Ecology of Learning in Polytechnic in Increasing the Professionalism of Malaysian Polytechnic Lecturers

Noor Rosmawati binti Yusuf, Abdul Razak bin Ahmad & Mohamad Mahzan bin Awang

To Link this Article: http://dx.doi.org/10.6007/IJARBSS/v8-i2/3969  
DOI:10.6007/IJARBSS/v8-i2/3969

Received: 25 Dec 2017, Revised: 25 Jan 2018, Accepted: 06 Feb 2018

Published Online: 10 Feb 2018

In-Text Citation: (Yusuf, Ahmad, & Awang, 2018)
To Cite this Article: Yusuf, N. R. binti, Ahmad, A. R. bin, & Awang, M. M. bin. (2018). Ecology of Learning in Polytechnic in Increasing the Professionalism of Malaysian Polytechnic Lecturers. International Journal of Academic Research in Business and Social Sciences, 8(2), 587–598.

Copyright: © 2018 The Author(s)
Published by Human Resource Management Academic Research Society (www.hrmars.com)
This article is published under the Creative Commons Attribution (CC BY 4.0) license. Anyone may reproduce, distribute, translate and create derivative works of this article (for both commercial and non-commercial purposes), subject to full attribution to the original publication and authors. The full terms of this license may be seen at: http://creativecommons.org/licenses/by/4.0/legalcode

Vol. 8, No. 2, February 2018, Pg. 587 – 598

http://hrmars.com/index.php/pages/detail/IJARBSS  
JOURNAL HOMEPAGE

Full Terms & Conditions of access and use can be found at
http://hrmars.com/index.php/pages/detail/publication-ethics
Ecology of Learning in Polytechnic in Increasing the Professionalism of Malaysian Polytechnic Lecturers

Noor Rosmawati binti Yusuf, Abdul Razak bin Ahmad & Mohamad Mahzan bin Awang
National University of Malaysia, 43600 Bangi, Selangor, Malaysia
Email: rozzyusuf@yahoo.com

Abstract
This study aims to review the perspective of polytechnic lecturers towards learning ecology in polytechnics. The research instrument used by this quantitative study was a questionnaire distributed to 1490 lecturers from polytechnics, and the data obtained was managed and analyzed using the SPSS version 22. For the item reliability, the Cronbach's alpha value was 0.917. The results showed that according to the polytechnic lecturers, the level of learning ecology in polytechnics in terms of facilities, social interactions, colleagues’ support and training are not yet at a satisfactory level to strengthen their professionalism, particularly in terms of facilities involving Wi-Fi and academic materials.

Keywords: Learning Ecology, Professionalism, Facilities, Social Interaction, Colleagues’ Support, Training and Polytechnic Lecturers.

Introduction
Ecological System Theory explains that there are five layers of ecological systems that affect individuals in their various actions (Bronfenbrenner, 1979). The layers are microsystem, mesosystem, ecosystem, macrosystem and chronosystem. The aspects reviewed in the first layer of microsystems are the institutional environment and colleagues. This first layer refers to the closest environment to lecturers such as direct interaction with students, colleagues, counselors and polytechnic administrators while the second layer is known as a mesosystem which refers to the influence between two microsystems to the learning ecology. For example, coaching and mentoring values in improving the quality of teaching and learning, knowledge activities, collaborative networks and work ethics also involve interaction among institutions including polytechnics with institutions other than polytechnics. The third layer is known as an exosystem which refers to rules and values which are developed in the institutional environment to create engagement or practice in various programs organized or in other words supporting facilities and existing logistics. The macrosystem encompasses a more comprehensive aspect including the
enforced laws and regulations. Time dimension is called the chronosystem which describes how experience in life has a great impact on how to live, think and act. In other words, the ecology of learning which is built according to the system's ecological theory has a strong influence in the professional practices of the lecturer and contributes to the strengthening of professionalism.

Ecology is a living environment and supports the existence of communities. This definition is used in agriculture as well as in learning. Learning ecology is very extensive and has a complex network system and the change of one part of the ecology will affect the other (Solomon, 2000). Learning ecology is a consistent environment of how one learns. Solomon defines ecology as an open, dynamic and interdependent, varied, adaptive and fragile system. Information within the institution is an important element in the effectiveness of learning by lecturers. A healthy development of learning ecology in an institution depends on the effectiveness of the natural flow of information (Siemens, 2014). Humans are known to be able to learn in a variety of different ways, and learning can occur and be produced in many variations as a result of implications of learning ecology (Solomon, 2000b). Learning ecology is supported by many factors as it is dynamic, alive and constantly evolving. In learning ecology, knowledge sharing should have informal and unstructured components, rich equipment for dialogue and connectivity, consistent, close social relationships, easy and not complex, not centered and have high tolerance. A sound learning ecology can offer the latest learning environment, have an open space and an immediate access to ecology where they can research and make it convenient to achieve learning elements that meet their needs (Richardson, 2002).

The learning ecology must also support social learning in the workplace. Good ecology provides technology for learning and for collaborative or educational activities toward meaningful learning. Ecology should also make discussions and exchanges of opinion allowed within specific communities that practice it (Visser, 2001; Richardson, 2002). Learning ecology is a consistent environment in which someone learns. Barron (2004) defines the learning ecology as a set of contexts that may be encountered in a physical or virtual space that provides learning opportunities. It encompasses the various activities, materials, resources of materials, relationships, and interactions that exist from it. Learning ecology also includes a collection of community layouts with a variety of interests; dissemination of information to one another; always on the move and self-management. In a more formal education environment such as in polytechnics, the concept of self-management is more structured to the delivery of knowledge in which the role of educators is to give guidance. Fullan (2005) states that in a solid educational organization, the relationship between human and the physical environment of employment promotes development in the community.

**Research Objectives and Background Problem**

The objectives of this study are to recognize the stage for the learning ecology in polytechnics from the lecturers' perspective and to see the ecological patterns of learning in terms of facilities, social interaction, support from colleagues and training as well as its role in enriching the professionalism of polytechnic lecturers.

The polytechnic education system was first introduced in Malaysia with the operation of Ungku Omar Polytechnic (PUO) Perak in 1969. Polytechnic is placed under the Public Higher Education
Institution, Ministry of Higher Education (KPT) in a category that is known as *Technical Education and Vocational Training* (TVET). Polytechnic lecturers play a big role in shaping the nation's future by producing quality graduates and contributing 60 percent of the country's TVET human capital. There are 34 polytechnics which are classified into four categories: Premier Polytechnic, Conventional Polytechnic 1, Conventional Polytechnic 2 and Polytechnic *Maximising Education & Training Opportunities* (METrO) (Department of Polytechnic Studies, 2016). Teachers or polytechnic lecturers are placed in a new integrated services scheme called the Higher Learning Education Officers Service Scheme (PPPT) since 2008 (Malaysian Government, 2007). This study examines how the ecology and the role of learning ecology in polytechnics from the perspective of polytechnic lecturers to enhance their professionalism.

In the effort to boost polytechnics as a respected educational institution, the level of facilities and services provided in polytechnics should be in a very satisfactory state (Noralai, & Norhasni, 2010). This is important as it catalyzes the positive and effective learning ecology in producing quality and competitive students in line with aspirations of polytechnic's vision & mission. The same learning ecology can help lecturers to use existing facilities for improving their professionalism at work. In this context, lecturers as customers or stakeholders are involved directly and indirectly in the use of facilities and services provided in polytechnics (Atifah, Normaslina & Zulfazli, 2013). In this study, the facility discussed can be categorized into physical and non-physical facilities (Abdullah & Zahari, 2015). In this study, physical facilities involving educator's professionalism include academic materials and resources, namely libraries and academic materials and its accessibility either manually or digitally to obtain the source. Internet and WiFi facilities, teaching and learning facilities as well as the use of Learning Management System (LMS) technology in education. Previous studies found that facilities has effects on professionalism (Noralai & Norhasni, 2010), and facilities need to be enhanced to improve the professionalism of polytechnic lecturers (Adzuieen Nordin, 2003; Alias, Rahimi & Ruhizan, 2011; Frimpong, Agyeman & Ofosu, 2016). Previous studies show that unpreparedness and inadequate facilities have a significant influence on the performance of students and lecturers in institutions of higher learning.

Another element in learning ecology is the stack of learning elements with its surroundings including lecturer interactions with colleagues, supervisors and administrators. This interaction is very important to ensure that the predetermined goals can be achieved collectively. In that regard, the programs planned in polytechnics should provide opportunities for this multilateral interaction. Academic discussion or sharing of best practices should be a professional practice at institutions of higher learning. These interactions should be practiced not only in polytechnic environments, but also beyond the community and the industry as well as the international environment. In fact, these interactions can be done through multiple platforms either face to face or online. Colleagues' support in learning ecology is crucial for strengthening the professionalism of lecturers. Among the activities that can be done with colleagues are research; academic discussion; discussion on improving performance and career; and sharing knowledge from the training attended. In fact, the guidance of senior lecturers or roles as coaches for their coachee, or mentors for their mentees has been vouched as being able to improve the professionalism of the lecturer.

In strengthening professionalism, professional development or training elements are among the most important elements to ensure that lecturers remain relevant in the profession and avoid
professional obesity syndrome (Fadilah, (2005); Duţă (2012), Fadilah, Maniam & Nafis, (2015) Jennings et al. (2013) and Heijden et al. (2015). The ecology that prepares a good practical environment provides an opportunity to improve the professionalism of its lecturers. The environment is the diversity of training offered to lecturers, the opportunity to pursue higher education, advanced courses in the field of expertise, industrial training relevant to current needs and requirements, and bureaucratic constraints in considering training. In addition, the Malaysian Qualification Agency (2010) emphasized learning environment in higher learning education.

**Methodology**

This is quantitative study and uses questionnaires as a research instrument. This questionnaire consists of four aspects with 22 question items. The study was conducted on 1490 polytechnic lecturers. Samples of study taken were randomly stratified. A pilot study was conducted and the reliability index for the components of learning ecology is 0.917. The findings of this study were analyzed with the help of the SPSS 22.0 software. The levels of learning ecology involving mean and standard deviation were analyzed using descriptive analysis.

**Finding**

Research question: What is the level of learning ecology in terms of physical facility, social interaction, support of colleague and training. The following is a description of the results of an analysis on the level of learning ecology:

| Learning Ecology                  | N   | Mean | SD  | Interpretation   |
|-----------------------------------|-----|------|-----|------------------|
| Facilities                        | 1490| 3.52 | 0.61| Medium High      |
| Social interactions               | 1490| 3.78 | 0.52| Medium High      |
| Support of colleagues             | 1490| 3.89 | 0.56| Medium High      |
| Training                          | 1490| 3.78 | 0.59| Medium High      |
| Overall                           |     | 3.75 | 0.47| Medium High      |

Table 1 shows that the level of learning ecology on the overall is at medium high (mean=3.75, standard deviation=0.47). An analysis on every aspect of the learning ecology found that colleagues' support aspect recorded the highest mean followed by social interaction, training and the lowest being facilities convenience (mean=3.52, standard deviation=0.61).
Table 1. Learning Ecology in Various Aspects: Facilities, Social Interactions, Support of Colleagues and Training in Polytechnics according to the Highest Mean Score.

| Items         | Statements                                                                 | Mean | SD  | Interpretation |
|---------------|----------------------------------------------------------------------------|------|-----|-----------------|
| 2.4 Social interactions | Interaction with various external parties for the success of various programs is often done in polytechnics. | 3.99 | 0.59 | Medium High    |
| 3.3 Colleagues Support | Discussions with colleagues in improving work performance are part of the practice in this polytechnic.  | 3.99 | 0.62 | Medium High    |
| 3.1 Colleagues Support | Colleagues often work with me in conducting research activities at polytechnics. | 3.94 | 0.67 | Medium High    |
| 4.1 Training | Various trainings in services are provided on a continuous basis. | 3.93 | 0.69 | Medium High |
| 4.2 Training | Lecturers are given vast opportunity to pursue their studies to a higher level. | 3.89 | 0.77 | Medium High |
| 3.2 Colleagues Support | Academic discussion with colleagues is the norm in this polytechnic. | 3.87 | 0.67 | Medium High |
| 2.1 Social interactions | Various programs which are held in polytechnics enable interaction among academic staff and administrators. | 3.86 | 0.65 | Medium High |
| 3.4 Colleagues Support | Sharing of knowledge as a result of attending courses is a culture in this polytechnic. | 3.83 | 0.71 | Medium High |
| 2.3 Social interactions | Sharing of experiences which are related to best practices is a culture in polytechnics | 3.82 | 0.66 | Medium High |
| 3.5 Colleagues Support | Guidance from senior lecturers in improving teaching and learning skills is actively implemented in polytechnics | 3.8 | 0.76 | Medium High |
| 2.2 Social interactions | Academic discussion is something that polytechnic staff are familiar with. | 3.78 | 0.67 | Medium High |
| 3.6 Colleagues Support | Coaching lecturers is part of the activities in improving my various forms of skills. | 3.78 | 0.74 | Medium High |
| 4.3 Training | Advanced courses and training in various areas of expertise are provided and are well planned | 3.75 | 0.75 | Medium High |
| 4.5 Training | Internal training modules are constantly updated and relevant to current needs | 3.75 | 0.71 | Medium High |
| 1.5 facilities | CIDOS is very helpful in carrying out teaching and learning, and research. | 3.75 | 0.8 | Medium High |
| 4.4 Training | Various training in industry and external parties are often implemented. | 3.69 | 0.76 | Medium High |
Training

Applications to attend trainings which are organized by external suppliers are easily considered by the management.

Facilities

Learning room amenities such as laboratories, workshops, classrooms are complete and suitable for teaching and learning.

Facilities

Diverse academic materials such as books, articles and journals are provided in the library.

Social interactions

Online academic discussion and research often happens in polytechnics.

Facilities

Academic materials can be easily and quickly accessed electronically.

Facilities

Wi-Fi facilities are widely available and easily accessible around the campus.

### Findings

Overall learning ecology has not been at a satisfactory stage based on the perspective of polytechnic lecturers. The highest aspect is the support of colleagues, followed by social interaction, training and the lowest is facility. This shows that polytechnic management, JPP and MOHE are still lacking in playing their role in helping and providing conducive learning ecology in the aspects studied. Five things that are at the lowest level in physical facilities are WiFi facilities that are not easily accessible, low academic online discussions, difficulties in accessing to academic materials, incomplete academic materials as well as limited space and inadequate equipment facilities.

This research supports the findings of Dhawam (2015) who found that ICT resources are still inadequate for academic needs of educators where ICT use of high-skills such as evaluation, instructional, and creativity is still limited (Dhawam et al. 2009). This is because WiFi facilities are neither widely available nor easily accessible around campus. The use of ICT among lecturers largely depends on the high availability of computer resources at their institutions. Educators agree that ICT is a valuable teaching tool and by using it, professional development, confidence and credibility as lecturers will be improved (Dhawam et al. 2009). Learning Management System (LMS) in polytechnics that is Curriculum Information Document Online System (CIDOS) was developed for the use of students and lecturers in downloading, sharing information, forums and evaluating the curriculum used in polytechnics. CIDOS is the latest method of using the latest technology to improve the level of learning in polytechnics in Malaysia. CIDOS is a teaching and learning process that uses electronic networks to deliver content and information as well as a channel of interaction as part of the media is used to practice e-learning (Rodzah, Norzilah and Nazirah, 2011). Given this availability, the adequacy and quality of institutional facilities affect students' achievement and performance of academic lecturers (Abdullah & Wan Zahari 2015). Facilities should not only be sufficient but must be in good shape to promote lecturers' life-long
learning.
Studies have found that online academic discussions are still unsatisfactory. Professional lecturers should work across and beyond the boundaries and this contributes to the change of employment patents in IPT (Whitchurch, 2009). They are also expected to work with multiple layers of colleagues inside and outside of their institutions and develop what is described by (Whitchurch, 2010) as a new form of space, knowledge, relationship and professional law in relation to collegiality at the university with various interaction mediums. Various interaction modes need to be integrated in trainings (Othman, & Dahari 2011). Inaccessible academic materials are expressed as a barrier in improving professionalism. These results differ from previous findings (Khan et al. 2014) which stated that quick and easy access to academic materials increases the effectiveness of academic and research activities. The shortage of academic materials is expressed as a disruption to the professionalism of the lecturers; so, the library facilities in polytechnics have to be enhanced. The library is a collection of academic resources that provides access to various resources to support teaching, learning and research. According to Krolak (2006), libraries help in finding, using and interpreting appropriate information as well as providing lifelong learning opportunities, research and critical thinking. The internal order of the library should support the student-centered learning approach and have Wi-Fi facilities (Azhar et al. 2014).
Meanwhile, five items viewed as satisfactory among lecturers are interaction with various outsiders, discussions with colleagues, collaboration in carrying out research activities, diversification of training and opportunities to pursue studies. Efficient and effective interaction from the aspect of employee relations with the superior will make organizational management smoother. In addition, transparency in the dissemination of correct and useful information is seen as an important issue in the organization. Clear social interaction channels, conducive working environments, camaraderie among experts in the organization are among the factors that make organizational interaction a success (Mahbob, Sulaiman & Rahim, 2015). According to Stegall (2011), educators tend to practice working alone which can affect their level of self-efficacy. Ashikin (2006) iterates that inadequate knowledge sharing and absence of discussion on the improvement of teaching skills and acting alone is the result why educators do not improve their skills.
A study by Retna and Ng (2006) found that one of the prevalent factors which encourage group interactions and learning is the ability of members to see the importance of team learning and to cultivate collective teamwork and dialogue. (Zuraidah, 2009) provides detailed of educators' group learning practice as interactions that generate information sharing, planning and collective problem solving; improve learning opportunities; and apply new skills, strategies and practices in everyday work. Learning synergy can only be built through group interaction and learning. Learning synergy can only be built through group interaction and learning. Day (1999) states that as a transfer agent in teaching, educators would review, renew and extend their commitment as they acquire and enhance critical knowledge, skills, planning and practice with students and colleagues through every phase of their teaching realm.
Cooperation in research activities is still low among lecturers. Therefore, educators should build positive perceptions towards interaction with colleagues and teamwork. A study conducted by Dahlgren and Chiriac (2009) found that educators acknowledge that their job as professionals requires them to interact and work in groups. Additionally, the study also found that interaction
with colleagues in a team can boost and facilitate educators' learning experience. Educator's response to teamwork orientation actually greatly influences the learning capabilities. A study by Gregory (2010) found that results for interactive learning among educators rely on their negative or positive responses towards their friends. Opportunities for interaction in groups are an important factor for educators to increase their professionalism. A study by Laiken (2001) found that the effectiveness of work and productivity as a whole will increase if staff members are encouraged to interact and work collectively. The study conducted by Armour and Makapoulu (2012) also found similar findings that interactive and collective learning opportunities are a positive factor that enhances educator's professionalism. The social interactions discussed are the relationship among educators, communities and outsiders towards the development of professionalism among lecturers. When starting a task, a new professional is set up for a planned socialization process according to his or her job requirements. Meanwhile, seniors prepare themselves through meetings, and social and technical experience that qualify them to perform the task (Murray & Male, 2005). Academic work groups are the most effective environment for developing knowledge and skills in teaching (Prebble, Hargraves & Leach, 2005). Teachers can be helped by academic partners or academic development consultants by providing them with feedback, advice and support (Prebble et al. 2005).

There are good trainings in service and a good opportunity to further their studies in polytechnics. This finding is in agreement with Maphosa & Mudzielwana (2014) who stated that Positioning of teaching staff at IPT based on academic ability is also an issue in the United Kingdom. In the year 2003, 'The Future of Higher Education' White Paper by Evans (2008) argues that new IPT staff members who are involved in teaching should be trained. The call to conduct training for IPT lecturers is made based on the realization that only through adequate training, the quality of teaching and learning can be enhanced. Effective training usually starts with the institution's leaders providing support, like those who create the environment which supports and encourages development of knowledge, skills and innovation, and provide insights or targets for educator career enhancement. Good training takes a certain amount of time and is not achieved through one-off workshops (Heck, 2008). On the other hand, there should be frequent links with training providers and ongoing engagement processes from time to time.

Educators need to engage in training activities in order to improve teaching and learning practice. This is evident in many fundamental documents on professional development of educators (Luft & Hewson, 2014). More difficult changes in R & D practices take a long time during practice. In addition, the findings show that educators change in different ways over time and require various forms of teaching support to modify their practices (Luft & Hewson, 2014). Evans (2008) defines it in a wider way and does not define the status of the profession in general as an increase in knowledge, skills and practices. According to Azmi (2008), it is a formal and informal learning experience that supports the effectiveness of continuous teaching.

Meanwhile, Day (1999) argues that the good training model takes into account various features of educators' learning and development. Such training programs are important as it supplies them with a variety of professional skills. This finding was given support by the ideas of Darling-Hammond (1994); Neil (2002); Senin (2008) which stated that in order to perfectly carry out an entrusted assignment, a professional should undergo certain trainings to acquire skills. Hence, due attention should be given to the aspect of training which encompasses knowledge and skills to facilitate progress in terms of self-growth which is educator-centered in understanding
themselves, and the development of educators in the context of ecological change where the atmosphere of the working environment is emphasized (Hartini, 2013).

Conclusion
Learning ecology in polytechnic has to be improved immediately in order to assist lecturers to be more professional in carrying out their responsibilities in various aspects. Therefore, polytechnic, Department of Polytechnic Education, and Ministry of Higher Education should review the ecology of learning in polytechnics so that they are aligned with aspirations and requirements of polytechnic lecturers in carrying out their duties and responsibilities effectively.

Corresponding Author
Noor Rosmawati binti Yusuf,
National University of Malaysia,
43600 Bangi, Selangor, Malaysia
Email address: rozzyusuf@yahoo.com

References
Abdullah, I., & Zahari, W. Y. (2015). State of Physical Facilities of Higher Education Institutions in Nigeria. International Journal of Scientific and Research Publications, 5(4), 1–5.
Alias, M. S., Rahimi, N. M. Y., & Ruhizan, M. Y. (2011). Penilaian Kemudahan Pembelajaran, Peruntukan Kewangan dan Kursus dalam Perkhidmatan bagi Kursus Pendidikan Islam di Politeknik Malaysia. Journal of Islamic and Arabic Education, 3(1), 123–134.
Agensi Kelayakan Malaysia (MQA). (2010). Kod Amalan Akreditasi Program. Retrieved from www.mqa.gov.my
Barron, B. (2004). Learning ecologies for technological fluency: Gender and experience differences. Journal of Educational Computing Research, 31(1), 1-36.
Bronfenbrenner, U. (1976). The experimental ecology of education. American Educational Research Association.
Bronfenbrenner, U. (1986). Ecology of the Family as a Context for Human Development: Research Perspectives. American Psychological Association Inc., 22(6), 723–742.
Dahlgren, M. A., & Chiriac, E. H. (2009). Learning for professional life: Student teachers’ and graduated teachers’ view of learning, responsibilities and collaboration. Teaching and Teacher Education, 25, 991-999.
Day, C. (1999). Developing teachers: The challenges of lifelong learning. Educational Change and Development Series. Falmer Press. Taylor & Francis Group.
Dhawan, S. (2015). An outlook towards professionalism among the pupil teachers. Indian stream research journal., 5(1), 1–7.
Duţă, N. V. (2012). Professional development of the university teacher-inventory of methods necessary for continuing training. Procedia - Social and Behavioral Sciences, 33, 1003–1007.
Fadilah, P. (2005). Pendidikan berterusan dalam peningkatan kompetensi di kalangan profesional organisasi: kajian kes di KUiTTHO. Universiti Teknologi Malaysia.
Fadilah, P., Maniam, K., & Nafis, A. (2015). Learning for professional development via peers: A System Theory approach. Procedia - Social and Behavioral Sciences, 172, 88–95.
Frimpong, E. A., Agyeman, G. A., & Ofosu, F. F. (2016). Institutional Factors Affecting the Academic Performance of Polytechnic Students in Ghana. *International Journal of Humanities & Social Science Studies (IJHSSS), 2*(5), 102–109.

Fullan, M. (2005). *Leadership and sustainability*. Thousand Oaks, CA: Corwin Press; Toronto: Ontario Principal's Council.

Heijden, B. I. J. M., Van der, Vuuren, T. C. V., Van, Kooij, D. T. A. M., & Lange, A. H. (2015). Tailoring professional development for teachers in primary education. *Journal of Managerial Psychology, 30*(1), 22–37.

Jabatan Pengajian Politeknik. (2016). *Informasi Edisi Oktober (2016)*. Kementerian Pengajian Tinggi.

Jennings, P. A., Frank, J. L., Snowberg, K. E., Coccia, M. A., & Greenberg, M. T. (2013). Improving classroom learning environments by Cultivating Awareness and Resilience in Education (CARE): Results of a randomized controlled trial. *School Psychology Quarterly, 28*(4), 374–390.

Kerajaan Malaysia Pekeliling Perkhidmatan Bilangan 33 Tahun 2007 (2007).

Krolak, L. (2006). The role of libraries in the creation of literate environments. *International Journal of Adult and Lifelong Education, 4*(1/4), 5.

Laiken, M. E. (2001). Models of organizational learning: Paradoxes and best practices in the post industrial workplace. *NALL Working Paper, 25*, 4-19.

Luft, J., & Hewson, P. (2014). Research on teacher professional development programs in science. *Handbook of research in science education*.

Mahbob, M. H., Sulaiman, W. I. W., Rahim, S. A., Jaafar, W. A. W., & Sulaiman, W. S. W. (2013). Acceptance of social innovation in Malaysia: Advocacy and the impact of government transformation programme (GTP). *Journal of Asian Pacific Communication, 23*(2), 222-236.

Maphosa, C., & Mudzielwana, N. P. (2014). Professionalization of teaching in universities: A compelling case. *International Journal of Education Science, 6*(1), 65–73.

Majid, M. K. (1990). Kaedah penyelidikan pendidikan. Kuala Lumpur: Dewan Bahasa dan Pustaka.

Hartini, N. M. A. (2013). Pembangunan Profesionalisme Keguruan Menerusi Penyeliaan Pengajaran Dalam Kalangan Guru-guru Pendidikan Teknik dan Vokasional.

Noralai, I., & Norhasni, Z. A. (2010). Tinjauan faktor-faktor yang mempengaruhi komitmen pekerja terhadap organisasi. *Dinamika Sosial Ekonomi, 6*(1), 1–16.

Othman, A., & Dahari, Z. (2011). Professional Development among Academic Staff at Selected Malaysian Public Universities : Preliminary Findings of the Impact of the Basic Teaching Methodology Course (BTMC). *International Journal of Business and Social Science, 2*(11), 125–134.

Pallant, J. (2013). SPSS survival manual. McGraw-Hill Education (UK).

Retna, K. S., and Tee, N. P. (2006). The challenges of adopting the learning organisation philosophy in a Singapore school. *International Journal of Educational Management 20*(2), 140-152.

Richardson, A. (2002). An ecology of learning and the role of eLearning environment: a discussion paper. *Connecting the Future: Global Summit of Online Knowledge Networks*. 
Rodzah, Y., Norzilah, M. A., & Nazirah, H. (2011). Tahap Pengetahuan Dan Penggunaan Sistem Cidos Dikalangan Pensyarah Politeknik Merlimau (PMM) Satu Tinjauan. Bengkel Seminar Penyelidikan PMM.

Sekaran, U. (1992). Research methods for business hlm.second edi. New York:John Wiley & Sons.

Solomon, D. L. (2000). Philosophy and the Learning Ecology. Association for Educational Communications and Technology).

Atifah, T. S. M. Z., Normaslina, J., & Zulfazli, M. R. K. (2013). Tahap kepuasan pelajar terhadap kemudahan dan perkhidmatan yang disediakan di Politeknik Banting Selangor bagi Sesi Disember 2012. 2nd International Seminar on Quality and Affordable Education, 317–325.

Visser, J. (2001). Integrity, completeness and comprehensiveness of the learning environment: Meeting the basic learning needs of all throughout life. International handbook of lifelong learning, 447-472.

Whitchurch, C. (2008). Shifting Identities and Blurring Boundaries: The Emergence of Third Space Professionals in UK Higher Education. Higher Education Quarterly, 62(4), 377–396.

Whitchurch, C. (2009). The rise of the blended professional in higher education: a comparison between the UK, Australia and the United States. Higher Education, 58(3), 407–418.

Zuraidah, A. (2009). Pembentukan Komuniti Pembelajaran Profesional: Kajian terhadap sekolah menengah di Malaysia. Jurnal Manajemen Pendidikan, 5(2), 78-96.