

# The Integration of Theory and Practice of Paramedic Curriculum

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**Abstract-** The gap between theory and practice has been a critical issue in medical education. Past studies have shown that the gap between theory and practice is a result from the non-existent integration between theory and practice. This article seeks to discuss how integration between the two can be enhanced in the paramedic curriculum of the Ministry of Health Malaysia. There are 7 main factors that have been discussed namely the curriculum model, organisation and the content of theory and practice, teaching methodology, assessment criteria, the role of the lecturer, the role of the service staff and hidden curriculum

**Index Terms-** The gap between theory and practice, the integration between theory, practice, paramedic course.

## I. INTRODUCTION

The implementation of theory and practice has been a great issue among researches in the world of medical education, including paramedical courses like paramedic and nursing.

In the paramedic curriculum, theory is very much inextricably linked with practice. Theory refers to the knowledge and skills in a particular field taught in class, whereas practice implies the implementation of a procedure at the clinical placement (Evetts, 2003; Dale, 1994). In terms of the significance of the theory to practice, Evetts (2003) and Schon (1987) state that theory will contribute to the understanding in performing a practice in a particular field. Meanwhile, Cardin & Mcneese-smith (2005) state that theory has become fundamental to the practice implementation that is going to be translated into real situations. Such a difference between the theory and practice is known as the theory-practice gap (Scully, 2011; Hanberg & Brown, 2006).

The issue of the gap between theory and practice has fascinated a number of researchers in medical education for quite some time. The study by Michau et. al. (2009) establishes that the gap between theory and practice still exists among paramedic students in Australia. Another work, by Swain, Pufahl & Williamson (2003) finds that the gap between theory and practice is not alien to the nursing students in England.

According to Spouse (2001) the gap between theory and practice is not a declining issue, but instead, expands more and more. This increase is of course, raising great concern, as it will not only impact the implementation of the curriculum but will also affect the quality of the graduates.

The existing gap between theory and practice is caused by a number of factors. According to Allmark (1995) and

Morgan (2006), the main factor lies in the fact there has been no integration between theory and practice. Integration means 'connecting' (Tyler, 1997). The integration of theory dan practice implies connecting the knowledge and skills learned in college with the practice implementation in clinical placement

## II. THE INTEGRATION BETWEEN THEORY DAN PRACTICE IN THE PARAMEDIC CURRICULUM OF THE MINISTRY OF HEALTH MALAYSIA (MOH)

Paramedic course is one of the branches in medical education. There are several paramedical courses run in the training institutions, MOH. The courses aim at producing paramedic members like nurses, medical assistants and others (Training Management Division, 2012). These paramedic members are also known as the members of Allied Health Science Professions (Training Management Division, 2012; Rotem, 2007).

Paramedic course curriculum has well-balanced components of theory dan practice. In relation to this, the integration between theory dan practice needs to be enhanced so that the curriculum implementation can take place smoothly and effectively. As pointed out by Ferguson & Jinks (1994), the integration of theory dan practice can be improved by looking more into the aspects of planning and curriculum implementation. In the planning of the curriculum, there are four main factors which are the curriculum model used, the organisation and the content of the theory dan practice, the teaching methodology and the criteria of assessment.

Meanwhile, in the aspect of the curriculum implementation, there are three main factors which influence the integration of theory and practice namely the role of the teachers, the role of the staff and the role of the hidden curriculum (Bennet et. al., 2004; Corlett. et. al., 2003). The factors that will be discussed are shown in **figure 1** below.

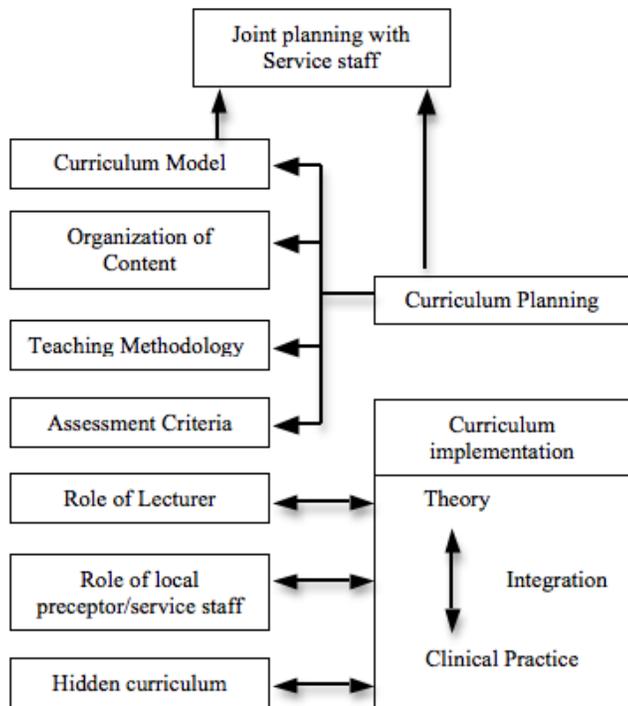


Figure 1: Integration theory and practice (Adapted from Ferguson & Jinks, 1994).

### The Curriculum Model

According to Miller (1985), some models are too general and abstract, that it is difficult to apply them to practice. There are two main models of the curriculum, which are the process model and the product model (Kelly, 2009). The product model has some clear, specific objectives in the aspects of knowledge, skills and attitude. The product model is found to be more suitable to be used in paramedical education as the main objective is to prepare paramedic members like nurses and medical assistants who are knowledgeable, skilled and have good attitude and moral values. As an example, the curriculum of the Diploma in Medical Assistant seeks to prepare medical assistants who can function efficaciously and effectively in providing quality health services guided by promotion, preventive, curative and rehabilitative approaches (Training Management Division MOH, 2008). The objective of the course curriculum is very clear, especially in the aspects of theory and practice. With clear objectives, the curriculum implementation can be carried out properly.

On the other hand, the process model places an emphasis on the process of developing education which is preparing students for life-long learning. This model is more fitting for more generic courses as to equip the students with higher level learning.

### The Organisation and Content of Theory and Practice

The component of theory seeks to provide knowledge and skills to students before they implement the practice in clinical placement. Therefore, the content of theory has to be arranged systematically to make teaching implementation easier. As stated by Tyler (1997) and Ornstein & Hunskins (2009), the sequence and scope of the curriculum content are crucial components in the content organisation of a curriculum.

In MOH's paramedic course, the curriculum's theory organisation is done in order, following Bloom's taxonomy based on the level of difficulty (DaRosa, et. al., 2011). At the early stage, students are taught some basic concepts of medicine, including the definitions and clinical symptoms of diseases or the conditions of a disease. After that, students are taught more difficult concepts, namely the skills of investigations, physical examination and patient management (Training Management Division, 2008).

In terms of the scope of the curriculum content, according to Ornstein & Hunskins (2009), scope involves the depth and breadth of the content. The scope of the curriculum content of paramedic course at the MOH is made, based on the role and responsibilities of the paramedic members like the nurses and medical assistants in this country.

From the aspect of the practice organisation, it is constructed in line with the sequence and scope of the content of the theory teaching. This is because, students need to learn theory before they carry out at the clinical placement. Thus, the organisation of practice has been designed consistently with the sequence and scope of the content of theory so that we can close the gap between theory and practice.

### Teaching Methodology

An effective teaching methodology that can enhance the integration between theory and practice is the learner-centered approach. This approach is consistent with the development of medical education curriculum which employs the evidence-based practices (EBP) approach, and is also used in the paramedic course at the MOH. This learner-centered approach will enable students to master main skills, such as thinking skills, problem-solving skills and communication skills (Gabbin, 2002). Two examples of this approach are problem-based learning and constructivism learning.

Problem-Based Learning (PBL) is a very popular method where it is often used in medical education (Levin, 2010; Albanese & Mitchell, 1993). This approach necessitates students to explore and solve every issue that arises. This facilitates students to learn and identify the root causes of the problem and resolve them using the right principles, especially in real-life situations (Schmidt, 1993). A study by Ehrenberg & Häggblom (2007) demonstrates that PBL can boost students' confidence when handling patients independently. Therefore, PBL can prepare students for real situations and working environment and simultaneously enhance the integration between theory and practice.

The constructivism approach, in turn, refers to the teaching that employs students' experiences to create an environment in which students will become active in the learning

process (Merriam et. al., 2007). This approach is crucial in the teaching process as students are encouraged to build their own concept and relating the things they learn with their existing knowledge. In this process, students will be able to increase their understanding about something (Subadrah & Malar, 2005). The study of Caprio (1994), Lieu (1997) have also proven that the constructivism approach can help students to gain a higher understanding and achievement in their learning. Therefore, Merriam et. al., (2007) suggests that the constructivism approach is used in medical education because it can link theory and practice through students' existing knowledge.

### ***Assessment Criteria***

Assessment stands as an important aspect because it provides a reflection on the effectiveness of curriculum implementation. Concerning the integration between theory and practice, the assessment criteria need to examine the aspect of how a student can connect between theory dan practice (Ferguson & Jinks, 1994).

The criteria of assessment of the partamedic course at the MOH involve two main aspects namely theory and practice. Where theory is concerned, students are assessed through a written examination involving multi choice questions (MCQ), short essay questions (SEQ) also modified essay question (MEQ). MEQ requires students to answer in the form of essays, and it involves several levels like knowledge, understanding, application, synthesis and assessment. Thus, students need to be able to integrate both aspects, theory dan practice, to answer this type of questions.

For practice, students are assessed clinically through the objective structured clinical examination (OSCE), objective structured practical examination (OSPE) and case presentation. The knowledge and skills of both aspects need to be used in this assessment.

### ***The role of the lecturer***

Lecturers are important individuals in materialising a curriculum (Ornstein & Hunskins, 2009). In the context of medical education, lecturers are not only teaching theory in the lecture room, but they also teach and perform clinical observations. This is in line with the views of Landmark et. al., (2003) and Corlett et. al. (2003) who point out that the implementation of theory and practice can become more effective if the lecturers involved in theory teaching at the university also teach and supervise their students doing clinical practice. According to Cardin, & Mcneese-smith, (2005) if the lecturers conduct some discussions at the clinical placement every week, students should be able to connect theory and practice.

In terms of the paramedic course at the MOH training institutions, in college, the lecturers have the duty to teach theories in the lecture room and teach practical training at the skill laboratory. Meanwhile, at the clinical placement lecturers will supervise and perform clinical teaching hands on and via bed site teaching. Their role in all the three aspects can well enhance the integration between theory and practice because they know

better about their students' level of knowledge to be made consistent with the implementation of practice at the clinical placement.

### ***The Role of Local Preceptor (LP)***

Local preceptor (LP) is the most significant person at the clinical placement. They are the service staff appointed to assist the training institutions to conduct the curriculum, especially in terms of the implementation of practice (Training Management Division, 2008). LP appointed must be senior member who has the skills in a particular field. The appointed LP will be briefed and given a short course related to students' observation also clinical teaching.

The main role of the LP is to observe and supervise students at the clinical placement. As found by Severinsson (1998) in his study, clinical supervision is an important approach to connect theory and practice. Other than that, the appointed LP must be one who is involved in the same profession. Their clinical skills should be able to help connect theory and practice when students do their practice at the clinical placement.

### ***The Role of the Hidden Curriculum***

Finally, the integration theory and practice is also influenced by the hidden curriculum. As mentioned by Hafferty (1998), not all that is learned by students can be found in text books or lecture notes. As an example, studies demonstrate that more than 30 percent of treatment that the patients receive has not been consistent with the scientific proof established in the curriculum (Bennett et. al., 2004). This shows that medical practitioners treat their patients based on other factors and not only based on what they have learned in lectures. These external factors are those labelled as the hidden curriculum.

The hidden curriculum is also formed by 'slang' or the institutional language. The 'slang' of the institution means how the institution or the staff works (Bennett, et. al., 2004). 'Slang' can be perceived as the daily language used and understood by the staff to make their work more convenient.

To mitigate the influence of this kind of curriculum, the MOH training institutions often embarks into discussions with the students, LP also the hospital officers. This discussion seeks to identify any arising issues that can influence the curriculum implementation. This discussion is done continuously through clinical observation visits by the college, and through meetings and courses done every semester.

## **III. CONCLUSION**

In conclusion, the integration between theory and practice has become the main issue in medical education all over the world. The studies shown have proven on the existing gap between theory and practice, due to the non-existent integration between both these aspects. The existing gap between theory and practice can well affect the competency of the students (Michau. et. al, 2009). Other than that, what is more worrying is that it involves the patients' safety. If this issue is not properly

examined and overcome, it will become an obstacle towards producing quality paramedical curriculum in this country.

The integration between theory and practice can be enhanced if both the curriculum makers and practitioners pay attention to the aspects of planning and curriculum implementation. For paramedical courses at the MOH, the integration between theory and practice can be improved. Other than that, to further improve the integration between theory and practice, the responsible officers at the training institutions and hospitals need to form a good relationship, so that the emerging gap can be resolved as soon as possible.

#### REFERENCES

- [1] Albanese, M. A., & Mitchell, S. (1993). Problem based learning: a review of the literature on its outcomes and implementation issues. *Acad. Med.*, 68, 52-81.
- [2] Allmark, P. (1995). A classical view of the theory-practice gap in nursing. *Journal Of Advanced Nursing*, 22, 18-23.
- [3] Bennett, N., Lockyer, J., Mann, K., Batty, H., Laforet, K., Rethans, J., & Silver, I. (2004). Hidden curriculum in continuing medical education. *Journal Of Continuing Education. Health Professions*, 24, 3, 145-152
- [4] Caprio, M. W. (1994). Easing Into Constructivism Connecting Meaningful Learning With Students' Experience. *Journal Of College Science Teaching*, 23, 4, 210-212.
- [5] Cardin, S. & Mcneese-Smith, D. (2005). A Model For Bridging The Gap From Theory To Practice To Reality. *Nursing Administration, Quarterly/April-June*, 29, 2, 154-161.
- [6] Corlett, J., Palfreyman, J., Staines, H., & Humphreys, A. (2003). Factors influencing theoretical knowledge and practical skill acquisition in student nurses: An Empirical Experiment. *Nurse Education Today*, 23, 3, 183-190.
- [7] Dale, A. E. (1994). The theory-theory gap: the challenge for nurse teachers. *Journal Of Advanced Nursing*, 20, 521-524.
- [8] Darosa, D. A., Folse, J. R., Sachdeva, A. K., Dunnington, G., & Resnick, R. (1995). Description and results of needs assessment in preparation for the "surgeons as educators" course. *The American Journal Of Surgery*, 169, 410-413.
- [9] Evetts, J. (2003). The sociological analysis of professionalism: occupational change in the modern world. *International Sociology*, 18, 2, 395-415.
- [10] Ehrenberg, A. C., & Häggblom, M. (2007). Problem-based learning in clinical nursing education: integrating theory and practice. *Nurse Education In Practice*, 7, 2, 67-74. Doi:10.1016/J.Nepr.2006.04.005.
- [11] Ferguson, K. E., & Jinks, M. (1994). Integrating what is taught with what is practised in the nursing curriculum: a multi-dimensional model. *Journal Of Advanced Nursing*, 20, 4, 687-95.
- [12] Gabbin, A. L. (2002). The crises in accounting education. *Journal Of Accountancy*
- [13] Hafferty, F. W. (1998). Beyond curriculum reform: confronting medicine's hidden curriculum. *Acad Med*, 73, 403-407
- [14] Hanberg, A. & Brown, S. C. (2006). Bridging the theory-practice gap with evidence-based practice. *The Journal Of Continuing Education In Nursing*, Nov/Dec 2006, 37, 6.
- [15] Kelly, A. V. (2009). *The Curriculum: theory and practice*. 6th Ed. London: Sage Publications.
- [16] Landmark, B., Hansen, G., Bjones, I., & Bohler, A. (2003). Clinical supervision: factors defined by nurse as influential upon the development of competence and skills in supervision. *Journal Of Clinical Nursing*, 12, 6, 834-841.
- [17] Levin, R. F. (2010). Integrating evidence-based practice with educational theory in clinical practice for nurse practitioners: Bridging The Theory Practice Gap. *Research And Theory For Nursing Practice. An International Journal*, 24, 4, 213-216.
- [18] Lieu, S. C. (1997). Teacher understanding of the nature of science and its impact on student learning about the nature of science in STS/constructivist classrooms. Doctoral Dissertation, University Of Iowa, Dissertation Abstract International, 58-08.
- [19] Maben, J., Latter, S., & Macleod Clark, J. (2006). The theory- practice gap: impact of professional-bureaucratic work conflict on newly qualified nurses. *Journal Of Advanced Nursing*, 55, 4, 465-477.
- [20] Merriam, S.B., Caffarella, R.S., & Baumgartner, L.M. (2007). *Learning in adulthood: a comprehensive guide*. San Francisco CA: John Wiley & Sons, Inc.
- [21] Michau, R., Robert, S., William, B. & Boyle, M. (2009). An investigation of theory-practice gap in undergraduate paramedic education. *BMC Medical Education*, 9, 23.
- [22] Miller, A. (1985). The relationship between nursing theory and nursing practice. *Journal Of Advanced Nursing*, 10, 417-424.
- [23] Morgan, R., (2006). Using clinical skills laboratories to promote theory-practice integration during first practice placement: An Irish Perspective. *Journal Clinical Nursing*, 15, 2, 155-61.
- [24] Ornstein, A. C., Hunkins, F. P. (2009). *Curriculum: foundations, principles, and issues*. United States. Pearson.
- [25] Rotem, A. (2007). Training needs analysis, Training Management Division, Ministry Of Health Malaysia. Consultants Assignment Report, World Health Organization, Western Pacific Region.
- [26] Schmidt, H. G. (1993). Foundations of problem-based learning: some explanatory notes. *Medical Education*, 27, 422-432.
- [27] Schon, D.A. (1987). *Educating the reflective practitioner: toward a new design for teaching and learning in the professions*. San Francisco, CA: Jossey-Bass.
- [28] Schubert, W. (1986). *Curriculum: perspective, paradigm, and possibility*. New York: Macmillan.
- [29] Scully, N. J. (2011). The theory-practice gap skill acquisition: an issue for nursing education. *Collegian*, 18, 93-98.
- [30] Severinsson, E. I. (1998). Bridging the gap between theory and practice: a supervision programme for nursing students. *Journal Of Advanced Nursing*, 33, 512-522.
- [31] Spouse, J. (2001). Bridging the theory and practice in the supervisory relationship: a sociocultural perspective. *Journal Of Advanced Nursing*, 33, 4, 512-522.
- [32] Subadrah Nair & Malar Muthiah. (2005). Penggunaan model konstruktivisme lima fasa needham dalam pembelajaran sejarah. *Jurnal Pendidik Dan Pendidikan*, 20, 21-41.
- [33] Swain, J., Pufahl, E., & R Williamson, G. R. (2003). Do they practise what we teach? A Survey Of Manual Handling Practice Amongst Student Nurses. *Journal Of Clinical Nursing*, 12, 2, 297-306.
- [34] Training Management Division. (2012). Training key indicators. Ministry of Health Malaysia.
- [35] Training Management Division. (2008). *The Curriculum Of Diploma In Medical Assistant*. Ministry Of Health Malaysia
- [36] Tyler, R.W. (1997). *Prinsip asas kurikulum dan pengajaran*. Kamaruddin Husin Dan Hazil Abdul Hamid (Penterjemah). Kuala Lumpur: Dewan Bahasa Pustaka

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