection. The *Jardiknas* network, at this point, is one of the primary means of Internet connectivity in Papuan schools. In addition, *Jardiknas,* in partnership with *Inherent*, a broadband Intranet for universities and other tertiary learning institutions, creates potential for content delivery, e-learning, and other services in *Jardiknas* schools. *Jardiknas* is available in all major districts in Papua, making Internet connectivity accessible and free-of-charge to schools.
Long and short wave radio	Multiple	The use of radio is widespread in several countries in Asia. Radio/community radio have been used successfully in Nepal (e.g. Radio Sagarmatha), Sri Lanka (e.g. Radio Kothmale) and Afghanistan (e.g. Educational Radio and Television) in creating innovative models for providing educational messages and creating community awareness. [13] Similarly, radio broadcasting through the Education Broadcasting Unit (EBU) of the Samoa Broadcasting Corporation (SBC) has been used extensively to reach children in rural and remote areas (Samoa, 2006). TAI has been used extensively, for instance, through dedicated educational channels (e.g. Gyan Darshan I & II in India, Nenasa in Sri Lanka, ERTV in Afghanistan, the Knowledge Channel (KCh) in the Philippines), through educational programming on existing television channels, or in the case of India, through private educational television channels (e.g.Toppers, Tata Sky Fun Learning, etc.) [14]. More recently, island countries of the Caribbean such as Barbados, Antigua and Barbuda and St. Lucia have launched initiatives to link management of education and financial information at the school and education system levels. ICT is increasingly being used to support delivery of education services across the Philippines archipelago, while infrastructure-poor

		countries such as Namibia and Uganda have sustainably deployed computers and connected schools in rural and remote locations that lack grid-based electricity and telecommunications.
Internet	Multiple	Provision of computers and internet access. The National governments of Jordan and Namibia have supported countrywide programs using computers and the Internet to provide professional development to in-service teachers. In Chile, with geography that presents obstacles that are similar to those in Papua, the Enlaces projects that has enabled teachers and students in remote schools to access learning resources online since 1992. Projects in both of these countries have used the Internet to support education management.

References

ACDP. (2014). *Study on Teacher Absenteeism in Indonesia 2014*. Jakarta, Indonesia: Education Sector Analytical and Capacity Development Partnership

Ahmad, & Nasution, M. D. (2017). Approaches to School Supervision in Indonesian Context. *Proceedings of the 4th Asia Pacific Education Conference (AECON 2017)*. https://doi.org/10.2991/aecon-17.2017.2

Basith, A., & Fitriyadi, S. (2017). Analysis of the implementation of guidance and counseling supervision at senior high schools. *SCHOULID: Indonesian Journal of School Counseling*, *Vol. 2*, p. 8. https://doi.org/10.23916/008621953-00-0

Bates, A. J., & Burbank, M. D. (2019). Supervision and Mentoring. *Agency in Teacher Supervision and Mentoring*, pp. 113–129. https://doi.org/10.4324/9781315225494-8

Bjerstedt, S. (2017). Improvisational approaches to supervision dialogue. *Högre Utbildning*, *Vol. 7*. https://doi.org/10.23865/hu.v7.1076

BPS (Indonesian Center of Statistics Agency). (2016). *Profil Kemiskinan di Indonesia, September 2015 (Poverty Profile in Indonesia, September 2015)*. Jakarta: BPS

Defaru, G., & Asrat, D. (2015). The Current Practices and Problems of School Based Supervision in Primary Schools of Jile Timuga Woreda. *Science, Technology and Arts Research Journal*, *Vol. 4*, p. 180. https://doi.org/10.4314/star.v4i1.30

deRee, J. et all. (2015). Double for nothing? The effect of unconditional teachers' salary increases on performance. *Mimeo.*

Djafri, N., & Badu, S. Q. (2019). School Cultural Character Values Implementation in Junior High School SMP Negeri 3 Gorontalo. *Proceedings of the 1st International Conference on Education Social Sciences and Humanities (ICESSHum 2019)*. https://doi.org/10.2991/icesshum-19.2019.115

Florell, D. (2018). Technology in Professional Learning. *Technology Applications in School Psychology Consultation, Supervision, and Training*, pp. 198–218. https://doi.org/10.4324/9781315175591-13

Haris, I., Naway, F. A., & Pulukadang, W. T. (2018). Review of Effective School Supervision Practice in Remote/Disadvantaged Area: A National and International Perspective. *Proceedings of the 1st International Conference on Early Childhood and Primary Education (ECPE 2018)*. https://doi.org/10.2991/ecpe-18.2018.18

Joshi, A. (2010). Do they work? Assessing the impact of transparency and accountability initiatives in service delivery. *Sussex, UK: Institute of Development Studies.*

Newell, M., Reed, K., & Zwolski, S. (2018). Technology in Researching Consultation, Supervision, and Professional Learning/Training. *Technology Applications in School Psychology Consultation, Supervision, and Training*, pp. 261–280. https://doi.org/10.4324/9781315175591-17

OECD. (2014). *PISA 2012 Results in Focus: What 15-year-olds Know and What They Can Do*

with What They Know. Paris, France: OECD.

PDA calls emergency meeting to discuss "threat of remote supervision." (2017). *The Pharmaceutical Journal*. https://doi.org/10.1211/pj.2017.20203637

Prasetyo, A. R. (2017). COPE Method Implementation Program to Reduce Communication Apprehension Level in Full Day Yunior High School Students. *IOP Conference Series: Earth and Environmental Science*, *Vol. 55*, p. 12020. https://doi.org/10.1088/1755-1315/55/1/012020

Ringold, D. et all. (2012). Citizens and service delivery: Assessing the use of social accountability approaches in human development. *Washington, D.C.: The World Bank*. https://doi.org/10.1596/978-0-8213-8980-5

Saber, S. Z. (2018). Relationship between personality traits (introversion-extroversion) and control source with coping skills in six-grade elementary school students in Ghaemshahr city. *European Journal of Behavioral Sciences*. https://doi.org/10.33422/ejbs.2018.06.73

Schultz, B. K., Kininger, R. L., & Shipp, O. M. (2018). Telesupervision. *Technology Applications in School Psychology Consultation, Supervision, and Training*, pp. 127–144. https://doi.org/10.4324/9781315175591-8

Sellers, T., & Walker, S. (2018). Telesupervision. *Technology Applications in School Psychology Consultation, Supervision, and Training*, pp. 106–126. https://doi.org/10.4324/9781315175591-7

SMERU. (2004). *When teachers are absent*. Jakarta: SMERU Research Institute. Retrieved from http://www.smeru.or.id/report/field/ketikaguruabsen/ketikaguruabsen-eng.pdf

SMERU. (2010). *Teacher Absenteeism and Remote Area Allowance: Baseline Survey.* Jakarta, Indonesia: SMERU Research Institute.

Smith, B. (2017). Safety, Supervision, and Discipline. *A Charter School Principal's Story*, pp. 51–53. https://doi.org/10.1007/978-94-6351-218-3_13

Storey, J. (2018). The "culture and civilization" tradition. *Cultural Theory and Popular Culture*, pp. 18–37. https://doi.org/10.4324/9781315226866-2

Suryadarma, D. et all. (2004). *The Determinants of Student Performance in Indonesian Public Primary Schools: The Role of Teachers and Schools*. Jakarta, Indonesia: SMERU Research Institute.

Suryahadi, A. & Sambodho, P. (2013). *Assessment of Policies to Improve Teacher Quality and Reduce Teacher Absenteeism*. Jakarta, Indonesia: SMERU Research Institute. https://doi.org/10.1355/9789814459877-012

UNICEF. (2012). *We Like Being Taught – A Study on Teacher Absenteeism in Papua and West Papua*. Jakarta, Indonesia: UNICEF.

Watkinson, J. S., Goodman-Scott, E. C., Martin, I., & Biles, K. (2018). Counselor Educators' Experiences Preparing Preservice School Counselors: A Phenomenological Study. *Counselor Education and Supervision*, *Vol. 57*, pp. 178–193.

https://doi.org/10.1002/ceas.12109

Wilson, A. B., McCallum, C. M., & Shupp, M. R. (2019). *Why Inclusive Supervision? Inclusive Supervision in Student Affairs*, pp. 3–19. https://doi.org/10.4324/9780429506178-2

World Bank. (2013). *Early Childhood and Development in Poor Villages of Indonesia: Strong Foundations – Later Success*. Jakarta, Indonesia: World Bank.

World Bank. (2014). *Teacher Reform in Indonesia - The Role of Politics and Evidence in Policy Making*. Jakarta, Indonesia: World Bank.

World Bank. (2015). *The role of BOS in improving education outcomes in Indonesia.* Jakarta, Indonesia: World Bank.