



## THE GAP BETWEEN THEORY AND PRACTICE: A QUALITATIVE STUDY ON MEDICAL ASSISTANT PROGRAM IN MALAYSIA

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### **Abstract:**

The gap between theory and practice is a foremost issue in the implementation of paramedical curricula around the world. But this issue has never been studied in the implementation of paramedical programs in the country. Hence, this study has been conducted to evaluate whether there is a gap between theory and practice as well as identifying the main aspects of the gap in the implementation of medical assistant curriculum in the country. This study was a qualitative approach by case studies at the Medical Assistant College, Seremban, Malaysia. A total of 12 participants were 4 tutors, 4 students and 4 local preceptors (LP) who were selected using purposive sampling. The data were obtained through in-depth interviews by using semi-structured questions. The data were analyzed through the thematic coding approach using the NVivo 10 software. The findings revealed that there were 3 main aspects of the gap between the theory and practice in the implementation of the paramedic curriculum; 1) the contents of the curriculum are lagging behind today's medical developments; 2) There is a difference in the implementation of medical procedures in clinical placement with the procedures studied by students in college and; 3) there are some medical equipment used in college that are different with clinical use equipment. In conclusion, this study has confirmed that there is a gap between theory and practice in the implementation of the medical assistant curriculum in the country. Although this gap is not as critical, it can affect the efficacy of the training and may affect the patient's safety if it is not immediately addressed.

**Keywords:** theory-practice gap, integration theory-practice, medical assistant curriculum, diploma in medical assistant, assistant medical officer

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## 1. Introduction

An essential issue that always getting attention in the implementation of paramedical education curriculum is the gap between theory and practice. This issue has become a major and attention-grabbing discussion among researchers in the fields of paramedical education such as paramedics, medical assistant and nursing programs (Amro et al., 2017; Ross, Bennett & Perera, 2015; Wall, Andrus & Marrison, 2014; Scully, 2011; Levin, 2010; Brenda, 2006). This has been revealed by several studies found that the gaps between theory and practice still exist among paramedical in Australia (Michau et al., 2009) and nursing students in England (Swain, Pufahl & Williamson, 2003).

According to Scully (2011), the gap between theory and practice is the difference between the theoretical knowledge learned in the classroom with practical implementation in real situations. Meanwhile, Allmark (1995), Morgan (2006) and Ferguson and Jinks (1994) stated that this gap occurs when there is no integration between theory and practice in the implementation of the curriculum. The implications of this gap can affect the students' competence that indubitably affects the safety and efficacy of treatment given to patients (Michau et al., 2009).

## 2. Literature Review

### 2.1 The Relationship between Theory and Practice

Theory refers to knowledge related to a phenomenon or field of knowledge (Strauss & Corbin, 1998; Eccles et al., 2005). While Dickoff & James (1997) stated that theory is a fact or set of facts related to a field. In addition, Schwab (2004) says the theory is an abstract thing about reality in a field of science. Hence, the theory can be concluded as knowledge and facts in a field of knowledge related to reality.

In paramedical education, teaching theory involves the concept, definition, and knowledge of diseases (McCaugherty, 1991) and it is usually done in a classroom at a college or university. Learning theories should be practiced or translated into actual situations. The actual situations are the milieu in the field where the actual patient needs to be dealt with and its known as practical. Practical not only allows students to apply theory to practice, improve competence and psychomotor skills but it provides students with social skills for their future (Reilley & Oermann, 1992; Grealish & Smale, 2011) and professional skills (Hatlevik, 2012). The study by Gealish and Smale (2011) have shown theoretical teaching giving a positive impact on the students' competence and confidence in their clinical practice.

According to Meyer et al., (2007), students need to have an ability to transfer the theoretical knowledge from the classroom to practical at clinical placement. Ability to transfer the theoretical knowledge to practice known as 'transfer of learning' (Newton, Billett, & Ockerby, 2009). In this regard, Vaughan-Cole (1998) and Newton, Billett, and Ockerby (2009), have suggested that practical environments should provide opportunities for the student to practice so that transfer of learning can occur.

Why the theory is so important before someone is practicing? According to Evetts (2003) and Schon (1987), the theory will help one's understanding of practice in any field. Meanwhile, Cardin and Mcneese-Smith (2005) said the theory is the foundation for practical implementation that will be translated into real situations. Most importantly, Hatlevik (2012) stated that the relationship between theory and practice is the key to reduce the gap between the two and further enhance the effectiveness of the curriculum implementation.

## **2.2 Diploma in Medical Assistant**

The Diploma in Medical Assistant (DMA) program is one of the paramedical programs conducted by the Training Management Division, Ministry of Health Malaysia (MOH). The program aims to produce knowledgeable and skilled Assistant Medical Officers (AMO) in handling patients including in emergency cases. The AMO plays a major role in emergency medical services including providing initial emergency treatment and stabilizing patients before being referred to a medical officer. The AMO serving in emergency medicine and pre-hospital is also known as a paramedical member. This is because of their role in emergency and prehospital services similar with a paramedic in other countries such as USA, Canada, United Kingdom and Australia (Michau et al., 2009; Thomas, 2010; Malaysian Medical Assistant Board, 2007; Human Resource Division, 2012).

Theory and practice are the main components of the Medical Assistant Diploma (DMA) curriculum. Teaching theory is conducted in the college while practical implementation is carried out at the clinical placement and is known as clinical practice (Medical Assistant Diploma Curriculum, 2008). Effective theoretical and practical implementation is essential to produce skilled, efficient and safe practitioner in providing quality health services to the community.

However, the gap between the theory and practice is still lacking attention in the implementation of medical assistant curriculum in the country. Hence, empirical information related to this issue is difficult to obtain as compared to overseas studies. However, preliminary information was only obtained from expert studies from the World Health Organization (WHO) which conducted a study on paramedical programs at the Ministry of Health Malaysia training institutes which found a gap between theory and practice in the implementation of the curriculum (Rotem, 2007). But his study was not as comprehensive as the study only focuses on the quality of the programs. In this regard, it is essential to have a specific study to evaluate whether there is a gap between theory and practice in the implementation of the paramedical program and also identifying factors cause the gap. This is important so that improvements can be made to ensure that the graduates from this program are able to meet the nation's healthcare needs.

### **3. Methods**

#### **3.1 Research Design**

The design of the study was a qualitative study by case study. In this study, the case studied was the implementation of the Medical Assistant Diploma program (DMA) at the Seremban Medical Assistant College. This study used a single case study approach (Merriam, 2009), which choosing a case to be studied in depth in several units and different backgrounds.

#### **3.2 Sampling and Location of Study**

This study involved 12 participants consisting of 4 tutors, 4 local preceptors (LP) and 4 students. All participants were selected by purposive sampling. Patton (2002) said the approach to selecting purposive sampling is a key strategy to better understand the phenomenon or case studied. Sample selection criteria based on their direct involvement in the implementation of the DMA program; 1) Instructor - directly involved in teaching and clinical monitoring; 2) LP - directly engage in student clinical supervision and learning; and 3) Semester 6 students who have undergone theoretical learning process and are currently undergoing clinical practice at the Emergency Department, Tuanku Ja'afar Seremban Hospital. Each participant has been designated as a teacher (T1-4), local preceptor (LP1-4) and student (P1-4).

The location of the study was Seremban Medical Assistant College (SMAC) and Emergency Department at Tuanku Ja'afar Seremban Hospital (HTJ). The selection of SMAC was made because it meets the criteria of the college which is conducting a DMA program. While HTJ selection is due to HTJ having students undergoing clinical practice at the Emergency Department. Both selected locations are easily accessible and this is in line with Spardley (1980) suggesting that location selection should take into account the location that is easily accessible.

#### **3.3 Data Collection and Analysis**

Key data were obtained through a thorough interview on all participants. The interview time was 30-45 minutes for each participant. The interview protocol was used as a guide for researchers during interviews. The interview protocol has several research questions in the semi-structural form.

The results of the interview have been transcribed verbatim. An interview transcript has been analyzed using a thematic coding approach as proposed by Merriam (2009). The analysis was carried out by examining each interview with a thorough interview to find the appropriate theme to answer the research questions. The process of data analysis was simplified using the NVivo 11 software.

#### **3.4 Ethics**

To ensure that this study is in compliance with research ethics, approval from the Ministry of Health's Medical Research Ethics Committee (KKM) has been obtained

(NMRR-12-1148-14345). In addition, all participants have signed a consent form before they are involved in the study.

#### 4. Results

The analysis shows that there are 3 main themes that make up the gap between theory and practice; i) theoretical content, ii) the procedure and iii) the equipment. Summary of findings is shown in Table I below:

**Table I:** Summary of themes and sub-themes from the analysis of the interview

Theme	Sub-theme	Example
Theoretical content	The depth and breadth of the topic are insufficient	Prehospital care
	Theoretical knowledge is lagging behind	Call center, Triaging, Ambulance services Medical AMI, ECG
Procedure	Difference procedure	CPR
	The procedure is not taught	Pain score
Equipment	Difference equipment	Laryngoscope
	Equipment lagging	Schiot tonometry
	Equipment not taught	LMA, Combi tiub, Intraosseous,
		Ultrasound Ventilator

##### 4.1 Theoretical

The key aspect identified as a gap between the theory and practice is the aspect of prehospital care topics. The majority of the participants said that the students do not get enough theoretical knowledge because the prehospital content does not have the depth and breadth required to provide them with the real task in the emergency department. This is stated by them as follows:

*“Based on my teaching experience, I find that there are insufficient pre-hospital related topics mentioned in the curriculum. The student should know more deeply and broadly in relation to case handling, especially involving pre-hospital”.*

**Source:** KPPS-T201

In addition to the inadequate content, there is also a content that is taught to be left behind as stated by a teacher as follows:

*“For example, pre-hospital care includes a call center where students are not exposed to the current knowledge.”*

**Source:** KPPS-T401

Teachers' views are supported by students where they said many more things they do not know when practicing clinical practice. This suggests that theoretical exposures in the classroom are insufficient to provide them with theoretical knowledge before implementing the clinical practice. As with the tutor, all students also said the prehospital service aspect is a major aspect that creates a gap between theory and practice. Examples of prehospital service aspects are knowledge and skills related to triaging and ambulance services as stated by them as follows:

*"My experience in clinical placement finds the knowledge and skills we have learned about the current triaging in college is insufficient".*

Source: HTJ-P101

The opinion of the lecturers and students is strengthened by the LPs. The majority of them said the students are weak in theoretical aspects. The lack of these theoretical aspects makes them unable to perform the clinical practice perfectly as described below:

*"The students are somewhat weak in theory. This makes it difficult for them to practice certain procedures".*

Source: HTJ-LP301

#### **4.2 Procedure**

In the aspect of procedural, there is a significant gap between the theoretical teaching in college and practice in clinical placement. All the instructors said that some of the procedures in the curriculum are lagging behind. A notable example is a cardio-pulmonary resuscitation (CPR) procedure. The procedures taught in college apply the old techniques compared to CPR procedures practiced in clinical placements using new techniques. Examples of statements are as follows:

*"Techniques of doing CPR have changed compared with what's learned in college."*

Source: KPPS-T101

In addition, in terms of patient investigation and examination procedures, there is also a gap between theoretical and practical teaching. For example, the pain score was not taught as one of the methods of investigation and patient examinations whereas the pain score method were used in clinical placements as one of the new methods of patient investigation and screening. This is stated by the following:

*"Besides that, we are not taught about pain score while it has become an additional vital sign and has been used in clinical."*

Source: KPPS-T401

### 4.3 Equipment

In terms of equipment, there are some gaps when some of the equipment used in college with equipment used in clinical placement is not the same. Some examples are given by participants as follows:

*“Examples of eye exams. We still teach using the schiot tonometry tool while it is no longer used in the hospital. It should be removed from the curriculum”.*

Source: KPPS-T201

*“Other examples are LMA, tubular combi, intraosseous. While intraosseous is important for installing IV in case of a child’s emergency”.*

Source: KPPS-T401

Tutors' opinions are supported by students who said that the gaps between theory and practice also involve procedures and tools. Examples of their statements are as follows:

*“There is also some new equipment used in hospitals such as laryngoscopes with cameras but not in college”.*

Source: HTJ-P301

A student gives an example of the equipment differences as follows:

*“I was once directed to carry out an ECG check. I had to ask for help from clinical AMO because the ECG machine used in the emergency department was not the same as the ECG machine we studied in college. The machine in the emergency department is more recent”.*

Source: HTJ-P401

## 5. Discussion

Depth and breadth are two important features of the scope of curriculum content (Ornstein & Hunkins, 2009; Tyler, 1997). The findings showed that the depth and breadth of DMA content are still inadequate in certain topics, especially in aspects of prehospital care services. For example, participants said that the topics related to the call center, ambulance and triaging services are insufficient (depth) and not comprehensive (breadth) compared to the actual needs of AMO services in the emergency departments.

Lack of theoretical aspects can affect the effectiveness of clinical practice implementation. According to Godefrooiji, Diemers & Scherpbier (2010), the gap between theory and practice causes students to take more time to learn a new thing. This is evidenced in this study when students said that they needed a longer time to understand how the triaging process was conducted because the theory that they have

learned in college was not enough. Longer focus on this aspect causes students to miss out on other procedures because the time given for clinical practice in the emergency department is limited to just a few weeks. Hence, the lack of this theoretical aspect will affect the transfer of learning in clinical placements and this will affect the students' competence. Meyer et al., (2007) said the transfer of learning should take place in clinical placements so that integration between theory and practice can take place smoothly and thereby enhance student competence.

Lack of theoretical knowledge can affect the function of AMO thus affecting the quality of services provided by them especially in emergency services and prehospital. Therefore, the theoretical and practical content in the aspect of prehospital service needs to be further enhanced so that transfer of learning takes place and the gap between theory and practice can be reduced.

In the aspect of the procedure, some procedures used in the emergency departments are different from those taught in theoretical teaching at the college. The findings of this study are in line with some other studies that find a gap in aspects of procedures and equipment often occur in the paramedical program (Hickson, William & O'Meara, 2010; Michau et al., 2009). The difference in this procedure poses problems and conflicts to students. Apart from affecting student competence, this distinction also affects the evaluation of students, especially when it involves evaluating clinical skills. As stated by a student, this difference creates a conflict during the OSCE (Objective Structured Clinical Examination). This conflict arises when the procedure checklist uses a different format with the procedure in clinical placement. Furthermore, if the appointed examiner is amongst the clinical staff, they will evaluate based on the procedures according to the format at a clinical placement that is different from the format used by the students in college.

There is also a gap that involves the new procedures used in the hospital compared with the procedures taught in the curriculum. For example, a pain score procedure is a procedure that has been used in an emergency department as one of the patient's methods of investigation. However, this procedure is not available in the curriculum. Therefore, students are forced to take a longer time to learn something new like this procedure. This finding is consistent with the study by Hickson, William, and O'Meara, (2010) found that the gap occurred when new procedures used in hospitals were not taught to university students.

In terms of equipment, there are several gaps involving equipment used in emergency departments with equipment used in skills lab at the college. This difference involves two aspects; i) the equipment used in the college varies with the equipment used in the emergency department, and ii) the equipment used in the emergency department is never disclosed to students while in college. This finding is consistent with the study by Hickson, William and O'Meara (2010) who find paramedical students often face problems when equipment used in clinical placements differ from what they are studying at universities.

In the first aspect, the equipment used in emergency departments differs from the equipment used in the skills lab, according to Michau et al. (2009) it is something

that often happens. The main factor that causes the difference in equipment is the difference between the company that manufactures the equipment. For example, the ECG machine manufactured by company A may differ from that issued by company B. However, this difference usually involves the way it is used only. But the findings issued by the machine produced the same results. Therefore, students need to take time to familiarize themselves with the equipment.

The second aspect of the gap is that equipment used in the emergency department is not being exposed to students in college. Examples of defibrillator machines and cardiac monitors that are used in cardiac arrest patients. This equipment is a tool that requires high knowledge and skills to handle it. Therefore, it is preferable that the equipment should be exposed to students at the college first so that students are more prepared to use it at clinical placement later. However, the results of the interviews carried out at the college, both of this equipment are not exposed to students during theoretical teaching in college or in college skills laboratories. This has caused a gap because the students unable to handle the equipment in clinical placement without the help of the clinical staff. The difference in equipment will certainly affect clinical practice. Students will feel less confident and hesitant to use the equipment. It's even more disastrous if it can affect the safety of patients. Hence, these differences need to be addressed and immediate action should be taken.

## **6. Conclusion**

In conclusion, the findings indicated that the gap between theory and practice exists in the implementation of the Medical Assistant Diploma curriculum in terms of theoretical content, procedures, and equipment. The existence of this gap affects the process of transfer of learning and its will affect the competence of students (Hickson, William & O'Meara, 2010). Hence, with this gap, it can jeopardize AMO's competency, thereby affecting the quality of services provided by AMO to the community. In this regard, the curriculum of this program should be thoroughly assessed and updated from time to time to be consistent with the needs and development of the medical field today.

## **7. Limitation of Study**

This study aims to identify the gaps between the theory and practice in the implementation of the DPP curriculum rather than to evaluate the effectiveness of the program. Thus, the level of student competence and the achievement of program learning outcomes is not evaluated to determine the effectiveness of the program.

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