Do We Need You? : The Roles of Teacher Supervisor in Embracing Industrial Revolution 4.0

Wan Ilmiwati Wan Adnan¹, Najihah Abd Wahid², Norliana Abd Majid³, Farah Wahida Jaafar³, Nor Asmawati Ismail¹, Noradilah Abdul Wahab¹

¹Faculty of Islamic Contemporary Studies, Universiti Sultan Zainal Abidin, 21300 Kuala Terengganu, Terengganu, Malaysia
²Research Institute of Products and Islamic Civilization, Universiti Sultan Zainal Abidin, 21300 Kuala Terengganu, Terengganu, Malaysia
³Faculty of Business and Management Sciences, Universiti Sultan Zainal Abidin, 21300 Kuala Terengganu, Terengganu, Malaysia

wanilmiwati@gmail.com

Abstract. The 4th industrial revolution (IR 4.0) or the Industrial Internet of Things (IIoT) is characterized by the massive expansion of computation, digitalization, networking and physical processes. The so-called Industry 4.0 penetrates various industries and life domains by paving its way to the global networking system through data transmission. Thus, the emergence of IR 4.0 may change the dynamic in the teacher supervisor construct. Therefore, this conceptual paper aims to examine the teacher supervisor roles in the era of IR 4.0. Hence, a conceptual framework is proposed to identify critical roles played by teacher supervisor which should be retained in embracing IR 4.0. Findings indicate that supervisor’s roles in providing professional conference, encouragement for reflection and emotional support should remain.

Keywords: teacher supervisor, IR 4.0, professional conference, reflection, emotional support

1.0 Introduction

Portraying subject matter expertise discriminates between teachers’ quality. Therefore, school requires adept supervision as one of its pillar supports in ensuring continuous supply of quality teachers [1]. As such, teachers are in constant need of supervisory support [2]. Other than that, teacher supervision is viewed as a tool to attain educational goals, where students’ achievement can be propelled through supervision and resource allocation [3]. However, the emerging of IR 4.0 may demand changes in teacher supervision due to automation, digitalization and data literacy.

Therefore, advocating IR 4.0 signifies that the teacher education realm must be ready to prescribe a new way or innovation in managing teacher supervision. However, it is of the primary interest of this paper to highlight existing practices in the teacher supervision construct which must continue. It is also of equal importance to acknowledge in this era, robotic, digitalization and automation may replace or play greater roles in supervising a teacher. Therefore, considering those potential trends in education, this conceptual paper aims to highlight teacher supervisor’s roles in providing (1) professional conference (2)
encouragement for reflection and (3) emotional support as three constructs which correspond with IR 4.0 in education.

2.0 Supervisor’s Professional Conference and Encouragement for Reflection

Technology enhanced supervision is evident in literature. The use of video-simulated recall can be traced to 1950s [4]. Previous studies have identified video conferencing [5] [6], virtual coaching [7] [8] and internet-based supervision [9] as part of supervision mechanics. These may have resolved any logistic, climate or geo-political conflict issues which affect a supervision session [10] [11].

However, being a human makes it impossible to leave the humane aspect to be dealt solely by technologies, digitalization or automation. Ultimately, the unification of man and machine which is made possible in IR 4.0 has diminished the disparity between humanities and science and technology [12]. Therefore, it is vital to identify what are the supervision elements which must remain despite of advancements perpetuated by IR 4.0. For instance, better reflective practice is identified as one of the reap benefits of watching video tapes during supervision conference [9]. Other than that, visuals provided by video stimulated recall (VSR) provide deeper reflection on teacher and students’ performance in class. However, delays in post VSR conferences thwart the student teacher intention to inquire [4]. This ultimately highlights the importance of professional conference which precedes the application of VSR in supervision.

Meanwhile supervisor conference is the gist in student teacher supervision. For example, in discussing student teachers’ view of professional conference, the participants agree that it should survive due to its value in developing teacher’s character, quality and readiness [10]. Apart from that, effective and successful teacher supervision commands for language and communication effectiveness [13]. Earlier study on teacher supervision by Blase, (2002) has outlined that successful supervisor’s professional conference should be characterized by nonthreatening behaviour, apart from promoting professional growth.

Hence, professional conference and reflection are entwined. For example, instant feedback generated by computer-mediated video conferencing during teaching provides more comprehensive reflection during professional conferences [7]. Accordingly, in supervision, reflection refers to systematic or critical reflection. As such, systematic reflection refers to what works, or does not during teaching and learning session, apart from assisting teachers to devise strategies to overcome any untoward hurdles in classroom [15]. Hence, engaging reflection strategy via video allows teacher to reflect from practice [16].

However, devise assisted supervision mostly involve student teacher supervision. For the in-service teachers, supervision has not been directly aided with any digital or technology assisted tool in many parts of the globe. However, less skilled teachers still require feedback to facilitate reflective practice and pedagogical instructions [8]. For example, a UK study by Palomo, Beinart, & Cooper, (2010) to develop and validate a supervisory relationship questionnaire, have identified reflective education and role model subscales as important dimensions in supervision. They further suggest the role of supervisor as an educator. Similarly, an American study advocates teachers to shoulder the role as learners to improve teaching [1]. This obviously correlates with what teacher supervisory aim is, to educate teachers to improve. Hence, highlighting supervisor professional conference and motivation to reflect ensure successful teacher supervision. Thus, retaining these two constructs are essential in espousing I.R 4.0.

3.0 Supervisor Provides Emotional Support

In discussing the feasibility of supervisory relationship, established healthy professional relationship with one's supervisor may lead to comfort, confidence and natural act [10]. This is consistent with what is reported in [18] who describes personal attention and recognition by supervisors are viable aspects which can improve teachers’ productivity and performances. All of these humane qualities serve as a double
sword strategy in ensuring effective supervision leads to better teachers’ performance and efficacy. Apart from perpetuating better professional conversation, they also act as emotional support drivers for teachers. Furthermore, judging supervision from student teacher viewpoint, enduring practicum can emerge as an unpleasant experience for some of them. Therefore, a well-articulated supervision enriched with emotional support may soothe any depressive soul perpetuated by the feelings of incapability to hurtful self-esteem following classroom challenges [7]. This again highlights why supervisor’s emotional support should persist in supervision despite of vast developments made possible in I.R 4.0.

Meanwhile, engaging teacher supervisors from the non-managerial post may pose its own risk and dilemma. For instance, a study by [19] in an Irish context finds out that mentor teachers report feeling uncomfortable in delivering criticism to their mentees because they do want to jeopardize any personal relationship that has been built between them. This situation proves to disrupt fair evaluation. This further highlight that the absence of proper training leads to supervision failure. However, not wanting to invoke any unpleasant feeling is definitely does not exhibit any congruence with the need to provide essential emotional support to the teachers under supervision.

Accordingly, it is interesting to notice that there is a heightened tension between associating supervision with evaluation, or to treat these two constructs separately. Much deliberate effort has been executed to change the perception of supervision from evaluative function to helping function [20]. For instance, emotional support has been found to play paramount role to school intern site supervisors. The participants’ efficacious behaviour has been positively associated with the feeling of being understood [21]. Other studies find out that professional conferences should be accentuated with positive remarks, while flaws and deficiencies are discussed with empathy [22-24].

Therefore, supervisor must address with cautious any emotional issue which can harm teachers’ professional growth [25]. When teachers are professionally guided to improve professional practice, they can develop as a matured learner [26], [27]. This can only be accomplished if teachers genuinely believe that they are desired to improve professionally [22]. These emphasize the importance of emotional support where higher level of emotional reflection can produce positive and constructive supervision for both teachers and supervisors [25].

4.0 The Conceptual Framework

This study proposes three constructs which are constituted of supervisor’s professional conference, encouragement for reflection and emotional support as determinants to teacher supervision construct in embracing IR 4.0 in its conceptual framework.
Figure 3.1. IR 4.0 Teacher Supervision Conceptual Model

The hypotheses suggested are:
1) Supervisor’s professional conference has significant effect on IR 4.0 teacher supervision;
2) Supervisor’s encouragement for reflection has significant effect on IR 4.0 teacher supervision;
3) Supervisor’s emotional support has significant effect on IR 4.0 teacher supervision;

5.0 Conclusion
Teacher supervision provides an effective platform for both teachers and principals to realize reform and improvement efforts [24]. Therefore, in understanding the impact of IR 4.0 on teacher supervision, we must predict how certain advancements in IR 4.0 perpetuate certain results. Interestingly, IR 4.0 which engages the utilization of big data is offering solution to certain problems faced by teachers. Data provides information which can allow room for improvement. Apart from that, data can send warning signals to supervisors that some teachers may be crying for help in silence. However, when everything is calculated by computer, we may miss one of the essential elements in supervision, the observer evaluation [20]. Hence, observer evaluation and feedback are central to supervision professional conference. Thus, these accentuate professional conference as an eligible construct for IR 4.0 teacher supervision.

Other than that, high quality supervision provides a strong support system structure, which encourages reflective practices. For example, teachers value post-observation conference strongly where they highlight constructive feedback, trusting relationship, reflection and areas of improvement as what constitute effective principal supervision [28]. Apart from that, reflective practice provides a continuance of the in-house professional development for in-service teachers [29].

Meanwhile, for countries with deep rooted political turmoil, teachers may benefit themselves in an auspicious way in regard to IR 4.0. For example, [30] reports that political unrests made supervision tough in South Thailand. Therefore, blended supervision which is constituted of field supervision and online supervision is proposed. In addition, this approach may require the incorporation of artificial intelligence. However, the infusion of artificial intelligence or other technology-enhanced devices, which are made smarter by IR 4.0, a compatibility between humans, machine, and technology, must co-exist.

Accordingly, ten years ago, a concern has been raised up on the appropriateness of surveillance by [20]. It is of paramount importance to address that the same technology which has been used to provide protection against crime, may become a great source of insecurities. The feeling of being watched closely or scrutinized may hinder any effort of providing teachers with the needed emotional support, and it also contests the encouragement for systematic reflection in supervision.

Simultaneously, striking the right balance between IR 4.0 and the supervision construct is vital in keeping with the technological innovation. Thus, the infusion of supervision emotional support is extremely important because it provides emotional securities to teachers. The abilities to provide the safe base relationship is highly valued in supervisory relationship [17]. For example, peer supervision may render valuable emotional support by favouring compliments, apart from cautious criticism and suggestions is [31]. Accordingly, this elucidates the need for emotional support in any teacher supervision professional conference. Therefore, this paper views that supervisor’s professional conference, encouragement for reflection and emotional support are crucially needed by the supervisor construct in embracing IR 4.0 in education.

6.0 References
[1] L. Darling-Hammond and G. Sykes, “Wanted : A National Teacher Supply Policy for Education : The Right Way to Meet The “ Highly Qualified Teacher “ Challenge,” Educ. Policy Anal. Arch., vol. 11, no. September, pp. 1–55, 2003.
[2] Mislinah Makin and Zuraidah Abdullah and Salwati Shafee, “The Art of Supervision: Role of
Supervisory Skills in Developing Teacher Capacity,” *Malaysian Online J. Educ. Manag.*, vol. 6, no. 4, pp. 37–55, 2018.

[3] R. J. Sergiovanni, T. J., & Starrat, *Supervision: A redefinition*, 7th Editio. New York: McGraw Hill, 2002.

[4] T. Kelting, J. M. Jenkins, and K. L. Gaudreault, “I Could Really Focus on the Students,” *J. Phys. Educ. Recreat. Danc.*, no. October, pp. 37–41, 2014.

[5] S. K. Dymond, J. W. Halle, and J. L. Bentz, “An Evaluation of Videoconferencing Practicum Supervision,” *Teach. Educ. Spec. Educ.*, vol. 31, no. 4, pp. 243–256, 2008.

[6] D. A. L. Coldwell, “Negative Influences of the 4th Industrial Revolution on the Workplace: Towards a Theoretical Model of Entropic Citizen Behavior in Toxic Organizations,” *Int. J. Environ. Res. Public Health*, 2019.

[7] M. Israel, C. R. Carnahan, and K. K. Snyder, “Supporting New Teachers of Students With Significant Disabilities Through Virtual Coaching: A Proposed Model,” *Remedial Spec. Educ.*, vol. 34, pp. 195–204, 2012.

[8] B. M. L. Rock, M. Gregg, R. A. Gable, and N. P. Zigmond, “Virtual Coaching for Novice Teachers,” *Phi Delta Kappan*, vol. 91, no. October, pp. 36–41, 2009.

[9] I. Teacher and C. Clinical, “Improving Teacher Candidate Clinical Practice through an Internet-based Observation, Communication, and Recording System,” *Glob. Stud. J.*, vol. 5, no. 4, pp. 37–50, 2013.

[10] B. Ussher and W. Cars, “Strengthening Practicum Conversations: Enhancing Professional Learning and Development Through Returning Lecturer Supervisions,” *Aust. J. Educ.*, vol. 58, no. 3, pp. 248–261, 2014.

[11] J. M. Van Boxtel, “Seeing Is Believing: Innovating the Clinical Practice Experience for Education Specialist Teacher Candidates With Video-Based Remote Supervision,” *Rural Spec. Educ. Q.*, vol. 36, no. 4, pp. 180–190, 2017.

[12] A S Md Abdul Haseeb, “Higher Education in the Era of IR 4.0,” *News Straits Times*, 2018.

[13] E. Pajak and C. D. Glickman, “Informational and Controlling Language in Simulated Supervisory Conferences,” *Am. Educ. Res. J.*, vol. 26, no. 1, pp. 93–106, 2015.

[14] J. Blase, “The Micropolitics of Instructional Supervision: A Call for Research,” *Educ. Adm. Q.*, vol. 38, no. 1, pp. 6–44, 2002.

[15] C. Olteanu, “Reflection and the Object of Learning,” *Int. J. Lesson Learn. Stud.*, vol. 5, no. 1, pp. 60–75, 2016.

[16] H. M. Dostal and K. A. Wolbers, “Video Review and Reflection for Ongoing Inservice Teacher Professional Development,” *Lit. Res. Pract. Eval.*, vol. 6, pp. 329–351, 2015.

[17] M. Palomo, H. Beinart, and M. J. Cooper, “Development and validation of the Supervisory Relationship Questionnaire (SRQ) in UK trainee clinical psychologists,” *Br. J. Clin. Psychol.*, vol. 49, no. 2, pp. 131–149, 2010.

[18] A. Rezaee, “A Mixed Method Study of the Relationship between EFL Teachers’ Job Satisfaction and Job Performance in Iran,” *Int. J. Instr.*, vol. 11, no. 4, pp. 391–408, 2018.

[19] A. M. Young and A. MacPhail, “Standing on the periphery: Cooperating teachers’ perceptions and responses to the role of supervision,” *Eur. Phys. Educ. Rev.*, vol. 21, no. 2, pp. 222–237, 2015.

[20] H. M. Hazi and D. A. Rucinski, “Teacher Evaluation as a Policy Target for Improved Student Learning: A Fifty-State Review of Statute and Regulatory Action since NCLB,” *Educ. Policy Anal. Arch.*, vol. 17, no. 5, 2009.

[21] C. H. Brown, A. Olivárez, and L. DeKruyf, “The Impact of the School Counselor Supervision Model on the Self-Efficacy of School Counselor Site Supervisors (Featured Research),” *Prof. Sch. Couns.*, vol. 21, no. 1, pp. 152–160, 2017.
[22] F. W. Johnson, “The Supervision of Instruction,” *Univ. Chicago Press*, vol. 30, no. 10, pp. 742–754, 2019.

[23] C. Ochieng and S. Borg, “‘We teach plastic lessons to please them’: The influence of supervision on the practice of English language student teachers in Kenya,” *Lang. Teach. Res.*, vol. 15, no. 4, pp. 509–528, 2011.

[24] I. M. Mette, B. G. Range, J. Anderson, D. J. Hvidston, and L. Nieuwenhuizen, “Teachers’ Perceptions of Teacher Supervision and Evaluation: A Reflection of School Improvement Practices in the Age of Reform,” *NCPEA Educ. Leadersh. Rev.*, vol. 16, no. 1, pp. 16–30, 2015.

[25] P. L. Tenuto, M. E. Gardiner, and J. K. Yamamoto, “Leaders on the Front Line—Managing Emotion for Ethical Decision Making,” *J. Cases Educ. Leadersh.*, vol. 19, no. 3, pp. 11–26, 2016.

[26] S. J. Zepeda, *International Handbook of Leadership for Learning*, vol. 25. London: Springer, 2017.

[27] I. M. Mette and L. Riegel, “Supervision, Systems Thinking, and the Impact of American School Reform Efforts on Instructional Leadership,” *J. Cases Educ. Leadersh.*, p. 155545891875969, 2018.

[28] B. G. Range, S. Young, and D. Hvidston, “Teacher perceptions about observation conferences: What do teachers think about their formative supervision in one US school district?,” *Sch. Leadersh. Manag.*, vol. 33, no. 1, pp. 61–77, 2013.

[29] C. Musaeva, *The necessity of providing guidance for reflection in inservice teacher training programs in Kyrgyzstan*, vol. 19. Emerald Group Publishing Limited, 2013.

[30] S. Buatip, “Enhancing Science Teaching Competency among Pre-Service Science Teachers through Blended-Mentoring Process,” *Int. J. Instr.*, vol. 12, no. 3, pp. 289–306, 2019.

[31] S. Amini and J. Gholami, “Professional Development of EFL Teachers through Rotatory Peer Supervision,” *J. Teach. Educ. Sustain.*, vol. 20, no. 2, pp. 101–117, 2018.