

Virtual Instructional Leadership and Teachers' Teaching Competency: Mediated by Communication Pattern

Mat Rahimi Bin Yusof¹, Mohd Yusri Bin Ibrahim², Sakhiyyah Binti A Rahim³

¹ Teacher, SMK Penarek, Setiu, Terengganu, Email: matrahimiy@gmail.com

² Lecturer, Universiti Malaysia Terengganu, Email: yusri@umt.edu.my,

³ Lecturer, IPG Kampus Dato' Razali, Email: sar_arahim@yahoo.com

DOI Link: <http://dx.doi.org/10.6007/IJARBSS/v7-i8/3211>

Published Date: 09 August 2017

Abstract

Communication is one of the main elements in determining the success of an organization. At school, effective communication between principals and teachers is very important in determining school effectiveness, especially in the aspect of teaching and learning. Yet, the school principals are very much occupied with routine managerial and administrative tasks which have inevitably limit the effective communication between principals and teachers. The study was aimed to identify the influence of the communication pattern toward virtual instructional leadership and teachers' teaching competencies. Data from 352 respondents collected through questionnaire were analysed using AMOS version 22. The finding showed that the indirect effect value of virtual instructional leadership toward teachers' teaching competencies ($\beta=.369$) is smaller than its total effect ($\beta=.582$). This indicated that the communication pattern has some influence on virtual instructional leadership. Finally, this study has successfully developed a model depicting the relationship between virtual instructional leadership and teacher teaching competency.

Keyword: Virtual Instructional Leadership, Communication Pattern, Teachers' Teaching Competency, Social Media, And Digital Leadership

Introduction

Basically, communication is a process of exchanging important messages, share ideas and feelings with each other (Dominick, 2013; Hoy & Miskel, 2013; Miller, 2006). Communication process normally entails the following elements: source, encoding, message, channel, decoding, noise interference, the receiver and feedback (Dominick, 2013). Now days, the increasing technology have led to changes in the way people communicate including school leaders.

In the context of a world without boundaries, integration of mobile technology devices such as smartphones, tablets and laptops and the use of social media applications has sparked information transmission revolution (Supyan, 2014). Communication takes place regardless of geographical boundaries and time (Zahiah & Abdul Razaq, 2010).

Scholars have agreed that effective communication is essential in improving the effectiveness of an organization (Dominick, 2013; Miller, 2006; Pace & Faules, 2002; Sarah, Afzahane, & Rosliza, 2014). In schools, communication is the heart of interaction especially between principals and teachers and school staff. Effective communication is essential in improving teachers' teaching competencies in classroom.

In addition, effective school leadership is a major factor in the success of a school (Horng & Loeb, 2010; Hoy & Miskel, 2013; Zaidatol Akmaliah & Foo, 2003). Principals should perform the function of instructional leadership comprehensively in order to establish effective communication network. This enables principals to discuss and guide teachers towards improving the competence of their teaching (Hallinger & Walker, 2011; Mat Rahimi & Mohd Yusri, 2015b; Mattar et al., 2013; Mohd Yusri & Aziz, 2014a).

Problems Statement

Studies by researchers over the past decade generally indicated that communication plays an important role in improving job performance and job satisfaction (Ahmad Jawahir, Rosli, & Kalthom, 2011; Asmia Ayu, 2013; Contartesi, 2010; Kamaruzaman, 2012; Mohd Yusri, 2015; Mohd Yusri & Aziz, 2013; Muzawir, 2010; Narimah & Saodah, 2003; Nor Azlina, 2010; Pace & Faules, 2002; Schmidt, 2014; Zulch, 2014).

Apart from communication, the leadership influence is very important in improving school effectiveness (Bity Salwana, Ahmad Basri, Ramlee, & Mohammed Sani, 2010; Glickman, Gordon, & Ross-Gordon, 2009; Nor Asikin, 2011; Stogdill, 1974). Principal should always communicate, discuss and guide teachers to improve teaching and learning competencies in the classroom.

However, in reality principals in Malaysia are very occupied with managerial and administrative tasks causing poor communication especially between principals and teachers. Review from local researchers showed that principals use 60% to 68% of their time for administrative activities (Azlin Norhaini, Jamalullail, Mohd Izham, & Norhayati, 2011; Hamzah, Wei, Ahmad, Hamid, & Mansor, 2013; Mat Rahimi & Mohd Yusri, 2015; Mohd Yusri & Aziz, 2014) or only 25% of their time were used to manage the curriculum and teaching supervision (Arsaythamby Veloo & Komuji, 2013; Hamdan & Nurlia, 2013).

The phenomenon affects the principals' function as instructional leaders in schools. Instructional leadership functions has not been satisfactorily implemented, especially in terms of supervising and evaluating teachers (Azlin Norhaini, Jamalullail, Hamzah, & Norhayati, 2013; Hallinger & Walker, 2011; Jamelaa Bibi & Jainabee, 2011; Mattar et al., 2013).. Principals lack the time to discuss and guide teachers towards improving the teaching competence (Azlin Norhaini et al., 2011; Jamelaa Bibi & Jainabee, 2011; Jamilah & Yusof, 2011; Mat Rahimi & Mohd Yusri, 2015c; Nor Azni, Foo, Aminuddin, & Soaib, 2014).

Based on problems, local researchers suggested that principals need to enhance their communication patterns in the school. With the rapid development of information and communication technology (ICT), mobile technology, internet and social media applications, communication becomes easier (Khalfalla & Che Su, 2014; Sarah et al., 2014; Siti Ezaleila & Azizah, 2010). Principals can communicate without restrictions of time and distance. However, the extent to which principals communication through ICT has influence on the

contribution of virtual instructional leadership on teachers' teaching competence is still debatable.

Research Question and Hypothesis

In general, this study aims to identify the impact of the communication pattern towards the relationship between virtual instructional leadership and teachers' teaching competency. In particular, this study aims to answer the following research question and hypothesis:

Research question:

Do communication patterns mediate the relationship between virtual instructional leadership and teacher competence?

Research hypothesis:

Communication patterns mediate the relationship between virtual instructional leadership and teachers' teaching competence.

Literature Review

Literature shows that scholars have agreed that effective communication can contribute to organizational effectiveness (Miller, 2006; Sarah et al., 2014). Time has changed the way people communicate. Rapid development in information and communication technology, mobile technology and new communications applications has eased communication (Che Su & Nan Zakiah, 2014; Matthews & Lloyd, 2004; Siti Ezaleila & Azizah, 2010). Recently researchers indicated that social media has gained the highest place as a new medium of communication (Khalfalla & Che Su, 2014; Kujbus & Gati, 2013; Nah & Saxton, 2013).

The new medium of communication also influences the school leaders' communication patterns and leadership practices in Malaysia or abroad. The E-leadership model shows that the group communication significantly influences the interaction between e-leadership and job satisfaction kerja (Mohd Yusri & Wan Abdul Aziz, 2013). In addition, in a survey of 1082 respondents, it was found out that principals', head masters', assistant principals', subject heads' and department heads' virtual leadership in Malaysia contributed positively to the group communication patterns (Mohd Yusri & Aziz, 2014b).

In New York, the new medium of communication also affects school leaders leadership practice. Most school leaders use *iPad* for supervising teachers (Sheninger, 2014). The program, which is synonymous with the Bring Your Own Device (BYOD) or Bring Your Own Technology (BYOT) requires instructional leaders to be proactive in implementing the technology (Avolio, Kahai, & Dodge, 2000; Sheninger, 2014).

Research Conceptual Framework

The research conceptual framework as shown in figure 1.

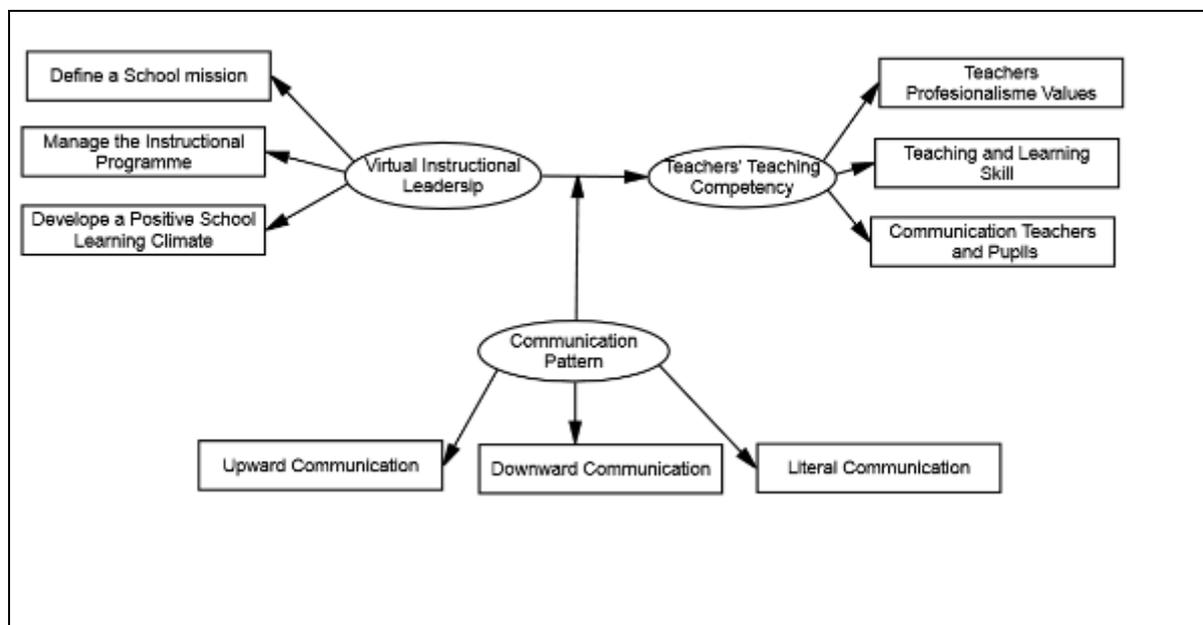


Figure 1: Research conceptual framework

Figure 1 illustrated that virtual instructional leadership is the independent variable, the teachers' teaching competency is the dependent variable and communication patterns is the mediating variable. The communication pattern is expected to affect virtual instructional leadership and teaching competency.

Research Methodology

This quantitative study used a cross sectional (Gay, Mills, & Airasian, 2011; Lodico, T., Dean, Spaulding, & Voegtler, 2010) design whereby a modified questionnaire was used as the instrument. For virtual instructional leadership using PIMRS (Hallinger & Murphy, 1985) communication pattern using *The Communication Satisfaction Questionnaire (CSQ)*; (Downs & Hazen, 1977) and teachers' teaching competency using *Measures of Teacher Effectiveness* (McBer, 2001).

Data were collected from 352 respondents who were secondary school teachers in Malaysia. They were selected using stratified random sampling techniques and sample size was determined through Krejcie and Morgan formula (1970). Data were analysed using Structural Equation Model (SEM) aided by AMOS 22 to identify the effect of the communication pattern on the relationship between virtual instructional leadership and teacher competence.

Full and partial mediation methods were used to test the effect of the mediators on the relationship between the predictor variables and the response variable. For the full mediation method, the model was first run without the mediator, followed by the model with the mediator. If the chi-squared (χ^2) value of the model with the mediator is smaller, it indicates that the mediator affects the relationship between the predictor variable and the dependent variable (Mohd Yusri, 2012; Baron & Kenny, 1986).

For partial mediation method, the indirect effect was compared to the total effect. The value of the total effect, direct effect and an indirect effect were observed. If the indirect effect is less than or equal to the full effect, it means that the mediator affects the relationship between the predictor variable and the dependent variable (Mohd Yusri; 2012; Shrout & Bolger, 2002; MacKinnon et al, 1995; MacKinnon & Dwyer, 1993).

Research Finding

1. Respondents Demographic

Respondents comprised of 110 or 31.3% male and 242 or 68.7% were female. The majority of them in terms of grade were in their DG44 (131 or 37.2%), while the rest were DG 41, DG 42, DG 52 and DG 54. However, there are four respondents or 1.1% of respondents who were in DG29-38.

Communication Patterns As Mediator In the Relationship between Virtual Instructional Leadership and Teachers’ teaching Competency

To answer this question and hypotheses, partial mediation and full mediation were run using AMOS software. Table 1 shows the total effect, direct effect and indirect effect.

Table 1:
The total effect, direct effect and indirect effect values

	Total Effect			Direct Effect			Indirect Effect		
	VIL	CP	TTC	VIL	CP	TTC	VIL	CP	TTC
1. CP	0.831	.000	.000	0.832	.000	.000	.000	.000	.000
2. TTC	0.577	0.472	.000	0.184	0.472	.000	0.392	.000	

CP=Communication Pettern, TTC= Teachers’ Teaching Competency, VIL= Virtual Instructional Leadership

The findings showed the value of the indirect effects of virtual instructional leadership contributions to the dependent variable, teaching competence ($\beta = .392$) was smaller than the full effect ($\beta = .577$). This finding indicated that the variable teachers’ teaching was influenced by the mediating variable, communication patterns. Thus the hypothesis is accepted .

To further confirm the role of communication as a mediator in relations virtual instructional leadership and teachers’ teaching competency, a model without the mediating communication pattern variable was tested. For comparison, the Chi-square value was observed. Results showed that the chi square value of the model without the moderator is bigger than the model with the moderator. This clearly indicated that the model with the moderator is a better model.. Table 2 displayed the summarised fitness indices for both models.

Table 2:
Comparison of fit indexes

Fir indexes	Suggested Fit Indexes Value	Without Moderator	With Moderator
χ^2	-	5648.37	5418.768
Sig χ^2	>0.05	.000	.000
DF		2679	2677
Ratio (CMIN (χ^2)/DF)	< 5.0	2.109	2.024
RMSEA (<i>Root Mean Square Error of Approximation</i>)	<0.08	0.056	0.054
Incremental fit			
CFI (<i>Comparative Fit Index</i>)	>0.90	0.845	0.857
Parsimony fit			
PNFI (<i>Parsimony Normed Fit Index</i>)	>0.50	0.717	0.727
PCFI (<i>Parsimony Comparative of Fit Index</i>)	>0.50	0.816	0.827

Finally an interaction model of virtual instructional leadership, communication pattern and teachers' teaching competency was developed based on finding as illustrated in figure1.

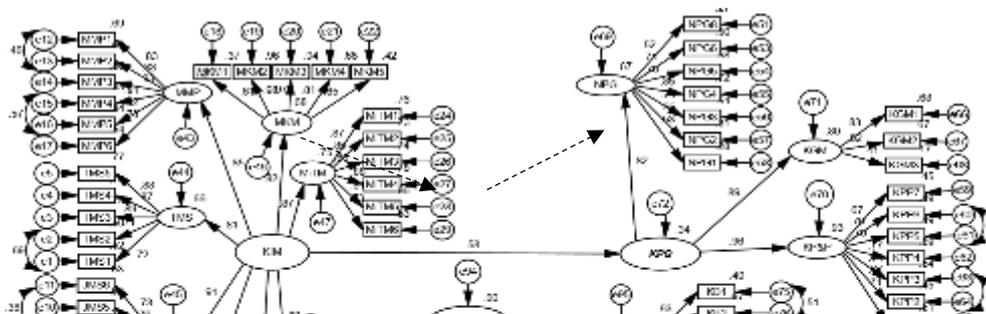
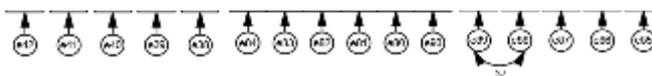


Figure 1: The interaction model of virtual instructional leadership, communication pattern and teachers' teaching competency



Generally based on figure 1 and earlier discussion, the findings showed that the contribution of virtual instructional leadership on teachers' teaching competency variable is influenced by a mediating variable namely communication patterns. This finding means that if communication pattern increases the contribution of virtual instructional leadership of teachers' teaching competency also increases.

Conclusion

Overall, this study was successfully developed the interaction model of virtual instructional leadership, communication pattern and teachers' teaching competency. Apart from supporting the findings of earlier research, provides a meaningful contribution in the context of the communication patterns among principals in Malaysia. With the new medium of communication, communication weaknesses due to busy administrative tasks could be minimized. The communication pattern between principals and teachers is increasing and hence influences the virtual instructional leadership contributions to teachers' teaching competency. In other words they need to be constantly and actively communicating with teachers to discuss and guide the improvement of teacher teaching competency. In addition, the findings also bring about major implications to the practice of instructional leadership.

These findings proved that a new medium of virtual communication also influence the communication patterns of school leaders in Malaysia .The new technology of communication has brought an evolution in communication patterns principals and teachers. In other words communication principals and teachers are no longer limited face t-face communication only. Principals and teachers can interact at any time. Principals can discuss and guide teachers to improve their teaching competence.

The influence of the communication pattern on the relationship between virtual instructional leadership and teachers' teaching competency opens up greater opportunity for principal to perform their instructional leadership functions, especially in terms of supervising and evaluating teachers. The integration of mobile technology and new applications in communication patterns enables these tasks be performed virtually. This practice is in line with teaching supervision practiced in developed countries whereby school administrators use the iPad for supervising teachers..

Finally, based on previous research showed that effective communication is essential in improving the effectiveness of the school, the principal must seize this opportunity to strengthen the knowledge and skills of new communication technologies. The developed model is expected to provide an alternative to the principals in performing their communication patterns and instructional leadership function virtually and ultimately guides teachers to improve teaching competency.

Corresponding Author

Mohd Yusri bin Ibrahim

Affiliation : Universiti Malaysia Terengganu

Country : Malaysia

Email ID : yusri@umt.edu.my

Address : Universiti Malaysia Terengganu,
Centre of Fundamental and Liberal Study
21030, Kuala Terengganu, Terengganu.

References

- Jawahir, T., Rosli, S., & Kalthom, H. (2011). Kesan komunikasi dalam organisasi ke atas kepuasan kerja staf sokongan di Universiti Teknikal Malaysia Melaka (UTeM). *Journal of Human Capital Development*, 4(2), 57–74.
- Airasian, P. W., Gay, L. R., & Mills, G. E. (2011). *Educational research: Competencies for analysis and applications (10th Edition)*. Upple Sadder River: NJ: Pearson Education.
- Veloo, & Komuji, M. M. A. (2013). Kesan Penyeliaan Klinikal Terhadap Prestasi Pengajaran Guru Sekolah Menengah. *Asia Pacific Journal of Educators and Education*, Vol. 28, 81–102.
- Asmia Ayu, A. (2013). *Gaya komunikasi interpersonal guru besar dan hubungannya dengan kepuasan kerja guru sekolah rendah zon Kukup Daerah Pontian, Johor*. Universiti Teknologi Malaysia.
- Avolio, B. J., Kahai, S., & Dodge, G. E. (2000). E-Leadership : Implications for theory, research and practice. *Leadership Quarterly*, 11(4), 615–668.
- Azizi, Y., Shahrin, H., Jamaludin, R., Yusof, B., & Abdul Rahim, H. (2007). *Menguasai penyelidikan dalam pendidikan*. Batu Caves: PTS Profesional.
- Norhaini, M., Jamalullail, A. W., Hamzah, M. I. M., & Norhayati, Y. (2013). Aktiviti kepimpinan di Rantau Asia : Analisis data kajian TIMSS 2011. In *Seminar Nasional Pengurusan dan Kepimpinan Pendidikan ke- 20*. Genting Highlands: Institut Aminuddin Baki.
- Norhaini, M., Jamalullail, A. W., Izham, M., & Norhayati, Y. (2011). Aktiviti kepimpinan pengetua di Asia Tenggara : Analisis pata Kajian TIMSS 2011. Bangi: Fakulti Pendidikan UKM.
- Baron, R. M., & Kenny, D. a. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173–1182. <http://doi.org/10.1037//0022-3514.51.6.1173>
- Salwana, A., Ahmad Basri, M. Y., Ramlee, M., & Mohammed Sani, I. (2010). Analisis kompetensi pengetua berdasarkan kualiti peribadi, pengetahuan, kemahiran dan qamalan pengurusan sekolah menengah Malaysia. *Jurnal Pendidikan Malaysia*, 35(2), 31–41.

- Che Su, M., & Nan Zakiah, M. I. (2014). Persepsi dan penggunaan media sosial dari perspektif ibu bapa : Satu analisis kualitatif. *Jurnal Komunikasi Malaysia*, 30, 43–74.
- Contartesi, R. A. (2010). *School Climate: A correlational analysis of superintendent leadership communication and employee performance*. D. University of Phoenix.
- Dominick, J. R. (2013). *The dynamics of mass communication* (Twelfth Edi). New York: Mc Graw Hill.
- Glickman, C. D., Gordon, S. P., & Ross-Gordon, J. M. . (2009). *Supervision and instructional leadership: a developmental approach*. Boston: Allyn and Bacon.
- Hallinger, P., & Walker, A. D. (2011). School leadership in Asia Pacific: identifying challenges and formulating a research agenda. *School Leadership & Management*. <http://doi.org/10.1080/13632434.2011.606988>
- Hamdan, S., & Nurlia, M. (2013). penyeliaan pengajaran dan pembelajaran di sekolah-sekolah kebangsaan di Daerah Kota Tinggi, Johor. Retrieved March 26, 2014, from http://eprints.utm.my/12013/1/Penyeliaan_Pengajaran_Dan_Pembelajaran_Di_Sekolah.pdf
- Hamzah, M. I. M., Wei, Y., Ahmad, J., Hamid, A. H. A., & Mansor, A. N. (2013). Supervision practices and teachers' satisfaction in public secondary schools: Malaysia and China. *International Education Studies*, 6. Retrieved from <http://pitt.summon.serialssolutions.com>
- Horng, E., & Loeb, S. (2010). New thinking about instructional. *Kappan Magazine*, (November), 66–69.
- Hoy, W. K., & Miskel, C. G. (2013). *Educational administration* (Ninth Edit). New York: Mc Graw Hill Higher Education.
- Bibi, A., & Jainabee, M. K. (2011). Amalan kepimpinan instruksional dalam kalangan pengetua sekolah menengah di Negeri Pahang : Satu Kajian Kualitatif. *Journal of Edupres*, 1, 323–335. Retrieved from <http://eprints.utm.my/17080/1/JOE-1-2011-039.pdf>
- Jamilah, A., & Yusof, B. (2011). Amalan kepimpinan sekolah berprestasi tinggi (SBT) Di. *Journal of Edupres*, V, 1(September), 323–335.
- Kamaruzaman, M. (2012). Penggunaan elemen komunikasi berkesan oleh pengetua dan guru besar bagi membentuk pasukan kerja yang dinamik. In *Seminar Pengurusan dan Kepimpinan Pendidikan ke- 19*. Genting Highlands: Institut Aminuddin Baki.
- Khalfalla, M. A., & Che Su, M. (2014). How do Non-profit Organizations in Libya Adopt and Use Social Media to Communicate with The Society. *Procedia-Social and Behavioral Sciences*, 155(October), 1–5. <http://doi.org/10.1016/j.sbspro.2014.10.262>

- Kujbus, E. M., & Gati, M. (2013). The attributes of social media as an online strategy tool. *Journal of Chemical Information and Modeling*, 53(9), 1689–1699. <http://doi.org/10.1017/CBO9781107415324.004>
- Lodico, M. G., T., Dean, Spaulding, & Voegtle, K. H. (2010). *Methods in educational research from theory to practice* (Second edi). San Francisco: Jossey - Bass.
- MacKinnon, D. P., & Dwyer, J. H. (1993). Estimating mediated effects in prevention studies. *Evaluation Review.*, 17(144–158).
- MacKinnon, D. P., Warsi, G., & Dwyer, J. H. (1995). A simulation study of mediated effect measures. *Multivariate Behavioral Research*, 30, 41
- Rahimi M., Y., & Mohd Yusri, I. (2015a). Model Kepimpinan Pengajaran Maya dan Kompetensi Pengajaran Guru. In *4th Regional Conference on Educational Leadership and Management*. Genting Highlands: Institut Aminuddin Baki.
- Rahimi M, Y., & Mohd Yusri, I. (2015b). Sumbangan Kepimpinan Instruksional Maya Terhadap Kompetensi Pengajaran Guru. In *3rd International Conference on Social Sceince Research* (Vol. 2015, pp. 756–765). Kuala Lumpur.
- Rahimi M, Y., & Mohd Yusri, I. (2015c). Sumbangan Model Kepimpinan Instruksional Maya Terhadap Kompetensi Pengajaran Guru. In *3rd International Conference on Social Sceince Research*. Kuala Lumpur.
- Rahimi M, Y., Yusri M., I., & Zahari, A. (2016). Persepsi guru terhadap amalan komunikasi maya pemimpin sekolah. In *Seminar Pengurusan dan Kepimpinan Pendidikan ke- 23*. Bandar Enstek: Institut Aminuddin Baki.
- Mattar, D., Pansiri, N. O., Heck, R. H., Shatzer, R. H., Caldarella, P., Hallam, P. R., ... Mokhele, M. L. (2013). Principals' Instructional Leadership and School Performance: Implications for Policy Development. *Journal of Educational Administration*, 48, 130–141. <http://doi.org/10.1177/1094670509353043>
- Matthews, T., & Lloyd, J. (2004). Leadership in an Online Environment I NSIDE T HIS I SSUE : Leadership Bookshelf :, 12(2).
- McBer, H. (2001). *Research into teacher effectiveness: A model of teacher effectiveness*.
- Miller, K. (2006). *Organizational Communication: Approaches and processes* (Sixth Edit). United States of America: Thomson Higher Education.
- Majid, K. (2000). *Kaedah penyelidikan pendidikan*. Kuala Lumpur: Dewan Bahasa dan Pustaka.
- Yusri M, I. (2012). *Model Kepimpinan Pengajaran Pengetua Efikasi dan Kompetensi Pengajaran*. Universiti Malaysia Terengganu.
- Yusri M, I. (2015). Model of Virtual Leadership, Intra-team Communication and Job

Performance Among School Leaders in Malaysia. *Procedia - Social and Behavioral Sciences*, 186, 674–680. <http://doi.org/10.1016/j.sbspro.2015.04.126>

Yusri M, I., & Aziz, A. (2013). Model E-Kepimpinan, komunikasi kumpulan dan kepuasankerja dalam kalangan pemimpinsekolah. In *Seminar Nasional Pengurusan dan Kepimpinan Pendidikan ke- 20*. Genting Highlands: Institut Aminuddin Baki.

Yusri M, I., & Aziz, A. (2014a). Model Kepimpinan Maya Dan Prestasi Kerja Pemimpin Sekolah Malaysia: Perantaraan Oleh Komunikasi Dalam Kumpulan. In *2ND International Seminar Teaching Excellence And Innovation* (Vol. 2, pp. 1–10). Kuala Lumpur: Universiti Malaya.

Yusri M, I., & Aziz, A. (2014b). Model Kepimpinan Pengajaran Pengetua dan Kompetensi Pengajaran Guru. *Jurnal Kurikulum Pasifik, Pengajaran Asia Pasifik*, 22(1), 11–25.

Yusri M, I., & Wan Abdul Aziz, W. M. A. (2013). Membangunkan model modifikasi kepemimpinan pengajaran pengetua. *Trend of Busines and Social*, 2, 94–109.

Muzawir, K. (2010). *Pola Komunikasi organisasi (Studi Kasus: Pola Komunikasi Antara Pimpinan dan Karyawan di Radio Kota Perak Yogyakarta)*. Universitas Negeri Sunan Kalijaga Yogyakarta.

Nah, S., & Saxton, G. D. (2013). Modeling the adoption and use of social media by nonprofit organizations. *New Media & Society*, 15(2), 294–313. <http://doi.org/10.1177/1461444812452411>

Narimah, I., & Saodah, W. (2003). *Komunikasi organisasi*. Batu Caves: PTS Publication & Distributor Sdn. Bhd.

Asikin, S. (2011). Kepimpinan pengajaran dan perkongsian wawasan: Satu kajian kes di sekolah-sekolah kebangsaan luar bandar. Retrieved April 20, 2014, from <http://jabatanbahasastar.files.wordpress.com/2011/08/kepimpinan-pengajaran-danperkongsian-wawasan%0A%0A>

Azlina, H. (2010). *Hubungan antara komunikasi dalam organisasi terhadap kepuasan kerja*. Universiti Malaysia Sarawak.

Azni, A. A., Foo, S. F., Aminuddin, H., & Soaib, A. (2014). Instructional leadership : Validity and reliability of PIMRS 22-item Instrument. *Australian Journal of Basic and Applied Sciences*, 8(23), 200–206.

Noraini, I. (2010). *Penyelidikan dalam pendidikan*. Kuala Lumpur: Mc Graw Hill.

Pace, R. W., & Faules, D. F. (2002). *Komunikasi Organisasi, Strategi Meningkatkan Kinerja Perusahaan*. Bandung: Remaja Rosda Karya.

Sarah, S. A., Afzahanee, Z., & Rosliza, M. Z. (2014). *Organizational Behavior*. Kuala Lumpur: Oxford Fajar Sdn Bhd.

- Schmidt, G. B. (2014). Virtual leadership: An important leadership context. *Industrial and Organizational Psychology, 7*(2), 182–187. <http://doi.org/10.1111/iops.12129>
- Sheninger, E. (2014). *Digital leadership: Changing Paradigms for changing times*. Corwin Press.
- Shrout, P. E., & Bolger, N. (2002). Mediation in experimental and nonexperimental studies: New procedures and recommendations. *Psychological Methods, 7*, 422–455.
- Sidek, M. N. (2013). *Rekabentuk penyelidikan: Falsafah, toeri dan praktis*. Serdang: Penerbit Universiti Putra Malaysia.
- Ezaleila, M., & Azizah, H. (2010). Media sosial : Tinjauan terhadap laman jaringan sosial alam talian tempatan. *Jurnal Pengajian Media Malaysia, 12*(2010), 37–52.
- Stogdill, R. M. (1974). *Handbook of leadership: A survey of theory and research*. New York: Free Press.
- Supyan, H. (2014). *Kelestarian Insan dan bahasa dalam arus telekomunikasi global*. Batu Pahat. Retrieved from <http://supyanhussin.files.wordpress.com/2014/04/kelestarian-insan-dan-bahasa-supyan2.pdf>
- Zahiah, K., & Abdul Razaq, A. (2010). E-Pembelajaran: Evolusi Internet dalam pembelajaran sepanjang hayat. In *Proceedings of Regional Conference on Knowledge Integration in ICT 2010* (pp. 209–218).
- Akmaliah Z, L. P., & Foo, S. F. (2003). *Pengurusan & kepimpinan pendidikan satu langkah ke hadapan*. Serdang: Penerbit Universiti Putra Malaysia.
- Zulch, B. (2014). Leadership communication in project management. *Procedia - Social and Behavioral Sciences, 119*, 172–181. <http://doi.org/10.1016/j.sbspro.2014.03.021>