Impact of the national medical licensing examination in Indonesia: perspectives from students, teachers, and medical schools.

Rachmadya Nur Hidayah

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The candidate confirms that the work submitted is her own and that appropriate credit has been given where reference has been made to the work of others.

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Abstract

Impact of the national medical licensing examination in Indonesia: perspectives from students, teachers, and medical schools.

Introduction

The national examination has been increasingly used worldwide for both licensing and certification purposes. In Indonesia, the national licensing examination (NLE) was implemented in 2007 where it serves as a method of quality assurance for both graduates' competence and medical schools. Indonesia is a developing country which heightens the impact of introducing the NLE. The high cost and resource intensive demands of the NLE are proportionally higher than they would be for Western countries. This adds to the already high stakes nature of the examination for all stakeholders. Consequently, since its implementation, there have been changes in medical education systems and medical schools. However, the research on how the NLE affects medical education is limited. The aim of this study was to understand the consequences of the introduction of the NLE on Indonesian medical education as perceived by three groups of stakeholders: medical schools, teachers, and students.

Methods

This study was a qualitative study using a modified grounded theory approach to understand the consequences of NLE from multiple stakeholders' perspectives. A sampling framework was designed to capture important characteristics of Indonesian medical schools based on region, accreditation status, and ownership (public/ private). Interviews were conducted with 18 medical schools' representatives (vice deans/ programme directors), while focus groups were conducted with teachers and students from 6 medical schools. The interviews and focus groups were audio-recorded and transcribed. Data was analysed in a rigorous method using open coding and thematic analysis to generate cross-cutting themes and concepts.

Results

This study looked at the intended and unintended consequences of the NLE, which strongly related to the context in Indonesia. Intended consequences were mostly related to the intended outcome of the NLE: achieving a common standard for education, improvement in education practice (including curricula, assessment, and faculty development), improvement learning resources and facilities, which were prominent in new and private schools. Unintended consequences were related to the competition led by the NLE, collaboration, financial impact, and students' failure. This study revealed cross-cutting themes such as diversity in a rich context of education, the coopetition, and the concept of patient safety in Indonesia.

Discussion

The current literature on the impact of NLEs were limited to developed countries and Western medical education system. The discourse was mostly based on opinion rather than evidence. This is the first study exploring the impact of the NLE in a developing country and ASEAN network. Some findings on the intended consequences of the NLE confirmed the literature, while some others were a contrast. Indonesia's unique context as a developing country in Southeast Asia, made it possible for the NLE to create competition leading to collaboration between medical schools and stake holders. This was best explained by the concept of coopetition, which enabled medical schools to overcome challenges, make changes, and improve their quality. This study offers new evidence on how the NLE holds significant role in the improvement of medical education.

Conclusion

Context matters in the discourse of the NLE. This study demonstrates a novel approach to sampling and analysis of the NLE's impact. The evaluation of the NLE needs to consider the importance of understanding local factors and consequences. New insights were added to the literature on how the coopetition acts as a key for the impact of the NLE. Moving forward, the future of the NLE is expected to hold an important role in the development of medical education in Indonesia. This study opens opportunities for other area of research, mainly on the impact of the NLE on patient safety, collaboration of stake holders, and students' failure.

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List of Abbreviations

AEC	ASEAN (Association of Southeast Asian Nations) Economic Community
AFKSI	*Asosiasi Fakultas Kedokteran Swasta Indonesia* (Association of Indonesian Private Medical Schools)
AIPKI	*Asosiasi Institusi Pendidikan Kedokteran Indonesia* (Association of Indonesian Medical Schools)
BAN-PT	*Badan Akreditasi Nasional Perguruan Tinggi* (National Accreditation Agency for Higher Education)
CBC	Competence-based curriculum
CBT	Computer-based test
CSA	Clinical skills assessment
FAIMER	the Foundation for Advancement of International Medical Education and Research
FLE	Federal Licencing Examination
GMC	the General Medical Council
GP	General practitioners
GPA	Grade Point Average
HPEQ	Health Professional Education Quality
KKI	*Konsil Kedokteran Indonesia* (IMC – Indonesian Medical Council)
KBUKDI	*Komite Bersama Uji Kompetensi Dokter Indonesia* (*Joint Committee of Indonesia Competency Examination for Doctors)*
LAMPTKES	*Lembaga Akreditasi Mandiri Pendidikan Tinggi Kesehatan* (Indonesian Accreditation Agency for Higher Education in Healthcare)
MCAT	Medical College Admission Test
MCC	the Medical Council of Canada
MCCQE	the Medical Council of Canada Qualifying Examination
MCQ	Multiple choice questions
MEQ	Modified essay questions
MLA	Medical Licensing Assessment
MoHER	the Ministry of Higher Education and Research
MoH	the Ministry of Health
NBME	the National Board of Medical Examiner

OSCE	Objective structured clinical examination
PNUKMPPD	*Panitia Nasional Uji Kompetensi Mahasiswa Program Profesi Dokter* (National Committee for Competence Examination of Medical Graduates)
SAT	Scholastic and Aptitude Test
SBA	Single Best Answer
SKDI	*Standar Kompetensi Dokter Indonesia* (Standard of competence for Indonesian Medical Doctor)
SP	Simulated/ standardised patient
UK	United Kingdom
US	United States
USMLE	United States Medical Licensing Examination
UNDP	United Nations Development Programme
WFME	World Federation of Medical Education
WHO	World Health Organisation
WHOSEARO	World Health Organisation South East Asia Region

Chapter 1 Introduction

National licensing examinations (NLEs) are large-scale assessments designed to test a medical doctor's fitness for practice. In some countries, both home and international graduates are licensed; in others, the licensing only applies to international graduates. The examination is taken near the point of graduation by medical students and early in the career of medical graduates. The NLE is a high-stake assessment with its result becoming grounds for the regulator to decide whether or not to grant a licence to practice in a jurisdiction (Archer et al., 2016b). It can also serve a function as a certification or revalidation for a medical doctor's competence. In some countries, the results from the NLE form part of the requirement to enter postgraduate studies.

The NLE is well established in North America where it has contributed to quality assurance since the 19th century. Several countries have adopted NLEs and in the 21st century there has been an increased emphasis on its role in quality assurance worldwide. Swanson and Roberts (2016) predicted this trend would continue, with the possibility of innovation and changes in the nature of assessment. The NLE has a role in regulating health care professionals and, consequently, influences the health care and education system as found in studies from northern America and some parts of Asia (Melnick et al., 2002; Hauer et al., 2006; Lin et al., 2013; Ahn, 2014). However, some countries have been reuctant to adopt the NLE because of concerns about its possible consequences, especially in relation to progressive changes in assessment practices and lack of guaranteed improvement for patient care (Harden, 2009; van der Vleuten, 2009; van der Vleuten, 2013). These concerns about the impact of the NLE do not have an extensive evidence base for either developed or developing countries. Consequently, this study was designed to contribute to these debates through a detailed exploration of the impact of introducing the NLE to Indonesia.

1.1 Structure of the thesis

This thesis will introduce the research background and problems; highlighting the importance of researching the impact of the NLE in Indonesia in Chapter 1. Chapter 2 will set the context of this study, including the medical education system in Indonesia and how this study was situated in the system. The literature

review on NLEs and assessment will be presented in Chapter 3 and show the research questions which were decided upon. The methodology and methods which followed from the research questions will be described in Chapter 4. Findings of this study will be presented in Chapter 5 and 6. Chapter 5 will describe the consequences of the NLE in Indonesia, while Chapter 6 will describe the cross-cutting themes that followed from the implementation of the NLE. Chapter 7 is the discussion chapter, which will present the synthesis of all the findings, new theories, strengths and limitations of this study, and the implications for policy and practice. The thesis will end with conclusions derived from this study.

1.2 Rationale for study

The development of ideas for this project began a few years back before I started my doctoral study at the University of Leeds in 2014. As a medical doctor by background, I experienced a licensing examination in 2009, two years after the NLE was first introduced in Indonesia. The NLE in the form of multiple choice questions (MCQ) did not spark any interest for me at that time, rather than just questioning the reason on why every graduate must take another assessment before we could get our license to practice. I took clinical practice as a general practitioner in my early career and applied for a junior lecturer position in a public medical school. I was involved in managing clinical skills training for the undergraduate medicine programme. As I learnt health care professions education for my master's degree in Maastricht University, the Netherlands, during the 2010-2012; I found that the assessment is interesting, especially how it affects student's learning. Following my interest, I took the responsibility in organizing the Objective Structured Clinical Examination (OSCE) for the undergraduate programme and conducted some research projects related to it. Being recommended by my seniors, I was assigned as a member of the national licensing examination committee who developed a pilot for national OSCE in addition to the MCQ examination at that time. I was involved in the licensing examination in 2012-2014, which enabled me to visit several medical schools as a supervisor for an examination: ranging from those with the sophisticated buildings in the capital city Jakarta, to the one with wooden walls in the furthest east of Indonesia. The experience in visiting those schools, including getting to know their management and facilities, observing the examination process, and interacting with students and teachers, led me to more questions: "Why those schools were different? Why their students performed in different levels? How the NLE could bring such different impact for each school? What and how did they cope with the policy?".

Departing from these questions, I had continuous discussions with my colleagues where we often brought the literature and topics from conferences in it. Meanwhile, the debate in the national level, on whether the NLE is necessary, whether it gives benefit for medical education and health care, has been an ongoing subject since 2007. Following a suggestion from my mentor, I got in touch with my current supervisors who had interests in the topic of licensing examination. An opportunity of PhD scholarship from the Indonesian government helped me to take the first step in answering my questions: I wanted to understand the impact of the licensing examination in Indonesia. The need to seek for answers, the need of evidence for the policy maker and other stakeholders to consider the NLE, is what has been keeping me motivated to conduct this study. It was also an opportunity for me to show how the NLE in Indonesia could offer an addition to the current knowledge of NLEs.

1.3 Background of study

National licensing examinations (NLEs) were initially introduced in the United States and Canada to assess the competence of medical undergraduates. The NLE in the Northern America, the United States Medical Licensing Examination (USMLE) and the Medical Council of Canada Qualifying Examination (MCCQE), have a significant role in medical education. Due to the length of time, these countries have had their NLEs an extensive and rigorous body of policy, scholarship and research developed around them, which has influenced the development of assessment practice.

Even though the development of NLEs has been controversial, with experts debating its benefit and disadvantages, it has been increasingly used in many parts of the world. Over a decade ago, Asian countries such as South Korea, Taiwan, Thailand, and Indonesia began implementing the NLE to test medical graduates on their fitness for practice.

In Indonesia, the NLE is used as a tool for certification. It quality assures medical graduates by testing their fitness to practice. There are several stakeholders in its implementation: the government, medical schools, endowment bodies, employers, medical teachers, and students. The NLE is a high-cost policy, therefore, there is a need to understand its impact; what changes it has and will bring to medical education. Understanding the consequences of the NLE in Indonesia will provide information for the stakeholders and policy makers that is underpinned by empirical evidence.

1.4 Aim of study

This study aimed to understand the impact on medical education of the introduction of a national licensing examination in medicine in Indonesia. This study focuses on the qualitative exploration of the impact from the perspectives of stakeholders involved in medical education (medical schools' representatives, teachers, and students). This study was not set as an evaluation for the NLE, therefore it would not explore the validity and reliability of the examination nor its use as a predictor of performance in the residency programmes.

Chapter 2 Context of research: Setting the scene

To understand the context and setting of this study, I will describe the medical education system in Indonesia and how the NLE sits within the system. This chapter describes the research population from whom the study participants were recruited, introducing the stakeholders in Indonesian medical education, and the characteristics of its medical schools. This context plays a significant part in the discussion that follows the analysis of the data gathered during this study.

2.1 The medical education system and the stakeholders in Indonesia

The medical education system in Indonesia works differently from those in the United Kingdom or the United States. This is an important point to highlight, because it will affect the role of the NLE in the system. Medical education in Indonesia is governed by the Ministry of Higher Education and Research (MoHER), in cooperation with Indonesian Medical Council (IMC) and the Ministry of Health (MoH).

Universities and other higher education institutions (e.g. college or vocational studies), either public or private, are governed by the MoHER. Both undergraduate and postgraduate (i.e. specialist training) medicine programme are delivered under a Faculty of Medicine (or medical school) in a university. Undergraduate medicine programmes are delivered by public and private medical schools, while specialist training is only delivered by public medical schools. Public schools are government funded and placed in almost each province of Indonesia. Private schools are privately funded by endowment bodies; usually a family foundation or religious organisations.

The IMC consists of representatives from *Asosiasi Institusi Pendidikan Kedokteran Indonesia* (Association of Indonesian Medical Schools – AIPKI) teaching hospitals, collegium of medicine/ specialists, Indonesian Medical Association, Association of Dental Education Institution in Indonesia, collegium of dentistry, laypersons/ public figure non-medical related, the MoH and the MoHER. It acts as a professional authority to regulate doctors and dentists. It also functions to provide guidance to the implementation of medical practice conducted with related institutions in order to improve the quality of medical service (KKI, 2017). The IMC acts as professional authority and supervisory

board for educational content (i.e. the guideline for curricula). Colleges of specialists are under the supervision of the IMC; they have the authority to govern postgraduate education. The MoH governs the internship/ placement of medical doctors and employment for public hospitals and public local health care centres. All public medical schools have a main teaching hospital, while some of the private medical schools have their own teaching hospital funded by their endowment bodies. Other private schools have agreements with local hospitals (public/ private) to be their affiliated hospitals.

The medical education system in Indonesia and the relations between stakeholders are illustrated in Figure 1. The blue line represents hierarchical order, the green line represents partnership/ cooperation link, and the orange line represents a supervision link.

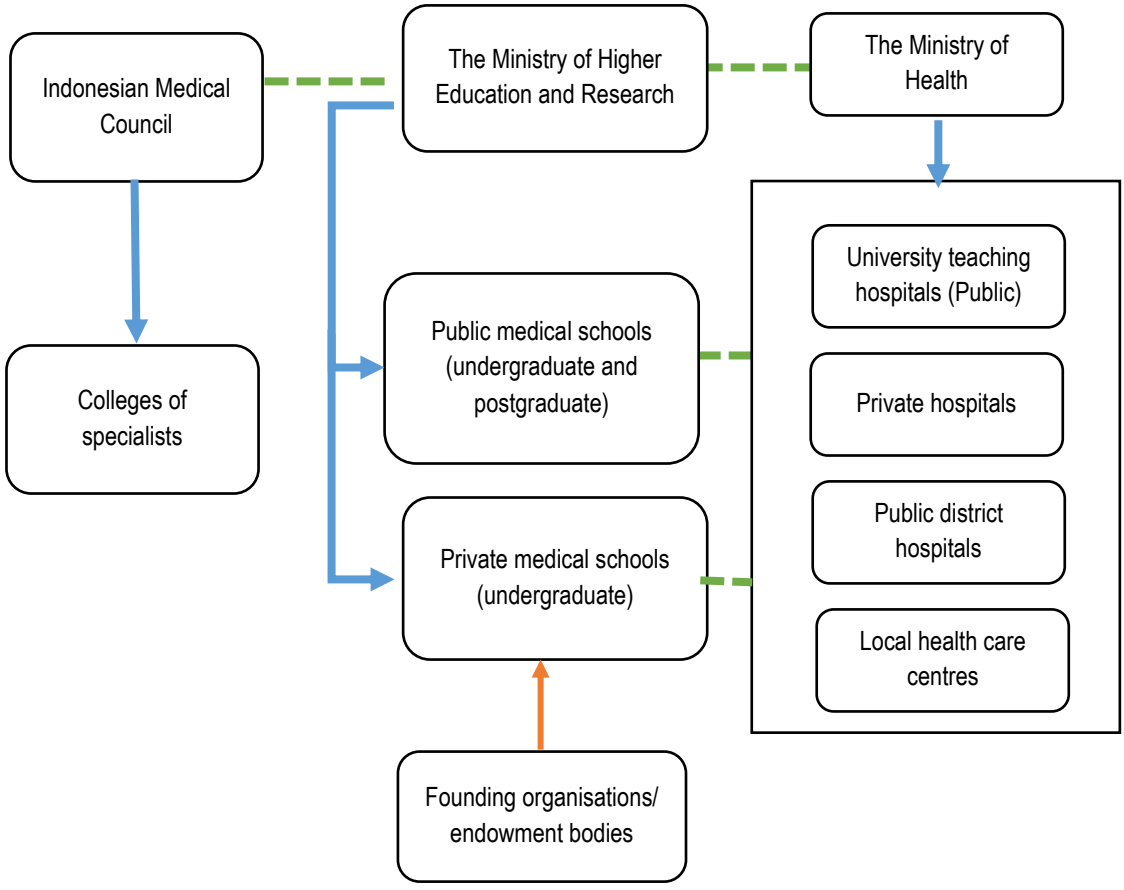


Figure 1: The medical education system in Indonesia

2.2 Associations of medical schools

In 2015, when this study was conducted, there were 74 medical schools in Indonesia: 33 public and 41 private. The medical schools formed an association: the Association for Indonesian Medical Schools (AIPKI-Asosiasi Institusi Pendidikan Kedokteran Indonesia). The AIPKI grouped medical schools based on their regions: I to VI; dividing the large area of Indonesia from west to east (Figure 2). Note that the distribution of medical schools was not even for each region (Table 1). For example the small region of Jakarta capital had 11 medical schools, while a larger region (consisted of islands and islets) in eastern Indonesia only had 9.

Table 1. Regions of medical schools in Indonesia

Region	Area	Public schools	Private schools
1	Sumatra	8	10
2	Capital city of Jakarta	2	9
3	West Java and Lampung	2	5
4	Central Java and Kalimantan	8	7
5	East Java, Bali, and Nusa Tenggara	6	8
6	Sulawesi, Maluku, and Papua	6	3

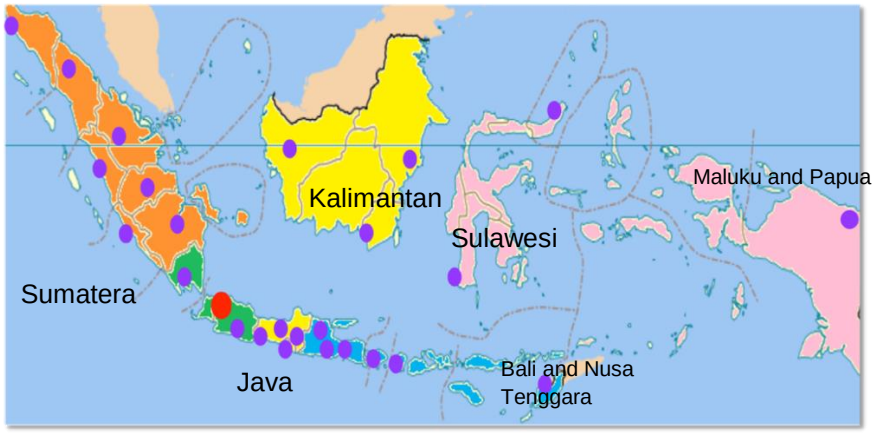


Figure 2: The mapping of medical schools in Indonesia, based on cities/ provinces.

The private schools have their own association, the Association of Indonesian Private Medical Schools (AFKSI – Asosiasi Fakultas Kedokteran Swasta Indonesia). Both AIPKI and AFKSI actively engage medical schools within their association to collaborate in education and research. The associations also have

a function of advocating/ representing medical schools to the legislative body/ senate. During 2012-2014, AIPKI, under the supervision of the MoHER, was responsible for the administration of the NLE.

2.3 Accreditation system in Indonesia

Undergraduate medicine programmes were accredited by the National Accreditation Agency for Higher Education Institution (BAN-PT – Badan Akreditasi Nasional Perguruan Tinggi) until March 2015. From March 2015 onward, this role shifted to the Indonesian Accreditation Agency for Higher Education in Healthcare (LAMPTKES – *Lembaga Akreditasi Mandiri Pendidikan Tinggi Kesehatan*). Both systems give a final rating for the undergraduate medicine programme as: A, B, and C; where A is the highest accreditation level and C is the lowest. The accreditation is an obligatory quality assurance assessment from the government through MoHER. The assessment was conducted by BAN-PT every five years and once the accreditation status expiry approaches, re-assessment is obligatory.

The BAN-PT assessed medical schools for these areas:

1. Vision, mission, aims, targets, and strategies of programme
2. Governance, leadership, management, and quality assurance system
3. Students and graduates
4. Human resources and faculties
5. Curriculum, learning environment, teaching and learning activities
6. Funding, facilities, and IT system
7. Research, collaboration, and social accountability

Assessors from BAN-PT assessed forms and evidence as well as conducting observations in medical schools and their teaching/ affiliated hospitals. Rather than private feedback, the accreditation status is made public. Thus, a medical school's accreditation status shapes the public perception of the quality of its education provision. This is the main difference between the UK and Indonesian accreditation system for medical education. This assessment is conducted by the General Medical Council (GMC) in the UK.

In 2015, at the time this study was conducted, there were 15 A-accredited schools, 33 B-accredited schools, and 24 C-accredited schools. Most of the A-accredited schools were public schools, while most of the C-accredited ones were private or new schools (i.e. established less than 10 years ago). A list of the accreditation status of medical schools in 2015 can be found in Appendix A.

2.4 The undergraduate medicine programme and the NLE

The undergraduate medicine programme in Indonesia consists of preclinical and clinical phases. The preclinical phase is defined as learning basic and clinical science in class room setting (at the medical schools/ universities). The clinical phase refers to the clerkship at clinical setting (hospitals/ primary health care centres). At the time of study, it was common for medical schools to have a 3.5-year of preclinical and 1.5-year of clinical phase. Although some schools introduced early clinical exposure by delivering certain activities in a clinical or community setting during the preclinical phase, it was more common for medical students to have clinical tasks/ responsibilities in the clinical phase.

The NLE sits at the end of the clinical phase, before the graduation/ convocation of the medical doctor. Passing the NLE is a requirement to graduate from medical schools. Since the purpose of the NLE is certification; passing the examination enables students to receive a certificate of competency and register to the IMC (Rahayu et al., 2016). After registering with the IMC, the new doctors will have to take an internship/ clinical placement, regulated by the MoH, in hospitals or primary health care centres located nation-wide. The undergraduate programme in Indonesian is illustrated in Figure 3.

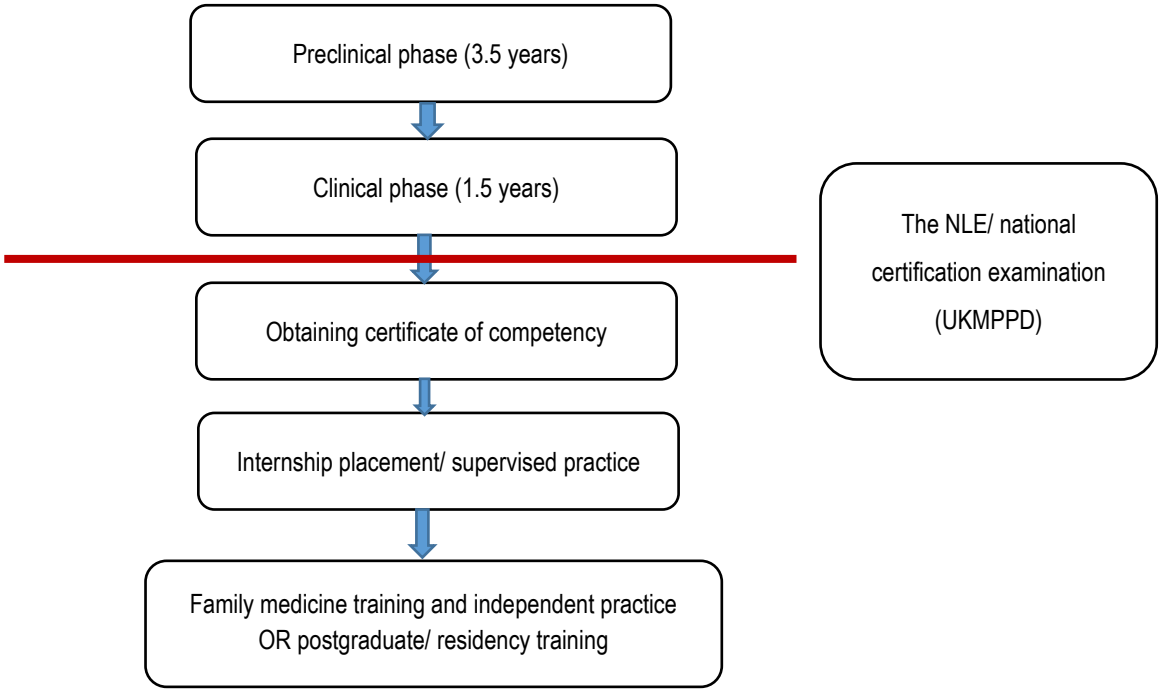


Figure 3: The course of undergraduate medicine programme in Indonesia

The NLE in Indonesia is organised by a special committee from the MoHER and the IMC. The examinations are conducted in medical schools which become the test centres. There are four periods of examination in a year: February, May, August, and November. The NLE was first introduced in 2007 in the form of a written examination using 200 items multiple choice questions (MCQ). Starting from 2013, a clinical skills assessment in the form of Objective Structured Clinical Examination (OSCE) was added by the committee.

The MCQ was administered on paper until 2010. After that, the MCQ has been administered using computerised-based test (CBT). Blueprints for the MCQ were developed using the national guideline for clinical competence. The MCQ uses single-best answer (SBA) format, administered in 200 minutes. The OSCE assesses clinical skills performance using scenarios of clinical cases in 12 stations, each last for 15 minutes. In each period, there are at least six stations using simulated patients (SPs). The OSCE examiners in a medical school are teachers from that particular school who have attended trainings nationally. The MCQ and OSCE questions were written by the experts across Indonesia, collected in a national item bank, and reviewed by panels formed by the national committee.

Examinees must pass both the MCQ and OSCE to be considered as passing the NLE. Failing one or both of the examinations would result in a resit, which needs to be taken in the next examination period. Resitting students only needed to take the examination which they failed in (e.g. failing the MCQ only would need a resit for the MCQ only). There are no penalties for examinees failing the examination. However, as they are unable to graduate from medical schools, they still have to pay tuition fees. There is no limitation for how many resits the examinees can take (e.g. there were students failing the examination for seven times).

The detailed history of the NLE globally and its development in Indonesia will be covered in the literature review.

2.5 Admission to Indonesian medical schools

In Indonesia, university/ higher education admission is available for high school graduates. It is most common that students spend 6 years of primary school, 3 years of secondary school, and 3 years of high school. There are a few cases where students take an accelerated track. The university sophomore age is 18-19 years old.

There are several admission routes to public university. In the last ten years, the most common route is through the national university admission test, which is held once a year and contributes to the majority of student quotas for universities. Other routes are under the discretion of the university: for example, the special admission for “outstanding high school students”, admission for “regional talents”, local admission policies and special arrangements for remote and less-developed regions, e.g. the east Indonesia scholarship. Public medical schools have to follow the regulation set by the MoHER and their university for their admission. On the other hand, private medical schools have more independent admission routes. They can set their own admission test/ requirements, cooperate with local governments/ foundations through scholarship, etc. The different admission criteria between public and private schools poses a challenge, which this study highlights later.

In this chapter I have described the medical education system in Indonesia to set the context for this study. These important characteristics of the system, are different in nature from the Western medical education system. They were considered when deciding how best to design this study, especially the sampling method which purposefully included a range of regions, accreditation level and ownership status. In the next chapter, I will present my literature review on the relevant topics of the study.

Chapter 3 Literature review

3.1 Introduction

The literature review was conducted throughout this study to find relevant studies and supporting documents related to the NLE in medical education and the assessment of competence. The literature searching was conducted in medical, health, and education databases, as well as several websites related to the NLE in some countries.

The databases were Web of Science, MEDLINE, PubMed, PsycINFO, Embase (Ovid), and Wiley Online. Keywords used in the literature searching were: “national licensing examination”, “NLE”, “licensing examination”, “qualifying examination”, “certification”, “USMLE”, “national OSCE”, and with the combination of “impact” or “consequence”, and “high-stakes assessment” or “competence-based assessment” or “performance-based assessment”. These keywords were used in combination to obtain the relevant articles. For example: “licens* examination” and “impact”. The use of these keywords and combinations was to ensure that the result of literature searching would focus on the licensing examination as a high-stake assessment and any consequences related to education system.

Exclusion criteria were made for articles related to licensing examination not related with medical/ health professional education (e.g. licensing for barrister). Further exclusions were made for articles which did not focus on undergraduate licensing examination (e.g. post graduate/ residency examination, high stakes assessment for secondary schools’ education, etc.) and articles with the focus of NLE’s scores analysis (e.g. validity of MCQ items/ OSCE stations). Articles resulted from the initial literature searching were used to refine the keywords and authors to obtain more specific articles. The literature searching process is described in Appendix B.

The NLE is a national policy; therefore, a large proportion of the literature included in the review consisted of policy documents/ information from the government/ regulator/ test administrators. This includes Indonesia’s and other countries’ organisations regulating/ administering the NLE. The websites consulted were the IMC, NBME (National Board of Medical Examiners), MCC (the Medical Council of Canada), GMC (the General Medical Council), and BAN-PT websites. Documents from the MoHER and the national committee were available online,

distributed to medical schools, or available by request, which I received after correspondence with the national committee. The literature searching also includes related news published by media (paper and online) in Indonesia. Since the topic of the NLE has been developing as an increasing trend lately I kept track of recent articles and research reports from journals and conferences in medical education, as well as policy changes in Indonesia.

This chapter will first cover the underlying theories of assessment in medicine, assessment of competence and the NLE as an assessment method. It will be followed by an examination of how the NLE sits in the medical education system; including its history globally and in Indonesia. The literature review sets out to give an understanding on why and how the NLE exists and develops in medical education, and what may come as a result of its consequences, including relevant literature for the analysis and discussion of findings.

3.2 Competence in medical education

Dealing with human life makes the field of medicine special compared to other professional fields (e.g. law). Doctors and other health professions define their duty as putting patients' welfare first; to aid their well-being and help improve their quality of life. In order to improve the outcome of patients' health, both at the individual and population level, the education of doctors needs to ensure that on graduation students can fulfil the requirements of newly qualified doctors as defined by the standard in a country or, to use another term, being competent.

Competence or **competency**, is broadly defined in the field of medical education. It is strongly related to the quality of doctors and how they interact with patients. Epstein (2007) defined competence as "*the habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individuals and communities being served*". In many countries, the term 'competent' is used to describe the expected ability of doctors. For example, in the United Kingdom, the General Medical Council (GMC), the UK regulatory body for doctors, states *"Good doctors make the care of their patients their first concern: they are competent, keep their knowledge and skills up to date, establish and maintain good relationships with patients and colleagues, are honest and trustworthy, and act with integrity and within the law"* (GMC, 2013). In Indonesia, the Indonesia Medical Council (IMC) states that a competent doctor must demonstrate *professionalism, ethics, managerial skills, and leadership* (*Standar Kompetensi Dokter Indonesia*, 2012). Similar remarks about the need for competent doctors

can be found in other countries. By these definitions, the term competence covers the area of knowledge, skills, and professionalism.

Quality assuring medical graduates: The options and challenges

In regard to the need for competent doctors, there is a need to ensure the quality of medical graduates. We should acknowledge that multiple stakeholders contribute to the output of medical education. As stakeholders, it is the responsibility of governments, the national medical regulators (where they exist) and the medical schools to meet the needs of society and ensure the quality of care. This responsibility is enacted by assuring that medical graduates have the expected competence to perform their duties. However, there are other factors from a stakeholders' perspectives that affect the medical education system such as employer demand and local/ regional health needs.

Every country has a different medical education system and consequently, the action to ensure the quality of its output will also vary. In a country, or within a region, medical schools might implement various curriculum and assessment methods. Mobility of doctors across the border also contributes more challenges on this matter (Schuwirth, 2007; McCrorie and Boursicot, 2009; Swanson and Roberts, 2016). However, it is a common purpose of medical education to produce medical graduates that can provide a high quality of care and ensure patient safety. To be able to carry out this purpose, there are several approaches to quality assurance that have been implemented in medical education practice. These comprise: accreditation systems and assessment programs; such as collaborative testing and national examinations. I will further discuss each approach in the next section.

Accreditation systems

The accreditation system works in assuring the quality of medical education delivered by medical schools. Accreditation is defined as a process of review and evaluation by authority in a periodic pattern using sets of specified criteria and procedure (Boulet and van Zanten, 2014). It is obligatory for medical schools or training programmes to be accredited periodically. However, this quality assuring process may also be part of regulation in some countries, where it will be performed by a government institution/ agency. Third party or independent agencies can also perform accreditation for medical schools that voluntarily ask for review, e.g. The World Federation of Medical Education (WFME) accreditation agency and other medical schools acting as an external

auditor. The results of accreditation may be the foundation of future policy for organising bodies and improvement for the institution.

To date, there are various methods and criteria used in the accreditation of medical schools. This reflects different policy and training programmes in different countries (van Zanten et al., 2008; van Zanten et al., 2012a). Thus, it is not an easy task to compare accreditation across countries and regions. Having a common standard for medical schools between countries would be necessary to consider if we focus on the increasing mobility of health care professionals and patients. However, there may be challenges as the practice of medicine could be different in one country (or region) to another. While there could be accreditation in the doctor's country of origin, the destination country might have different standards. According to Boulet (2014), in 2013 the Foundation for Advancement of International Medical Education and Research (FAIMER) listed 104 countries with accreditation systems out of 177 countries with active medical education. WFME (in cooperation with FAIMER), formulated guidelines and methods for the recognition of medical school accreditation agencies. This step was part of an effort to support medical school accreditation and promote comparability among medical schools (Boulet and van Zanten, 2014).

Proposing an accreditation system as a centralised regulation to assure the quality of medical graduates needs evidence to support its validity. A lot of effort has been made to develop accreditation systems. However, there is limited research on the validity of this accreditation, in relation to improving patient care (Boulet and van Zanten, 2014). The validity of accreditation in measuring the outcome of medical graduates (e.g. performance in licencing examination) based on isolated accreditation variables (e.g. admission standards, resources, curriculum), still lacks evidence. Several studies have proposed evidence of an association between the outcome of accredited schools and results of postgraduate medical education assessment (van Zanten et al., 2012b; van Zanten and Boulet, 2013). This might indicate difficulties in determining the methodology to conduct this research. The difficulty is mainly caused by the wide range of variety of accreditation systems across countries. It would be difficult to determine whether one country's accreditation system, alongside with its method and criteria, will be superior to another country's system. Lack of evidence for one method does not imply that the accreditation has less benefit for medical education.

An example of accreditation's benefit is by driving medical schools to prepare themselves for accreditation assessment. As schools want to have a good performance in the assessment, they will be 'forced' to improve their education practice. Thus, it is expected that the accreditation will enforce better

quality of education in the system. On the other hand, the costs of accreditation systems are still considered a drawback. The cost of making make necessary changes to comply with accreditation requirements (e.g. adding resources and facilities, curriculum changes, faculty trainings) can be significant. Another disadvantage is that faculties need to spend more time in engaging with accreditation preparation. However, by joining accreditation systems, schools hope that they will get more benefit from moving towards a better quality of medical education in their institution (Boulet and van Zanten, 2014).

Assessment programmes

Assessment is the means by which medical educators and medical schools ensure the correct level of competence of their graduates at certain points in their education. Assessment has important roles in the development of learners, faculties, and institutions, as a way to improve their quality and to achieve competence. As discussed earlier, knowledge, skills, and behaviour, are used to describe the competence domains a healthcare profession should have in practice. They reflect three domains of learning: cognitive, psychomotor, and affective. Miller (1990) argues that knowledge is not sufficient as a single competence assessed in medical education. The ability to apply knowledge and perform the skills required are essential for future practice. Miller's framework, often called Miller's pyramid (Figure 4), explains that cognitive domains of knowledge and knowledge application underpin all competence and that behaviour (including skills) are predominantly assessed in performance and action (Miller, 1990; Boursicot et al., 2011).

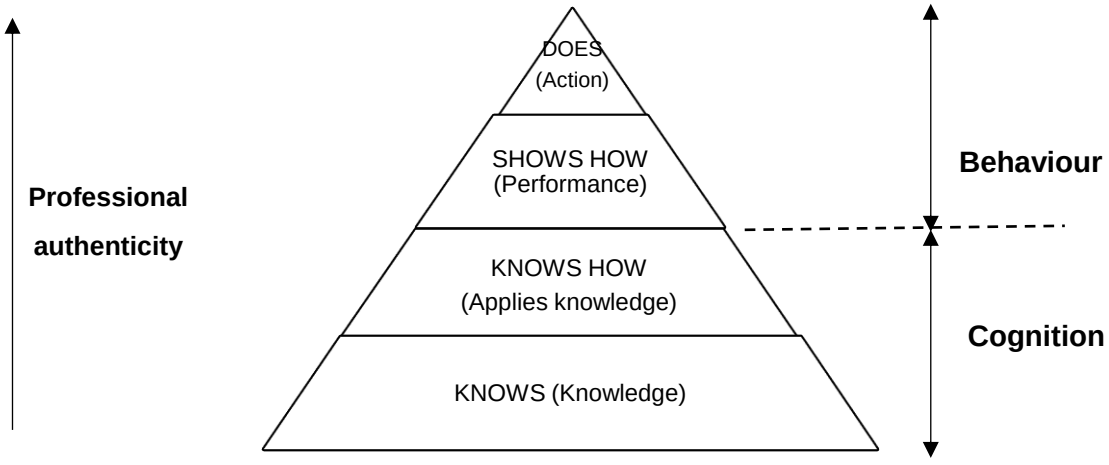


Figure 4: Miller's Pyramid: The assessment of clinical competence

Good assessment comprises several characteristics that can be used to evaluate its quality (van der Vleuten, 1996). A model by van der Vleuten (1996) emphasised that good assessment practice should consider validity, reliability, educational impact, acceptability, cost-effectiveness and feasibility of any individual assessment method. Among these characteristics, validity has emerged as the overarching principle of good assessment. The other principles of good assessment contribute to validity, which now is viewed not only through its psychometric properties, but more as a concept of test score interpretation based on supporting evidence. Interpretation of test scores encompasses how to define test score's meaning and comprehend some implications of test score. A good assessment should be a valid assessment, where the proposed interpretation of test scores/ uses are supported by more than the test score itself (Kane, 2006; Kane, 2011; Kane, 2014).

The two methods of assessment most frequently used to ensure the quality of medical graduates in a large scale or country are collaborative progress testing and a national examination.

Collaborative Progress Testing

Progress testing is an assessment administered longitudinally at the same time for all students at regular intervals throughout the academic programme (Wrigley et al., 2012). It was developed to establish multiple 'views' of assessing students' achievements. Some experts propose that a "single-shot assessment" is not sufficient to make a high-stakes judgement. A continuous assessment at particular time-points throughout undergraduate study should be able to give a more rigorous judgement. The extended time for measurement is argued to give a better view of the student's learning level (Schuwirth, 2007). It offers longitudinal and repeated measures of a student's achievement. A challenge to the capacity to describe student achievement using longitudinal measures across a region/ country comes from the different curriculum implementation and assessment system of medical schools. To be able to compare students across schools, collaboration is necessary.

The Netherlands provide one example of collaborative progress testing. As described by Schuwirth et al. (2010), although the implementation might differ, medical schools in the Netherlands have similar curriculum outcomes. Progress testing enables them to evaluate their programme and assess the comparability of their students in relation to each other. Schuwirth et al. (2010) argued that the advantages of collaborative progress testing outweighed its disadvantage.

The advantage of progress testing comes from an established quality control system and the information provided from the results. Results of progress testing provide rich information for benchmarking and comparison of curricula. It could also help to understand the learning processes (diagnostic use) and to evaluate teaching and learning interventions (Wrigley et al., 2012). Costs for collaborative progress testing are lower than the cost incurred by a single university. The assessment will give feedback to individuals (students) and institutions at the same time. In the end, shared assessment will stimulate constructive competition among medical schools to maintain their quality and ensure their students meet the expected competence. Disadvantages, such as different views on test item quality and logistical issues, are not usually limitations of this method (Schuwirth et al., 2010; Freeman et al., 2010). Of course, collaborative progress testing like that established in the Netherlands could not be applied in all countries. Countries with bigger number of medical schools, with high diversity and heterogeneity of its medical education system (e.g. curricula, assessment regulations) would have difficulties in performing such tests. Although progress testing is a large-scale assessment it is also a highly localised process which only represents a group of schools rather than a national standard.

The national licensing examinations (NLEs)

The NLE is a large-scale examination taken early in a career or near the point of graduation, where passing the examination is a requirement to practice medicine (Archer et al., 2016a). The implementation of the NLE is a policy decision taken by the healthcare regulator to protect the public by assuring standards in the profession. For some countries, the NLE also serves the purpose of improving healthcare education quality. Although the adoption and delivery vary, countries implementing the NLE are mostly aiming for graduates to meet certain standards required to practice within the jurisdiction of the regulator. Some countries, such as the US and Canada, aim the NLE at home and international graduates, with other, such as Switzerland and Germany, restricting it to home graduates only (Seyfarth et al., 2010; Guttormsen et al., 2013). While the NLE is believed to be a necessary step for patient safety in the countries implementing it, there is ongoing debate about whether passing the NLE can guarantee a doctor's fitness for practice. This debate is addressed later in this chapter.

The NLE originated as a regional assessment in northern America and has extended globally in the last two decades. Swanson and Roberts (2016) predicted that the NLE would become more common and widely used, in part because of the increasing mobilisation/ migration of health care professionals. They also

predicted that the NLE would become more content-specific; influencing both performance-based and work place-based assessment (Swanson and Roberts, 2016). Recent research has explored wider aspects of NLEs; looking at the assessment policy (Reyes et al., 2016; Zeng et al., 2016), examinees' traits (Yim, 2015), and ways to improve the NLE in other health care professional fields (Hwang et al., 2017). This shows that the NLE is a topical issue with many areas for research, as Swanson and Roberts (2016) suggested.

Even though research on NLEs is limited to those countries implementing it, there is considerable research conducted on its validity as an assessment method. The following section will not only focus on that aspect but also examine how the NLE has developed and how it became an approach taken by regulators in Asian countries, including Indonesia.

3.3 The history of national licensing examination

This section will describe the origins and development of the NLE started and developed; starting from North America and extending through Europe and Asia. The section concludes by presenting the history of NLE in Indonesia, including its background and areas of current debate.

National examination in North America

The United States of America and Canada were among the first countries that conducted national examinations for their medical graduates. The United States Medical Licensing Examination (USMLE) was derived from regulatory entry for medical practitioners after the Civil War (1861-1865). It served the purpose of reducing the high variation of competence amongst practitioners and was implemented for several decades. The National Board of Medical Examiner (NBME®) was founded in 1915, to administer a national examination system in the United States of America (Melnick et al., 2002). The structure of the examination has evolved since then. The first structure of the format (1916) was a complex bedside examination using patient cases, oral (viva) examinations, and written examinations. Written examinations started with essay questions in 1922 and evolved to selected-response questions and later, in the 1980s, the format of USMLE was changed to multiple-choice questions (MCQ) (Melnick et al., 2002). The NBME approved the clinical skills examination in 1999 and implemented the Step 2 Clinical Skills Assessment (CSA) in 2004. This decision

was mainly driven by the need to assess clinical skills after the long case oral examination was criticised for poor reliability.

The Medical Council of Canada (MCC) acts as the authority to grant licentiate for physicians to practice in Canada. In determining eligible candidates, MCC uses assessment procedures during and at the end of medical students' undergraduate programmes. Until 1970, MCC used traditional essay and oral examinations. In 1980, when the development process of MCC licentiate was finished, the examination was applied to all regions of Canada (Dauphinee, 1981). After a few years of this assessment, MCC reviewed its objectives as a licensing examination and came to the conclusion that there were essential competences for medical graduates that could not be assessed using written examination. These included: history taking, physical examination, and communication skills. MCC then decided to conduct a pilot study for clinical skills assessment in the late 1980s. In 1992, the Objective Structured Clinical Examination (OSCE) became part of the licensing examination (Reznick et al., 1993).

Both USMLE and MCCQE have had the time to become well-established systems based on regular evaluation and research. Studies conducted by test administrators (NBME and MCC) mostly focussed on the psychometric aspects of the test. However, in the last decade, there has been more research on the consequences of the NLE on postgraduate study, clinical performance, and patient care. This will be discussed later in this chapter.

National examination in Europe

Compared to their transatlantic counterparts, there had been wider debate about the national or European licensing examination during the last decade. There is on-going discussion amongst European countries, including the United Kingdom, about the issue of establishing national or large-scale examinations. Since European countries recognised medical graduates from the European Union members to practice within the European Union (EU), there was a shared responsibility to have a standardised quality of medical education and practice (Gorsira, 2009). In her article, Gorsira described the opposing views in response to a proposed European NLE, with key issues such as understanding, trust, and collaboration between countries. European countries varied in their medical education system, thus there was concern about achieving the expected standard of doctors in Europe. However, as Gorsira (2009) pointed out, the potential benefits and pitfalls of the NLE left the debate open. She concluded that immediate implementation of an European NLE would not guarantee patient

safety and would also cause harm to medical education (Gorsira, 2009). Agreeing European standards for doctors highlights the issue of how they align with non-European graduates, which will include the UK when Brexit is implemented.

This debate was further complicated by van der Vleuten (2013), who stated that some European countries that had strict accreditation of medical education and homogenous curricula, e.g. the Netherlands, did not see a national examination as a priority. Some schools already had collective progress testing to ensure the comparability of their curriculum (Schuwirth et al., 2010). In the UK, where there is greater freedom to design and implement medical schools' curriculum based on the GMC's *Tomorrow's Doctors*, the national examination had been discussed following the focus on comparability of medical graduates' competences (McCrorie and Boursicot, 2009). Considering the arguments of objectivity, consistency, quality assurance, and patient safety, the GMC recently announced its support for a national licensing examination. Other reasons for proposing national examinations would be to set the standard for students entering postgraduate education. The concern to develop a transparent quantitative mechanism of selection in postgraduate training also raised the need for national licensing examinations in the UK. Unlike the US, postgraduate training selection in the UK does not use the ranks in a national examination (such as USMLE), therefore it could not compare international medical graduates and UK graduates in the same assessment programme (Gorelov, 2010).

Other European countres took a more positive approach to NLEs. Switzerland introduced a national licensing examination in 2013. The federal licencing examination (FLE) was developed as a means of quality assurance by assessing knowledge and skills at the end of undergraduate medical education. The reason the FLE was introduced was that Switzerland wanted to maintain the high quality of health care and medical education in their country. The expected quality was described as the level of competence of graduates. After performing a pilot in 2010/2011, the examination (which is centrally-managed and locally administered) was conducted, comprising MCQ written examinations and OSCEs (Guttormsen et al., 2013). The aim of establishing an OSCE as a national examination was to assess applied clinical knowledge and practical clinical skills to ensure a high-quality standard of graduates.

As mentioned earlier, the mobility of healthcare professionals within the EU countries has been seen as both a benefit and drawback. For example, in the UK although international graduates have helped to address the shortage of doctors the difference in training across the EU countries raised concerns when the number of EU-trained doctors increased. In 2015 the GMC initiated a project

to establish by 2022 a medical licensing assessment (MLA), a form of NLE, for home, Europe, and international doctors intending to practice within the UK (Gulland, 2015; Archer et al., 2016a; Archer et al., 2016b). The MLA will replace the current Professional and Linguistic Assessment Board (PLAB) examination which is aimed at international graduates. The PLAB examination tests the understanding and context of English in clinial practice. While the pilot project for the MLA in the UK is still ongoing, the questions about diversity and whether the NLE would sit well within medical schools' current assessment remains (Archer et al., 2016a; Archer et al., 2016b; Stephenson, 2016). This problem of "how" in designing and determining the delivery of NLE is commonly found in countries introducing the NLE; considering this in detail highlights the potential benefits and drawbacks of its consequences.

National examinations in Middle East and Asia

Many experts recognised that NLEs could be an option where there is a high diversity in curriculum implementation. Van der Vleuten (2013) suggested that the diversity of training programs and continuing education in a country or region strengthens the need for NLE. In most Asian countries, medical schools are still developing their 'best way' to work with the curriculum. Schools work with educational experts to innovate, developing their programme and educational strategies. They evaluated and changed their curriculum periodically, along with the assessment system, to suit national or international needs (Telmesani et al., 2011; Lin et al., 2013).

In the Middle East, Saudi Arabia was the one of the countries to attempt to establish a competence-based curriculum and NLEs to ensure the quality of their graduates. This decision was driven by changes to medical education in Saudi Arabia. These included: 1) The increasing number of medical schools, and the different curricula and assessment systems they adopted; 2) Increasing numbers of graduates from other countries who wanted to practice in Saudi Arabia; and 3) The increasing number of Saudi natives who pursued their medical study abroad (Bajammal et al., 2008).

For similar reasons, in Asia, South Korea was one of the first countries to pilot their NLE and its OSCE in 2008, followed by Taiwan and Indonesia. South Korea started clinical skills assessment in 2008, having a clinical performance examination with standardized patients and an OSCE using manikins. The South Korean national OSCE aimed to improve clinical education. Since 2010, it has been carried out as a 12-station OSCE and administered over the course of three months in clinical skill test centres. The OSCE consists of 6-stations based on a

patient encounter with standardised patient (SP) raters and 6-stations based on procedural skills with medical faculty raters (Park, 2008). It faced several challenges related to test fairness and validity of the exam, since it used SP raters and was administered over a long period, which enabled information sharing/ disclosure of exam information. In Taiwan, NLE started as a written examination. Later in 2008, Taiwanese authorities announced the national OSCE as a prerequisite for taking the written licencing examination. Large-scale pilot OSCEs were held in 2011 and 2013 before the high-stake OSCE was implemented (Lin et al., 2013). Other countries, such as Japan, continue to require only written assessment for the NLE for final year medical students (Kozu, 2006; Suzuki et al., 2008).

In South East Asia, only four out of ten countries have implemented NLEs and each have different purposes/ targets. Thailand, Phillipines, Indonesia, and Malaysia, have knowledge assessment using the MCQ or modified essay questions (MEQ) formats. Malaysia assesses international graduates only, while the other three assess home and international graduates. Aside from the Phillipines, the other three countries assess clinical skills using OSCE formats. Vietnam and Lao are in the process of developing NLEs, while Brunei, Singapore, Cambodia, and Myanmar do not have one. The discussion of NLEs in South East Asia also brings challenges to the ASEAN[1] Economic Community (AEC) which promotes for the free movement of medical professions to practice medicine in another country in this region (Kittrakulrat et al., 2014).

National examination in Indonesia

The development of the NLE in Indonesia was rooted in the increasing need for high quality health care professionals at the beginning of 21st century. According to the report from the Ministry of Health in 2007, whilst communities had better access to health care, there were only slight improvements in health care outcomes. According to a World Health Organisation (WHO) report in 2010, Indonesia had a physician density of 0.15 per 1,000 population, which was less than the expected standard ratio. Moreover, there was uneven distribution of healthcare professionals in urban and rural areas. In 2006, only 17% of physicians worked in underserved areas, while 83% worked in highly populated areas (WHOSEARO, 2011). WHO and the Indonesian Government aimed to develop and empower human resources for health by emphasizing four strategies: 1) strengthening planning, 2) increasing supply/ production, 3)

[1] Association of South East Asian Nations (ASEAN) comprises of: Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam.

improving management (distribution and utilization), and 4) strengthening supervision and control of quality (WHOSEARO, 2011).

Within this framework, the Government continued to implement policies in health care and health professions education designed to achieve these aims. Changes had begun a few years before, when the government established health profession education bills: The National Education System Bill in 2003 and Medical Practice Bill in 2004. The Bills urged the establishment of the Indonesian Medical Council in 2006. The Bills also acted as a catalyst for the Ministry of Education to improve the undergraduate medical education curriculum. Competence-based curricula were implemented and the Standard of Competence for Indonesian Medical Doctors (*Standar Kompetensi Dokter Indonesia – SKDI)* created as a reference for curricula.

The competence-based curriculum implementation was conducted under the supervision of the Ministry of Education's Health Professionals Education Quality project sponsored by the World Bank. Prior to the establishment of the NLE, a series of benchmarking tests among medical schools in Indonesia took place. A benchmarking test between a public university in Java (the main island) and in Sumatera (a more remote area) shows that there were gaps among medical schools' quality in Indonesia (Agustian and Panigoro, 2005). A continuous visit to each school by the committee revealed the need to improve the 'capacity and capability' of medical schools to ensure the quality of medical education in the institution. The term 'capacity and capability' was not only limited to resources but also included the learning process inside the institution.

According to WHO, in 2008, 4325 doctors graduated from medical schools in Indonesia (WHOSEARO, 2011). In 2013, this number almost doubled, with 7047 graduates. Since 2008 more than 20 new medical schools were established, which significantly increased the number of medical students in Indonesia. Some new schools even accepted more students than the established schools; for example a new and C-accredited school accepted 400 new students per year (HPEQ, 2013). This was possible because, before 2013, there was no regulation of student quota for medical schools. It was only based on each university's (private or public) internal policy. Nowadays, medical schools in Indonesia produce roughly around 7,000-8,000 graduates per year. This number could increase in the future significantly to meet health care needs in Indonesia. Such a significant increase in the number of medical doctors creates a challenge in assuring the quality of their medical education.

The MoHER then decided to lever the quality of Indonesian medical graduates to meet certain standards, based on competences in SKDI, by

establishing a NLE. This examination was also intended to drive improvement or capacity building within medical schools. Managed by a committee coordinated by the MoHER and the Indonesian Medical Council, a NLE was established in 2007. The examination started with an assessment of knowledge using MCQ. Until the discussion of clinical skills competence came up, it was considered sufficient to assess graduate competence in the clinical area by assessing their knowledge. In 2011, the Joint Committee of Indonesia National Competency Examination (*Komite Bersama Uji Kompetensi Dokter Indonesia* – KBUKDI), who act as an executive for the licensure, decided to develop an OSCE to assess clinical skills which could not be assessed using MCQ (Joint Committee on Medical Doctor Licensing Examination, 2013a). The process of preparing OSCE implementation was divided into: 1) Designing the blueprint; 2) Developing an item bank and guidelines; 3) Organizing exam attributes (tools, printed rubrics, computer-based scoring); 4) Piloting four times a year within 2011-2012; 5) Evaluation of pilots; 6) Implementation in 2013, initially as a formative assessment in two examination periods and summative in the next ones.

The OSCE comprised of twelve 15-minute stations. The twelve stations represented 12 body systems, referring to the 2012 SKDI as the blueprint. The stations used simulated clinical scenarios in rooms set as outpatient clinics, emergency room, and operation/ surgical room. There were standardised patient encounter cases as well as simulation using manikins. Examinees were guided by buzzer sounds for the rotation. Examiners assessed students with rubrics; provided with guidelines for clinical information regarding the case in the particular station.

Six pilots were conducted from August 2011, involving one medical school at the beginning to 44 medical schools at the end of 2012. Unlike in the US where the Step 2 (the clinical skills assessment) is conducted in test centres; in Indonesia, each medical school must be a test centre if they had medical graduates in that current period of examination. This means that medical schools must have the examiners, staff, facilities, and resources needed for the examination. The resources needed to deliver the examination should be sufficient to suit the number of graduates.

The implementation of the OSCE as part of the NLE was described in the 2013 decree by Higher Education General Director of the MoHER. It stated that the NLE consists of computer-based MCQ and an OSCE; and the NLE serves as an exit exam at the end of undergraduate education. In the first two periods of the OSCE as the NLE (February and May 2013), the assessment was for formative purposes. Starting in August 2013, the OSCE served summative purposes, alongside the written examination. Medical students must pass both

examinations before they can graduate from medical school. Students who pass the examination gain a certificate of competence from the Indonesian Medical Council and graduate from medical schools. This certificate is required for a licence of practice from the MoH. Students who fail the examination must retake the examination and medical schools must provide remediation programmes for them. Starting in January 2014, the Higher Education General Director under the MoHER established a decree that regulates the passing rate of medical schools in NLE and their accreditation to determine the maximum quota for new students in the next academic year. This decree was meant to balance the ratio of teachers and students in preclinical and clinical phases of education. This decree was precipitated by the behaviour of some medical schools. For example, a C-accredited school accepted 400 students per year when they had less than 100 teachers (HPEQ, 2013).

This caused worries among medical schools that had lower passing rates and low levels of accreditation. The A-accredited medical schools could have a maximum of 250 students if they had a 90%+ passing rate in the NLE. Meanwhile, the C-accredited schools could only accept 100 students if they had a 90%+ passing rate in the NLE, and 50 students if they had less than 50%. There are sanctions from the MoHER for medical schools (or universities) that violate this rule. For private schools, whose main income is student's tuition fees, this might raise significant problems.

In Indonesia, the introduction of the NLE and the implementation of the OSCE as part of it, are likely to generate a significant impact on medical education, as has been the case for other countries that have implemented the NLE.

3.4 The consequences of the NLE: current debate

The validity of assessment, as proposed by Kane (2014), includes the consequences domain: there should be evidence that supports the interpretation of test scores; meaning there must be evidence of the *consequences* of the assessment. The degree of any assessment's validity depends on how strong is the evidence, including the evidence of its impact as an intervention (Kane, 2014). The licensing examination works as a protection to the public by ensuring that only candidates who have the necessary knowledge, skills, and judgement for practice, pass the test. It could be assumed that the test score correlates with future performance, so that students with low test scores could pose a threat to public. However, it does not necessarily mean that those who have higher test

scores will be good practitioners. The validity of the NLE does not solely rely on test scores, but also its consequences for stakeholders.

As described by Archer, et al. (2016), who used Downing's framework to conduct a systematic review, the consequences of NLEs may fall on participants, medical schools, regulators, policy makers, or wider society; and they can be intended or unintended, beneficial or harmful (Archer et al., 2016a). It is important to note that the impact of NLEs will not be limited to the healthcare system, but also to the medical education system. There have been some studies of the consequence of NLEs but knowledge in this area is limited. The systematic review conducted by Archer et al. for the GMC (2016) looked into three areas of consequences: prior and future performance by examinees, relationship to patient outcomes and complaints, and variation in performance between home and international graduates.

Most of the studies found that students who excelled in schools' assessment would do well in NLEs (Hecker and Violato, 2008) and the NLE results predicted better performance in postgraduate assessment (Thundiyil et al., 2010; Miller et al., 2014; Yousem et al., 2016). However, as Archer et al. pointed out, the different approach to medical education in the medical schools might affect the results (Archer et al., 2016a). His review also revealed that there is the lack of evidence for the improvement of patient outcome as an NLE consequence. There is no clear evidence that the intervention of NLEs could lead to better patient care. The studies showed there was a correlation between performance in the NLE and rate of complaints made by patients (Tamblyn et al., 2007). This did not explain the causation; it only showed that there is a predictive value of the NLE on patient care. However, it was acknowledged in Archer's review that these studies provided a strong argument in favour of NLEs (Archer et al., 2016a).

The impact of the NLE, which contributes to its validity, is not limited to the area of patient care and clinical performance of a doctor. NLEs' consequences on education are also important, however, the evidence in this area is very limited. Most of the studies described changes in clinical skills curricula and assessment as a result of the NLEs' component of clinical skills assessment. In the US, the Step 2 CSA of USMLE drove changes in clinical skills education. The impact on medical curricula, especially in-house clinical skills assessments, showed that many schools changed how they viewed the importance of clinical skills in medical education (Hauer et al., 2005; Hauer et al., 2006). Most schools conduct comprehensive clinical skills assessment with an emphasis on communication skills (Hauer et al., 2005). Archer et al. (2016) highlighted that in the established system, like the USA and Canada, the emerging importance of

clinical skills was used to focus medical schools' clinical skills teaching to address the need for specific skills which were less frequently taught nationwide.

In Asian countries, where changes in medical education are more recent and the OSCE is relatively new, its introduction as part of the NLE can be a daunting challenge. For Taiwan, as explained by Lin et al. (2013), the high stakes clinical examination drove the increasing use of clinical skills assessments and the improvement of clinical skills teaching facilities in hospitals. They investigated teaching hospitals with active OSCE programs using questionnaires to gain information about OSCE implementation and its components. They found that the number of rooms for training and examination, simulated patients (SP), and case development for clinical skills assessment all increased. However, they also identified limitations: hospital spaces used for teaching or assessment, staff, and SPs, raising the concern of whether there were sufficient resources to establish the examination. Despite these issues, the study indicated strong support from medical training institutes toward a NLE (Lin et al., 2013). Similarly, studies in South Korea also indicated that the introduction of OSCE drove improvement in clinical skills teaching curricula, assessment, and facilities (Kim, 2010; Park, 2012; Ahn, 2014).

These contrasting opinions, summarised as positive and negative consequences of the NLE from the literature are summarised in the table below:

Table 2. Consequences of the NLE

	Positive	Negative
Patient care	There was an association between performance in the NLE with preventive care and acute and chronic disease management in primary care practice (Tamblyn et al., 2002) Performance in the NLE could predict complaints to medical regulatory authorities and (Tamblyn et al., 2007) Performance on Step 2 USMLE Clinical Skills Assessment had a statistically significant inverse relationship with mortality. This supports the use of the examination as an effective screening strategy for licensure (Norcini et al., 2014)	No evidence that the NLE would lead to improvement of patient care (Harden, 2009) No evidence that the absence of the NLE would lead to substandard care (Noble, 2008)
Curricula	Improvement of clinical skills curriculum and teaching (Gilliland et al., 2008; Hauer et al., 2005; Hauer et al., 2006; Lin et al., 2013; Park, 2012)	The NLE encourages uniformity and would likely to ignore local values (Harden, 2009)

Assessment practice	Improvement of clinical skills assessment (Hauer et al., 2005; Hauer et al., 2006; Lin et al., 2013)	The NLE is a centralised, single-shot assessment. It is a step back in assessment which was moving toward programmatic assessment (Schuwirth, 2007; Schuwirth, 2016; van der Vleuten, 2009). The NLE as a centralised assessment could hinder innovation in assessment practice (Harden, 2009).

Further studies have been conducted in the last decade, most of which draw their data from developed countries, where both medical education and the health care system differs from those in developing countries such as Indonesia. As Archer, et al. (2016) stated in his review for the GMC, the upcoming MLA in the UK could be compared with NLEs in other countries sharing similar characteristics with the UK: highly developed countries with a high human development index, similar systems of medical education and health care. This confirms gaps in the discourse surrounding the NLE to do with its implementation and impact in developing countries.

In Indonesia, the introduction of SKDI as the "standard" and the NLE drove curriculum changes from 2007 leading to the competence-based curriculum. There is limited research on these innovations and most of the literature has not covered the unique characteristics of Indonesian culture and stakeholders. The studies carried out by the national committee focussed on the validity and reliability component of the examination.

Little is known about the consequences of the NLE on medical education in Indonesia and the stakeholders in the health care system. A small scale study proposed that the NLE affected the quality of student learning and students' metacognitive regulation (Firmansyah et al., 2015). However, as teachers have to interpret the expected outcome of education into learning objectives and deliver it to students the NLE has the potential to modify their teaching and assessment. Similarly, this would affect how students relate to the examination and lead medical schools to identify changes needed in their policy and educational practice. However, very little is known about the details of this impact on those who experienced the NLE. It is, therefore, important to understand how the NLE affected students' learning, teachers' development, and medical schools' policy in the very diverse system of medical schools in Indonesia.

Consequently, this study focussed on understanding the impact of the NLE in Indonesia, recognising how the culture and the stakeholders and their characteristics might affect the consequences of implementing the NLE.

3.5 Research questions and objectives

This study set out to explore the impact of national examination implementation on:

1. Institutions/ medical schools
2. Faculties/ teachers
3. Learners/ students

To answer these research questions, the following objectives were developed.

1. Understand how individual medical school's policies changed after the implementation of national examination.
2. Understand how teachers perceive and act with respect to the national examination.
3. Understand how students view and prepare for the national examination.
4. Understand how students perceive the policy of national examination and its results.
5. Understand the challenges of national examination in developing countries.
6. Understand how different characteristics of medical schools, especially types of funding and accreditation level, could affect the changes within the medical school in relation to national examination implementation.

Chapter 4 Methodology and methods

4.1 Research Design

The NLE's impact in Indonesia is a phenomenon that needs to be known and understood: recognising the consequences and how they affect the medical education system. In order to seek understanding and in-depth knowledge of this phenomenon, I decided to view the NLE as a phenomenon experienced by the stakeholders. The experiences of those who are involved in the NLE become the foundation of this study. Corbin and Strauss emphasise that the experiences of whoever engages in a problem will shape the knowledge and the 'truth' about that problem. They also proposed that knowledge is *fluid*; it keeps changing in a complex process through actions and interactions (Corbin and Strauss, 2015). The experience is subjective and shaped through time, reflecting an ongoing process. Therefore, I determined to view it using a constructivist-interpretive paradigm, where the phenomenon has 'no absolute truth' (Bunniss and Kelly, 2010). This means that knowledge about the impact of NLEs is relative and changing. Since the knowledge is constructed from the subjective experience of participants, it is open to multiple interpretations (Guba and Lincoln, 2005; Bunniss and Kelly, 2010; Cohen et al., 2017). By using this constructivist-interpretive paradigm, I sought to make meanings of the phenomenon by interpreting the data generated by participants' subjective experience with reference to both my own subjective experience and my conceptual framework.

This epistemological stance was influenced by my background and experience as a member of the national committee. Being part of the system, I recognised that the impact of the NLE was a result of a complex and ongoing process, which involved multiple stakeholders. I observed different characteristics of several schools and how these schools varied in adapting to the NLE; which sparked my interest in a rigorous study of this phenomenon. Thus, I understood that it is important to have a comprehensive view from different angles. My subjectivity would later help me to anticipate important issues in designing the interview and focus groups questions. However, as the experience of the NLE is relative and subjective for everyone involved in this system, I

expected new perspectives to emerge from this study. What I saw as consequences following implementation of the NLE might be valued or simply experienced differently by different stakeholders.

To construct an understanding of the NLE's impact, I decided to take a qualitative approach using modified grounded theory (Corbin and Strauss, 2015). This would allow me to explore participants' views and experience in seeking explanations of the phenomenon (Cohen et al., 2017). Insight into the impact would be constructed from participants' views and experiences; therefore, this process better suits the approach of grounded theory. This study also aimed to understand the consequences of the NLE for stakeholders in the Indonesian medical education system; therefore the grounded theory approach, which enables a comprehensive explanation from different angles, would be a fitting approach (Corbin and Strauss, 2015). As this approach is also used to seek meanings behind actions and interactions, it has the potential to better understand the consequences and how they happened. Grounded theory is proven to be culturally sensitive (Corbin and Strauss, 2015), which is essential since the early stages of this study indicated the significance of the Indonesia context in understanding the consequences of implementing the NLEs. Consequently, identifying and analysing the influence of Indonesian culture and context played an important part in this study and will be addressed in detail in the discussion chapter.

4.2 Methods

The key feature of the grounded theory approach is the ongoing cycle of data collection and data analysis: the "theoretical sensitivity" (Corbin and Strauss, 2015, p.89). This principle was reflected in how this study was designed and conducted, which is explained further in this chapter. To enable this ongoing cycle, it was necessary to ensure that the methods could generate the required data within the available time frame.

The data needed as ground from which to construct theories must be able to provide a deep and rich understanding of the phenomenon. This study aimed for a comprehensive account of the impact of the NLE in Indonesia, therefore it needed to explore the views of three groups of stakeholders: medical schools,

teachers, and students. The three stakeholders were the focus of this study, because of their direct involvement in the undergraduate medical education and the NLE in Indonesia. Other stakeholders who had roles in the medical education system but were not directly involved with the NLE, were not explored in this study. It was also more difficult to include these stakeholders in terms of the method feasibility. Examples of these stakeholders are: patients/ the public, regulatory bodies (i.e. medical council and the MoHER), and the hospitals/ health care centres. Therefore, to maintain a focus on understanding the consequences of the NLE in medical education in Indonesia, only students/ learners, teachers/ faculties, and medical schools' representatives were considered.

The most appropriate method in exploring people's perspectives is through a social interaction and conversational process, which also offers a contextual understanding on the particular phenomenon (Brinkmann and Kvale, 2015). In addition, because the NLE could be a sensitive issue for these stakeholders, this study had to consider this factor in determining data collection method. Therefore, I decided to use a combination of interviews and focus groups as these two methods, which are most suitable to gather data based on subjects' experience and perspectives, can provide privacy and peer support as required. Descriptions of each method and the justification for selecting the methods are outlined below.

Interviews

This study aimed to understand the consequences of the NLE from the perspective of medical schools as an institution, therefore, I needed to gather the data from the point of view of a leader/ higher manager. Interview is the most widely used method for data collection with the purpose of exploration of an issue in depth, to understand how and why the subject form their perspectives and developing connections between values, attitude, and behaviour. This is considered as a strength of an interview compared to survey (Cohen et al., 2017). In this study, the interview fit with the need of understanding the experience, views and policy changes regarding the NLE as a phenomenon from the point of view of an institution.

The interview format was in-depth and semi-structured, which was designed to gather the expected data. The reason for selecting in-depth

interviews was that personal views on medical schools' policy and experience of the NLE could pose sensitive issues such as a school's or person's reputation or the medical school's internal affairs. In educational research with sensitive issues, an individual interview enables interviewees to be more open (Cohen et al., 2017). The semi-structured style helped to shape the exploration, with important themes that had to be covered while exploring and responding to each interviewee's answers (Denzin and Lincoln, 2000). I anticipated that this technique would help uncover the medical schools' experience in facing the national examination. This experience could be related to the 'why and how' in the changes of policy, management, educational process, and future plans.

In the semi-structured interviews, some topics were selected before the beginning of the research. This style of interview offered some consistency over the topics covered in each interview (Corbin and Strauss, 2015). However, as this study aimed to explore subject's 'life-world' and their views of the phenomenon in it (Brinkmann and Kvale, 2015), there would be new topics emerging from the interviews. Since only one subject represented one medical school, the experience of all participants could generate richer and diverse data, which might represent characteristics of medical schools. The characteristics of medical schools and how the sampling was designed to capture this, will be explain in the later in this chapter.

The topics that I selected were based on the literature and my experience on the NLE in Indonesia, which addressed the gap in the literature. These topics were then developed into questions in the interview guide (see Appendix G). The guide contained questions related to the context of the NLE implementation in Indonesia; its challenges and how the interaction of stakeholders played a role in the process. The views of medical schools on the NLE, their experience in adapting to the policy and preparing their students for the exam, were some of the topics covered in the guide. It was expected that medical schools' representatives would share their schools' point of view of the NLE, their internal policy regarding the NLE (e.g. curricula changes, assessment programme, and facilities improvement), and how their schools interact with other stakeholders.

Focus groups

This study aimed to understand the consequences of the NLE on teachers and students as groups of stakeholders in the system, therefore a focus group approach was the most suitable method to gather the data. Focus groups are known to be useful in exploring knowledge and experiences, while also giving an opportunity to explore the 'what' and 'why' of the issue from participants' viewpoint (Kitzinger, 1995). Therefore, focus groups has been known as one of the best methods to obtain an understanding of a phenomenon and developing theories, which supports the constructivist-interpretive paradigm used in this study (Cohen et al., 2017). It would allow participants to exchange opinions within the group and share their perceptions through interaction among participants. This characteristic could not be offered by individual interviews (Stewart and Shamdasani, 2015).

The reason for selecting focus groups in this study was to gather different point of views from students and teachers in the institution to construct knowledge about the impact of the NLE. The focus groups for students and teachers were conducted separately, to allow each group to share information with their peers. I believe that the teachers and students would feel more comfortable sharing their views in a group rather than in an individual interview where they may be concerned about any consequences. In a focus group it is the views of the group rather than individuals that are captured.

It was important to understand the beliefs and perceptions shared in group of participants in exploring this issue. By interacting directly with students and teachers who had experienced the NLE there were opportunities to gain large and rich amount of data in their own words: their attitudes, values, perceptions, viewpoints, and opinions about the NLE as a phenomenon. This method also enabled participants to react to and build on the responses from other participants in the focus groups (Stewart and Shamdasani, 2015).

Although focus groups were identified as offering positives to the study, there were also potential, challenges as the culture and context might affect the process. In this study, I was aware of potential hierarchies in the groups. For example, in the group of teachers, there might be younger lecturers who did not want to share their opinions when there were senior lecturers present. The

sampling would play a big role in determining homogeneity in the group and a skilled moderator could minimise this issue (Stewart and Shamdasani, 2015).

The focus groups were organized according to the guidelines described by Stalmeijer (Stalmeijer et al., 2014). The guidelines (see Appendix H and I) consisted of topics selected from issues derived from the literature review. The topics were developed what were already known regarding the consequences of the NLE and the gap found in the literature. The views of students and teachers on the NLE, their experience in taking the NLE, and how the NLE affected the teaching and learning, were some of the topics covered in the guide. By using this method, I expected the participants to share their experience in the NLE (as examinees or examiners), the changes in teaching and learning process, their views on the changes which had occurred in their medical schools, and how they adapted to those changes. For students, I expected the participants could share their experience in preparing for the NLE and their responses for the NLE's results. For teachers, I expected the participants could share their opinion regarding the policy changes related to teaching and learning in their medical schools. The dynamic of focus groups was expected to offer different views on these topics.

4.3 Time frame

This study was conducted in Indonesia, where the national examination has been running four times a year since 2007: in February, May, August, and November. The fieldwork was designed to fit this time frame. The computerised-based MCQ took place on the third weekend of the month, while the OSCE took place on the fourth weekend.

Since July 2014, the NLE for medical graduates in Indonesia has been organised by the National Committee for Competence Examination of Medical Graduates (PNUKMPPD) under the MoHER. Previously, in 2006-2012, the examination and its management were under an independent committee, formed by AIPKI (Association for Indonesian Medical Schools) and IDI (Indonesian Medical Doctor Association). In 2013-2014, the examination was organised solely by AIPKI.

The national examination results were given approximately three weeks after the end of OSCE in each period. Results were announced online through the committee's website. Individual examination results and reports for the institutions were given in the medical schools' deans meeting, held by the MoHER.

Data collection for the study was conducted from December 2015 to March 2016. The timing for data collection was designed to follow the course of the NLE. It was planned to reach subjects at the right time, which was after the examinations took place in November 2015 and February 2016. The scope of this study, which covered all regions of Indonesia, required careful timing to complete the data collection.

4.4 Subjects

This study explored the perspectives of different stakeholders on the impact of the NLE in their medical schools. To incorporate the context of Indonesian medical education, this study used purposive sampling by considering key characteristic of schools: ownership/ management (public/ private schools), accreditation status (A/B/C) and regions (1-6). This section will describe how the sampling for institution (medical schools), teachers, and students was conducted.

Sampling

At the time this study was conducted, there were 74 medical schools in Indonesia, which became the "study population". Purposive sampling selected 18 medical schools for the interview with medical schools' representatives; then 6 of those schools for focus groups with teachers and students. The sampling was conducted considering several factors outlined below.

1. Management: public (state) and private

   From 74 medical schools in 2015, 31 were public (state-owned) and 43 were private. As described in Chapter 2, in Indonesia, the difference between public and private medical schools related to management, policy, and financing.

   Public schools receive incentives from the government even though they have autonomy in managing their finance/ budgeting. The public schools

charge lower tuition and entrance fees compared to private schools. Most private schools have founding organisations/ endowment bodies that support their management and finance. In some schools, deans/ chancellors are appointed by the endowment bodies. Most of the income of private schools comes from students' tuition and entrance fees.

Most of the professors, lecturers, teachers, and staff in public schools are public servants employed by government. Although some teachers may be shared between private and public schools in a city/ region, these schools have different policy regarding faculty development and curriculum implementation.

This funding status also influences how the school is managed and how they facilitate students' learning. Most of the private schools have more than sufficient funding to provide facilities such as teaching rooms, labs, manikins, multimedia, and other resources. On the other hand, public schools have to manage their funding (i.e. including the deployment of their facilities) based on the allocated budget from the government/ local government.

The admission process between public and private schools are different (see Chapter 2). Private schools have more freedom to determine admission criteria in selecting their prospective students. Public schools have to comply with government regulations for higher education admission, e.g. keeping a proportional percentage of students from the national higher education admission examination and special allocation for students from scholarship programmes.

Considering this factor in sampling criteria would help to understand how medical schools' management influenced the teaching and learning experience for both teachers and learners. I anticipated that there might be managerial issues discussed by teachers as well as their teaching experiences, so this would add more insight to how the NLE affected their schools. The different management of public and private schools could affect their dynamic with other stakeholders such as the founding organisations/ endowment bodies, local government, and local hospitals.

2. Year established: established and new

   The oldest medical school was established in 1949. At the time this study was conducted, the newest medical school had opened in 2014 (more schools opened in 2016-2017). Established medical schools may have different organisational cultures and management to newer schools. The established schools may also have stronger management, less conflict, and be supported by well-developed human resources. Years of experience helps some older schools (mostly public) to establish their own reputation, through academic achievement, graduates' networking, and recognised quality as reflected in their accreditation status. Newer medical schools, especially those established in the last ten years, are still struggling to find their position at regional or national level. Most of the new schools are in the process of developing their resources. Thus, these factors will play role in the determination of policy making and implementation of national examinations.

3. Accreditation status: A, B, and C

   As explained in Chapter 2, in Indonesia, the accreditation of undergraduate medicine programme was, until 2016, conducted by the National Accreditation Agency for Higher Education (BAN-PT). The assessment was part of the higher education quality assurance system which in 2016 was replaced by the LAMPTKES accreditation, which was exclusive for the health care professions education programmes. Results of this process give accreditation status to medicine programmes. The highest accreditation status/ level given to a medical school is A, followed by B and C. In 2015, from 74 medical schools, 69 schools held accreditation status from BAN-PT (the others were new schools). There were 16 schools with A status, 29 with B status, and 24 with C status (BAN-PT, 2015).

   Accreditation status reflects the quality of a medical school, although the accreditation system was not specific for health care profession education. Some of the factors assessed in accreditation by BAN-PT in 2015 were the ratio of teachers-students, learning facilities, curriculum and assessment system. Teachers and students' experience might reflect how

different accreditation status influence teaching and learning in medical schools.

4. Location: Java, Sumatera, Kalimantan, Bali and Nusa islands, Sulawesi and East part of Indonesia (Maluku and Papua).

   The decision to consider this characteristic was based on the challenges that the location posed for medical schools. Indonesia is an archipelago country; consisting of main islands and islets. Indonesia's population is not evenly distributed, and this is also reflected in how the medical schools are distributed.

   As described in Chapter 2, there are six regions dividing medical schools in Indonesia:

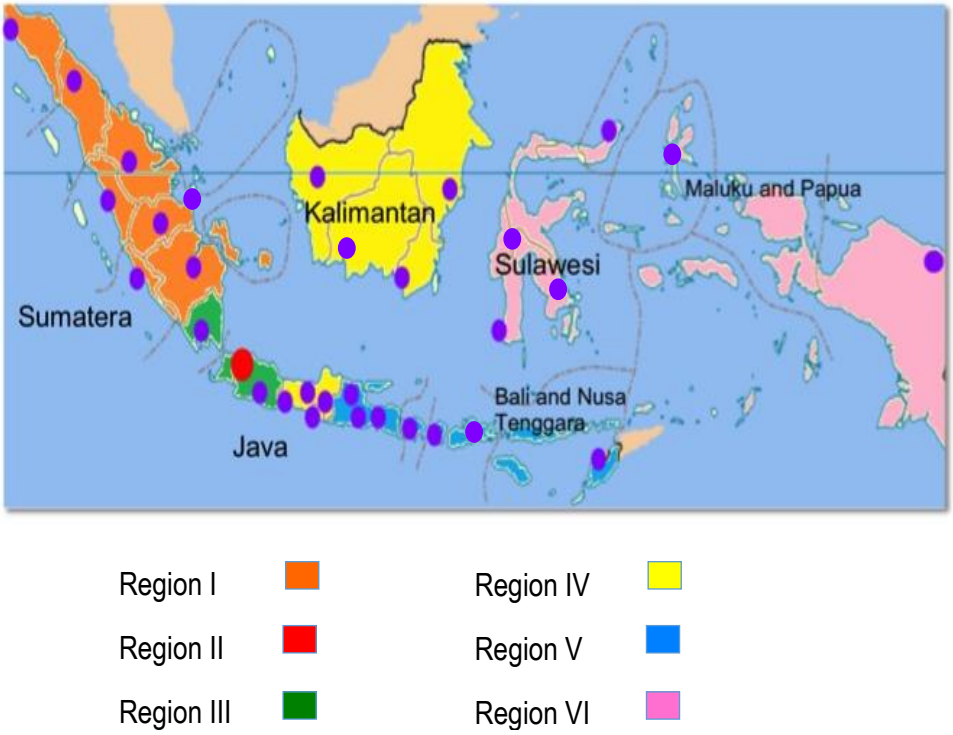
   a. Region I: northern part of Sumatera
   b. Region II: Jakarta
   c. Region III: West Java and southern part of Sumatera
   d. Region IV: Central Java and Kalimantan
   e. Region V: Bali and Nusa islands
   f. Region VI: Sulawesi, Maluku, and Papua

   The purposive sampling was conducted to represent each region in Indonesia, rather than proportionally sampling according to the number of students or schools in Indonesia. This was based on the argument that each region may have its own challenges in running undergraduate medicine programme and implementing the national examination. Geographical location, which affects economical activities and transportation, may become a challenge related to the medical school's region. The geographical challenge was one of the themes explored during interview (see interview guidelines). This factor may contribute to challenges in teaching and learning, for example epidemiological diversity, lack of facilities, and differences in input of medical schools.

Figure 5. Medical Schools in Indonesia

Purple dots represent cities where medical schools are located.

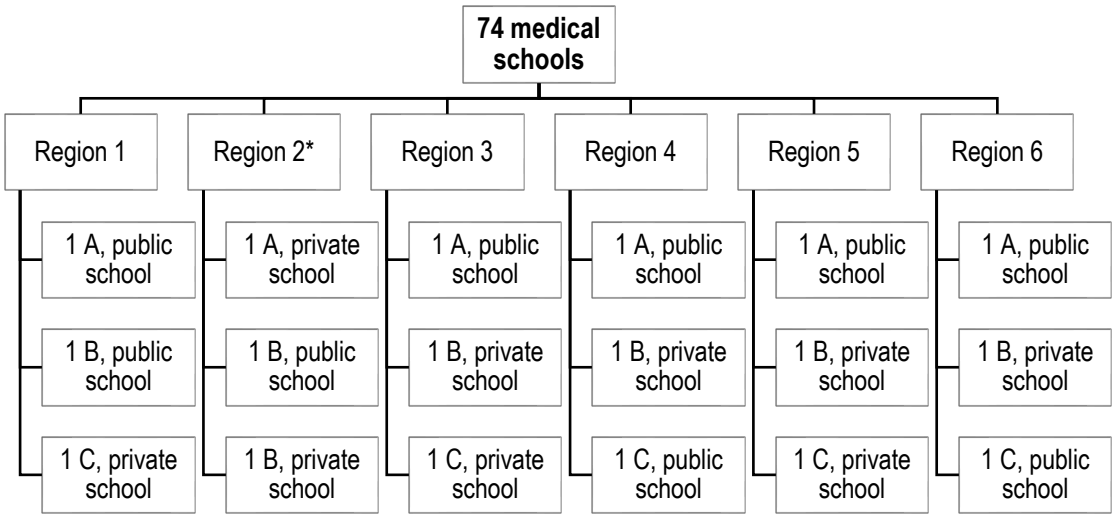
Red dot is the capital city of Jakarta



A further inclusion criterion was medical schools conducting national examination in their institution as a test centre in November 2015, which gave 60 from the total 74 medical schools.

Based on the criteria above, for the interviews, I sampled 18 of 60 medical schools as pictured in Figure 6. Each region was represented by 3 schools with different accreditation level and ownership. In total, 9 public schools and 9 private schools participated in this study.

Figure 6. Sampling for interviews



*Region 2 did not have C-accredited schools

An exclusion was added for the focus groups sampling to ensure that there would be a sufficient number of participants. Schools with less than 10 examinees in November 2015 examination were not included to avoid insufficient number of focus groups' participants.

5. Number of examinees in two periods of examination (November 2015)
   Selected schools were those with more than 10 students taking the NLE to be invited as participants in this study. Schools with fewer graduates, for example, a school with only six students graduating in that period, was not selected. This exclusion was made to avoid the low number of participants and obtaining representation from participants.

Participants

Medical schools' representatives

The interviewees were the undergraduate medicine programme director or their vice dean of academic affairs. Since the structure of organization varied between medical schools (e.g. a school might have a Vice Dean of academic affair to directly supervise the undergraduate programme while another school might

assign an undergraduate programme director under the Vice Dean supervision), it was important to reach for those who were involved in undergraduate medical education. The positions of Vice Dean of academic affairs and programme director are considered to be those who have responsibility and authority in the policy making and the management of undergraduate medicine program in their institution. It was expected that the medical schools' representatives would be able to share their institutions' experience and policy changes regarding the NLE.

Teachers

Teachers from selected medical schools were asked to participate in this study. Two groups of teachers were invited: preclinical and clinical teachers. The need for two groups reflects the common practice of teaching in Indonesian medical schools. Preclinical study takes place in university buildings, separated from clinical setting, and vice versa. The nature of teaching and learning in the preclinical and clinical phase are different. Teachers may use different approaches to facilitate student's learning. For example, lectures are mostly used in the preclinical phase while bedside teaching is the most common learning activities in the clinical phase. Since the national examination represents an end point of undergraduate medical education in Indonesia, it is important to understand the perception of teachers from the preclinical (year 1-3) and clinical phase (year 4-5) of study. Each group had 8-10 participants, with 54 participants in total for 6 groups of teachers. The sampling of teachers is outlined in Figure 7.

Students

Students from selected medical schools were asked to participate in this study. This study aimed to recruit students taking the examination in August or November 2015, regardless of the results. Allowing passed and failed students to be included in this study would give opportunities for richer exploration of students' perspective and experience. Students passing the examination would probably have different opinions than those who failed the examination. It was expected that some of these students were first attempts and re-sits, which allows deeper understanding of how students who succeed in their first try and students

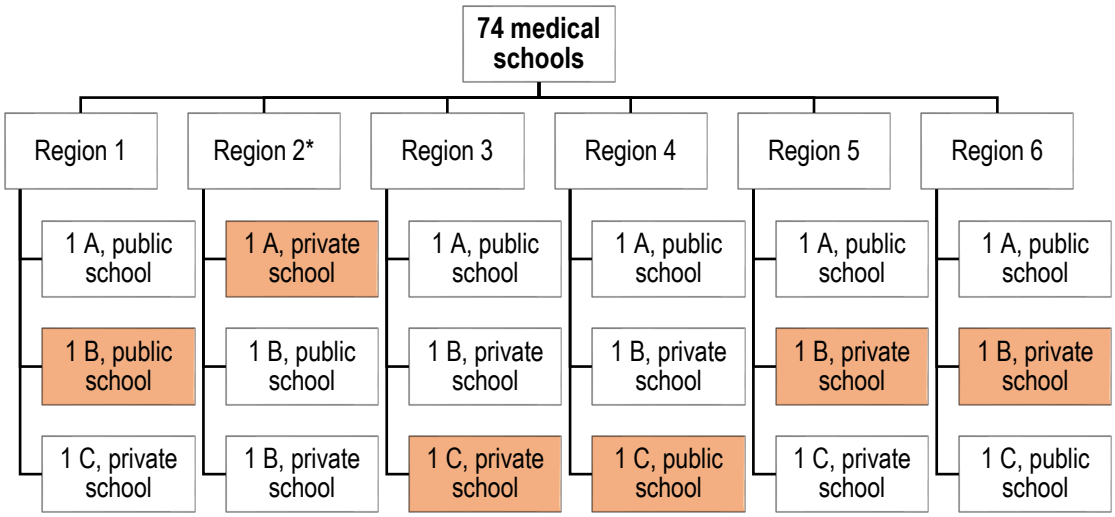
who experience failure perceive the examination. The resits who joined this study were students taking the examination (either CBT or OSCE) for the second time.

By selecting this option, focus groups had to be conducted after the examination results were announced. The best timeframe was just before graduation, when most students were in the city to prepare for the graduation.

Each group had 6-10 participants, with 48 participants in total for 6 groups of students. The sampling of students is outlined in Figure 7.

Figure 7. Sampling for focus groups (teachers and students)

The shaded boxes represent selected medical schools for focus groups (teachers and students).
*Region 2 did not have C-accredited schools



Since I am a teacher in a public medical school in region 4, my school was excluded from this study to avoid bias.

4.5 Ethical issues and ethical approvals

This study protocol was approved ethically by University of Leeds in the UK and Gadjah Mada University in Indonesia. Ethical approval was granted on 10th September 2015 (Ref: SoMREC/14/087) from School of Medicine Research Ethics Committee, University of Leeds and on 2nd September 2015 from Medicine and Health Research Ethics Committee, Faculty of Medicine, Gadjah Mada

University. Ethical approval from both institutions was required to conduct a study in Indonesia. The approval letters were enclosed in research permit application letter and participant's invitation letters.

Research permit application letters were addressed to the Dean of selected medical schools. This is an administrative requirement for any researcher who wishes conduct a study in medical schools in Indonesia. Enclosed with the letters were: a research proposal, ethical approvals, participant's invitation letters, and participant's information sheets. Several ethical issues were explained in the invitation letter and participant information sheets.

1. Informed consent

   Participants who agreed to take part in this study were informed about the purpose of the research, research procedures, rights of refusal and withdrawal, confidentiality assurances, and researcher's contact details. The consent form contained all this information, which was explained again before the interview or focus groups were conducted. Participants were advised to keep the copy of the consent form and information sheets. A copy of an informed consent form for interviews can be found in Appendix E.
2. Rights of refusal and withdrawal

   Participants had the right to refuse to take part in this study. Participants also had the right to withdraw at any time without giving any reason. As stated in the participant information sheets and the invitations, the refusal or withdrawal did not affect the position nor reputation of the institutions/ medical schools, teachers, and students. It also did not affect students' national examination results, as the focus groups were conducted after the national examination results were announced. This issue was addressed and emphasised before interviews and focus groups were conducted. No participants refused or withdrew from this study.
3. Confidentiality and anonymity

   Any information given by participants was treated in strict confidence and the raw data, including transcripts, was not made available to any other persons or purposes, even their own institutions. Participants' names and other details were removed so that they could not be recognized. Their data, including the audio recording transcripts and field notes, were

anonymised. In the presentation of findings, no individuals were identifiable and the views of individuals were grouped together under emerging themes. Participants' quotes are presented using the codes as follows:

- VD: Vice Deans
- PD: Programme Directors
- T: Teachers
- S: Students
- Number: Teacher or student identifier in a group
- Letter: School identifier (assigned based on the chronological order of interview/ focus groups).

For medical schools, the national examination was a sensitive issue because its result had an impact on their reputation. Participants, (Vice Deans or Programme Directors) were assured that their institution would not be identified in the transcripts or presentation of findings.

4. Privacy and data storage

   Transfer of files from Indonesia to the UK was conducted through the university's remote desktop. Audio files and transcripts were stored in a password-protected university PC on the secure university system. Field notes were stored in locked storage in a secured room in the university.

4.6 Recruitment of participants

The recruitment of participants started with the disseminating of information to medical schools who had taken the examination in November 2015. After permission was given, I was invited to have a 30 minutes session in a meeting of examination coordinators (held by the national committee). There were 54 medical schools attending the meeting. These attendees were given information about this study through a verbal presentation written documents (see Appendix E and F). They were informed that I would formally apply for permission and contact them, should their schools were selected as participants in this study. The attendees asked whether the findings would be reported back to the schools, which I flagged as a follow up for this study.

Formal letters requesting a research permit were sent to the deans of eighteen medical schools (as selected in the sampling) in November 2015. Enclosed with the letter were the research proposal, participant information sheets and interview/ focus group guides. Replies came in the following weeks via mail, e-mail, or fax, with Deans confirming their agreement to participate. The exam coordinators or the head of administration office who were assigned by the Deans became gatekeepers. Gatekeepers are those who control access to participants (Cohen et al., 2017). Gatekeepers could enable or block access to participants (schools, teachers, and students). The role of gatekeepers is significant in sensitive educational research like this study, which was related to schools' reputation and private information of teachers and students. As described by Cohen et al. (2017), the decision to use gatekeepers was also useful to anticipate problems such as finding sufficient number of participants for the sample, local political factors that might affect the schools, unwillingness and fear of teachers (e.g. if they raise criticisms about the schools), the sensitivity of the NLE as an issue, and the position of myself as a junior researcher from another university which could make it challenging to approach some participants (e.g. senior clinicians).

The exam coordinators, who were mostly senior lecturers from medical schools, arranged the contact for interviews/ focus groups and assigned admin staff to help with the invitations. Vice Deans and Programme Directors agreeing to be interviewed informed me of their available time and venue in their replies. Teachers and students who agreed to participate were informed of the time and venue after the admin staff confirmed it. How the participants were reached in this study was an important step in this study, since there was a need for purposive sampling in exploring this sensitive issue.

4.7 Data collection

Pilot study

A pilot study was conducted to test the interview and focus group guides. As suggested by my supervisors, the pilot study was carried out in my institution which was excluded in the sampling. By conducting a pilot, I also had an

opportunity to practice interviewing and facilitating the focus groups, with support from my supervisors and PGR tutor.

An interview for qualitative research must take note of how the interviewees describe their 'life world' and its meaning; with specific details of description such as nuance, tone, and ambiguity (Brinkmann and Kvale, 2015). It was necessary for me to understand the possibility of new topics emerging from the interview, as the interview was semi-structured. Therefore, aside from learning the principles of qualitative interviewing this pilot would also help me try out the guide and receive feedback as an interviewer.

An interview with an undergraduate medicine programme director, a focus group with students, and a focus group with teachers were conducted in November 2015. My institution is an A-accredited public medical schools, therefore I expected the pilot would provide a similar response to one of the targeted schools.

I made notes from the pilot study to anticipate similar issues that might be raised in the next interviews and focus groups. For example, the focus group pilot with students revealed that most of the students took private preparatory courses/ revision courses even though the cost was expensive. This issue was flagged and later used as a prompt in the focus groups. An example of notes from the pilot study can be found in Appendix N.

Interviews

The interviews were carried out from December 2015 to March 2016. There were 18 interviews with medical schools' representatives (Vice Deans or Programme Directors). Interviews were conducted one-on-one and face-to-face, except for two schools: school I and school R, whose Vice Dean and Programme Director had full agendas during those months. These two interviews were conducted via phone calls. On average, the interview lasted between 45 minutes and one hour. Refreshment was provided.

Most of the interviews took place at the interviewees' office/ meeting rooms. The arrangement of time and place was to suit their availability and convenience. It is important to arrange the interview in such way to enable interviewees to talk about their views and experience that might be sensitive since it is related to the

NLE and their reputation. Every interview started with introduction and explanation of the research procedures, before interviewees gave their consent.

The interviews were carried out in the Indonesian language, using the Indonesian version of the interview guide. Probing questions were used, as prepared in the guides or as noted/ flagged from previous interviews. Even though a guide was used, in this semi-structured interview, the way the questions asked was not structured. For example, in cases where interviewees responded to the question with lengthy answers which were related to other questions, I responded with the relevant questions. When there were unclear or ambiguous answers, additional questions were asked to clarify or probe further on the topic. At the end of an interview, I asked the interviewee whether there was another topic that they wanted to add.

The interviews were audio-recorded and notes were taken during the interview. Important quotes, issues/ themes, and non-verbal expression were written in the notes. The audio files were transcribed verbatim into transcripts in Indonesian language. Transcripts contained pauses and important non-verbal expression taken from notes.

Focus groups

Focus groups with teachers and students were conducted in January-March 2016. There were six focus groups with students and six focus groups with teachers. In one medical school, both focus groups were conducted on the same day (at a different time and place). The focus groups took place in meeting rooms at the medical schools. Refreshment was provided. Each focus group started with an introduction and explanation of the research procedures before participants gave their consent. Teachers found it comfortable that they were able to do the focus groups at their schools. However, for students, I needed to ensure that even though this research took place in their schools, it could not be perceived to affect their NLE or any assessment results. Consequently, the focus groups were held once students had received their NLE results.

Focus groups were carried out in the Indonesian language, using the Indonesian version of the focus groups guide. Probing questions were used, as prepared in the guides or as noted/ flagged from the pilot and previous focus groups. The

discussions were audio-recorded. Important quotes, issues/ themes, and non-verbal expression were written in the notes taken by a research assistant. The research assistant sat outside the forum and observed the interaction between moderator and participants. As an observer, she did not interact with participants nor interrupt the discussion.

The audio files were transcribed into written transcripts in the Indonesian language. Transcripts contained pauses and important non-verbal expression taken from notes. An example of an interview transcript in English can be found in Appendix J and an Indonesian language transcript for focus groups in Appendix K. Details of the translation process and its role in data analysis will be explained in the section below.

4.8 Data analysis

The modified grounded theory approach used in this study determined how the data analysis was conducted. The data collection and analysis was conducted as a cycle, where new findings helped shaping the next instance of data collection. Theoretical sensitivity is a key concept of grounded theory, where researchers relies on their sensitivity towards the phenomenon (Cohen et al., 2017; Corbin and Strauss, 2015). Initial open coding was conducted to generate concepts and themes, inductively. The initial concepts and themes were used to focus the subsequent instance of data collection and shaped the framework for thematic analysis. Thematic analysis, as part of the deductive process in this study, was conducted by examining the themes and developing concepts into theories. The summary of data analysis process can be viewed in the flowchart below (Figure 8).

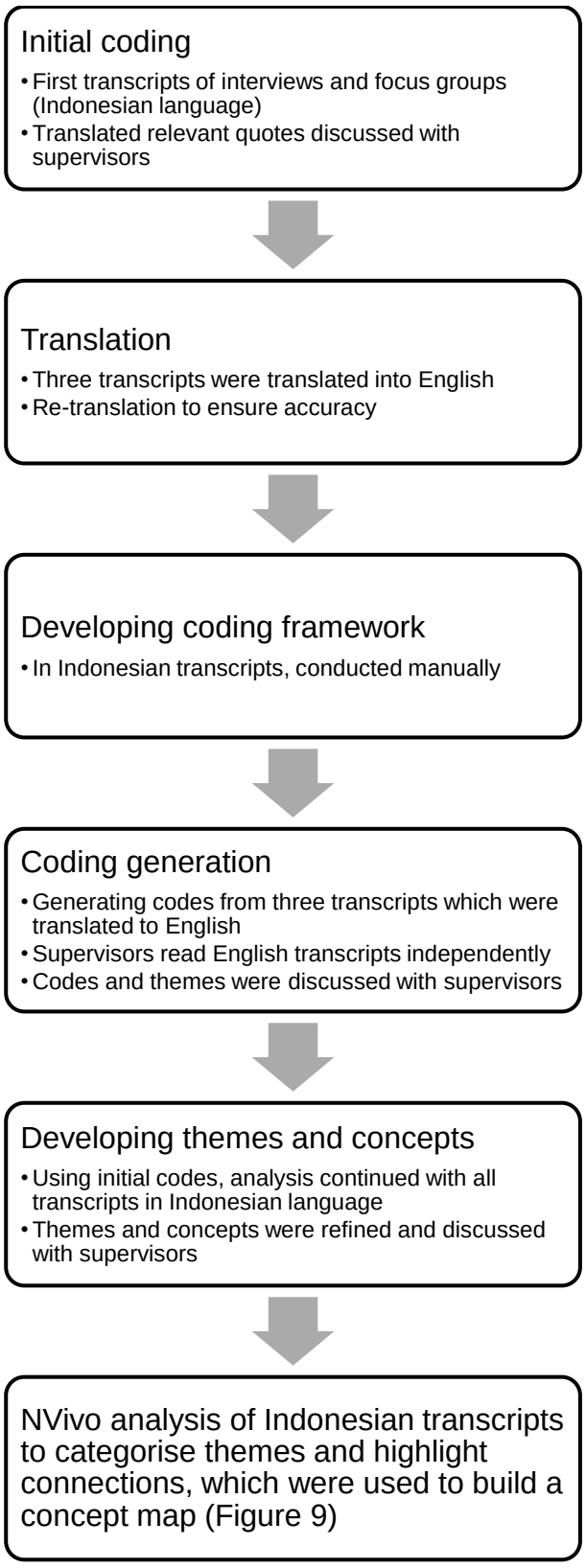


Figure 8. The summary of data analysis process

Translation and re-translation process

The analysis of the transcripts was conducted mainly in Indonesian language. However, the role of translation and re-translation in this process is crucial. The initial coding was conducted in Indonesian language, using the first interview and focus groups transcripts. Relevant quotes from these transcripts were translated into English and discussed with supervisors as part of the grounded theory approach. This cycle continued until data collection was completed.

After all the interviews and focus groups had been conducted, three transcripts from the same school were translated to English by myself: one interview transcript, one teachers' focus group transcript, and one students' focus group transcript. The three transcripts were then re-translated into the Indonesian language by anther Indonesian researcher who was not otherwise involved in this study, to ensure that my English translation was accurate. The result of this re-translation process confirmed the accuracy of my translation although some terms used were different. For example, local expressions were sometimes used for which there was no direct translation or for which there were several synonyms. This showed that my translations to English, which were applied to quotes from other transcripts, accurately captured what the participants said in the interviews and focus groups. The NVivo was used for analysing transcripts in Indonesian language (which also uses a Latin alphabet, similar to English) to help me organise the codes and themes. By using the NVivo, the process in organising the transcripts, codes, and developing themes was easier to conduct.

Initial open coding and development of coding framework

The initial open coding was conducted with the first transcripts and notes of interviews and focus groups, in Indonesian language. In coding, it is important to engage with the data set by reading carefully line by line (Saldana, 2009). The process involves recognising not only the verbal expression, but also understanding the meaning behind it. I looked for interesting comments or expressions, which I thought might express essential ideas for that person. It was a difficult task to determine the codes, so I started with descriptive phrases representing subject's statements. In some occasions, in vivo coding was used (i.e. using the phrases expressed by subjects where they mainly stated evocative words), for example: the NLE's cost as an investment.

The first cycle of coding marked the general ideas I perceived from subjects' statements, therefore the coding was mostly descriptive. These descriptive codes would enable me to analyse the underlying meanings in the next cycle of coding. Shaping the descriptive narrative into more content and summative phrases would also involve analysis of the dynamic of conversation. As a start, three interview transcripts (from a private school, a new public school, and an established public school) from different regions were chosen. It was expected that similar codes would be found, while the distinctiveness of their character would lead to different codes resulting from similar questions.

During this process, I discussed the initial findings with my supervisors which helped me determine the initial codes, using translated quotes. The open coding was conducted manually in the form of fieldwork notes (see Appendix L). The initial codes were compared with the literature, and the codes developed into a coding framework. This process enabled me to anticipate the codes and themes that might emerge; while also allowing me to identify new codes which were not previously included (Saldana, 2009). Examples of codes and the description in the coding framework are presented in Table 3.

Table 3. Examples of codes and their description

Code	Description
Differences of medical schools	Any experience and opinion regarding how they found medical schools in Indonesia are different, including any comparison. Example of quotes: *"As a private school, we had difficulties in the early years of national examination. It is because our input is second (in quality), if I may say, compared with public school…"*
Assessment practice improvement	Any experience of improvement on assessment practice: designing, implementing, and evaluating. Example of quotes: *"Block assessments now use single best answer MCQ, although not all of them use vignette just like what they use in national examinations. At the end of the semester, we have OSCE to assess clinical skills…"*
Patient safety	Any statement or opinion regarding the impact of NLEs on patient care or public protection. *"I think the examination has nothing to do with patients. They will not ask you whether you pass the UKMPPD or not."*

As the interviews and focus groups progressed, the coding framework was developed. Interesting and new codes emerged, which were then added to the interview guides (mostly were in the form of confirming or confronting questions). Some of the codes were not found in the literature on NLEs, so this made new themes which would likely contribute to developing new theories. Examples of the new codes were: collaboration, the cost of NLEs, and problems with failed students. The new codes were added into the coding framework for the thematic analysis.

Generating themes and concepts

A coding framework was developed for use in NVivo based on codes manually identified in all the transcripts. The codes were constructed into themes (Saldana, 2009). The process of generating themes and concepts started with the three transcripts translated into English referred to earlier in this chapter (one interview, one student FG, and one teacher FG transcript). The identification of codes, themes, and concepts was discussed with supervisors, who also read the transcripts independently, to ensure we had the same understanding about how to interpret the data and develop the codes. This provided investigator triangulation which helped to avoid any subjective interpretation of data and the halo effect (i.e. where my knowledge of the participants/ schools might influence my judgement of the data) (Cohen et al., 2017). This also contributed data triangulation as the three English transcripts were from the same schools but from different participant stakeholders which provided a holistic view of one medical school in this study.

The process of identifying themes was conducted repeatedly, to ensure that the themes were not overlapping. The later stage of coding, which resulted in themes and concepts, was conducted using computer-assisted qualitative data analysis software, NVivo. Themes were categorised as nodes, which were constructed from sub-themes. NVivo was also used to see the word frequency, which showed how frequently the specific themes emerged in the conversations. Examples of themes as coded in NVivo are presented in the table 4.

Table 4. Examples of themes and their description

Themes	Description
Achieving common standard of medical education	The NLE lead medical schools and their entities to have a certain acceptable standard in educating their students, thus resulting in the 'standardised' quality of graduates. Example of quotes: *"…there should be a quality assurance for the graduates; they will have the same (competence)…"*
Achieving common standard in practice	The NLE leads stakeholders to have a certain acceptable standard in clinical practice. Example of quotes: *"Sometimes the clinicians did not know whether they do as what the college of specialists suggested. [the NLE] could help both students and clinicians to do [that]"*
Improvement in health care	The NLE has impact on patient care and patient safety. Example of quotes: *"Of course patients will get the benefit of it. They will be safer; there will be less malpractice…"*
Anticipating international mobility	The NLE is related to the increasing international mobility of health care professionals. Example of quotes: *"… Moreover, we now have ASEAN Economic Community. … if doctors who are responsible for human life, do not have any filter (for selection), how that could be…"*
Improving educational practice in medical schools	The NLE leads to the improvement of curricula, assessment, facilities, and faculty development. Example of quotes: *"Now every block coordinator knows the SKDI and the expected competence in each block… For clinical skills, we facilitate skills training for the level 3 and 4 (of competence) … We have the skills training procedures conducted according to the reference."*

A concept map (Figure 9) was developed to represent themes and categories from the analysis, and the connections between them. It helped me to describe the findings in Chapter 5 and construct understanding of the consequences of

the NLE. The connections between themes which were depicted in the concept map, were used to further explore the underlying process behind the consequences and the role of stakeholders in it. More discussion of the concept map can be found in Chapter 5.

Following the identification of themes, in constructing concepts, I looked for convergence and divergence within and among groups of subjects: comparing and contrasting between medical schools' representatives, teachers, and students groups. Internal and external homogeneity and heterogeneity were identified to seek a better understanding of the phenomenon (Corbin and Strauss, 2015; Saldana, 2009). This included the comparison between medical schools based on their characteristics: public and private schools, established and new schools, and accreditation status.

Chapter 5 Findings Part 1: Understanding the consequences of national examination implementation

In the previous chapter, I described the methodology and methods of this study, highlighting the importance of contextualised sampling and a constructivist approach to analysis. Data collection was undertaken with three groups of participants: medical schools' representatives, teachers, and students. Individual interviews were conducted with medical schools' representatives, who held the position of Vice Dean of Academic Affair or Medicine Programme Director. Focus groups were conducted with groups of students and groups of teachers. Medical schools that participated in this study were purposively sampled to take into account the Indonesian context of medical education: region, ownership status, and accreditation status. These characteristics were anticipated to provide a more holistic 'picture' of the impact of national examination implementation.

This research aimed to understand the consequences of the introduction of national examination on Indonesian medical education as perceived by three groups of stakeholders: medical schools' representatives, teachers, and students. The findings will be presented in two chapters: the first part (Chapter 5) focusing on the consequences as viewed by each stakeholder group. The second part of findings (Chapter 6) will describe cross-cutting themes, allowing in depth understanding to emerge about the impact of the examination in different regions, public and private universities and emergent themes such as 'patient safety' as a newer concept in the Indonesian context.

The first chapter of findings will be presented in sections representing concepts and themes. The concepts and themes were developed into a table to summarise their frequency and highlight context. A concept map was constructed to understand the connections between them. Before proceeding to explore the concepts, I will describe the characteristics and demographics of participants in the next section, followed by the table and concept map.

5.1 Subject description and characteristics

Medical schools' representatives were Vice Deans or Programme Directors from 18 of 74 medical schools in Indonesia. For the focus groups, students and teachers from 6 of 74 medical schools were invited to take part, representing each region of Indonesia. This study intended to recruit 10-12 participants from each school. However, there were problems in recruiting the participants because focus groups were scheduled when teaching and health care activities were busiest. In total, 54 teachers participated in focus groups (target n=60). Students participating in this study were those who had already undertaken the national examination before the study was conducted (period of August-November 2015 and February 2016). Students were recruited through invitations sent by medical school staff. However, many students had graduated and moved away from their Schools at the time of study to begin work. Consequently, fewer students than anticipated were recruited. A total of 48 students participated in this study (target n=60).

Participant characteristics are summarised in the table below.

Table 5. Characteristics of participants

Participants	**Characteristics**			
Medical schools' representatives	**Position**		**Gender**	
	Vice Dean	**Programme Director**	**Female**	**Male**
	11 (61.11%)	7 (38.89%)	9 (50%)	9 (50%)
Teachers	**Expertise**		**Gender**	
	Preclinical teachers	**Clinical teachers**	**Female**	**Male**
	30 (55.56%)	24 (44.44%)	29 (53.71%)	25 (46.29%)
Students'	**Status**		**Gender**	
	First attempt	**Re-sit**	**Female**	**Male**
	43 (89.58%)	5 (10.42%)	37 (77.08%)	11 (22.92%).

5.2 Summary of concepts and themes

The outcomes of high stakes examinations (such as the Indonesian NLE), have been characterised into intended and unintended consequences. Current literature proposes that the NLE will lead to better assessment practice, better physicians' performance, and ultimately will be beneficial for patient safety (Hauer, 2006; Archer, 2009; Swanson & Roberts, 2016). However, it is still debatable whether evidence exists for these claims. Instead, some experts propose that 'collateral damage' and other major drawbacks would inevitably come as unintended consequences associated with NLEs. The concern with side effects from NLEs originates from a centralised approach to assessment. It is feared that 'uniformity' will hinder innovation, while the diversity of medical schools will not be recognised. From an assessment point of view, the NLE is considered a backward step from programmatic assessment and it is argued that the most important learning outcomes cannot be assessed in the examination. (Harden, 2009; Schuwirth and Van der Vleuten, 2012).

The consequences of national examination, as presented in the literature review (Chapter 3), are not fully understood. Intended consequences are quite clear although their realisation depends on the context of NLE. On the other hand, unintended consequences might not emerge as described in the literature, where they are predicted as NLE's drawbacks. These two major concepts of NLE's consequences are the focus of this study and this will also be reflected in the discussion chapter. Additional themes, which have more focus on participants' experience or relate to the implementation of assessment, will be described later in this section.

The findings in this chapter will be presented in four sections:

1. Intended consequences of national examination
2. Unintended consequences of national examination
3. Impact of national examination on students and teachers
4. Implementing the national examination

Each section will have key themes and supporting quotes in the explanation. They are explored in three groups of subjects with the magnitude of each key theme presented by (+) sign in the table below.

Table 6. Emergent concepts and key themes, mapped for each group of subjects.

Concepts and Key themes	Medical School Representatives	Teachers	Students
Intended consequences of national examination			
Achieving common standard of medical education	++++	++++	++++
Achieving common standard in practice	++++	++++	++++
Improvement in health care	++	+++	+
Anticipating international mobility	++	++	+
Improving educational practice in medical schools	++++	++++	+++
Unintended consequences of national examination			
Internal pressure: authority of medical schools	++++	+++	+
External pressure: competitiveness and reputation of medical schools	++++	+++	++
Collaboration	++++	+++	++
Assessment drives learning: Private courses by third party	++	++++	++++
Implementing the national examination			
Challenge in implementation	++++	++++	++++
Criticism on national examination	++++	++++	++++
Advantages	++++	++++	++
Disadvantages	+++	++	+++
Assessment consequences on students and teachers	+++	++	++++

++++ : Expressed by all participants

+++ : Expressed by most participants

++ : Expressed by some participants

\+ : Expressed by a few participants

As can be seen from the table, not all themes were expressed frequently by all groups of participants. Themes that were strongly expressed by all three groups were: achieving common standard of medical education, achieving common standard of clinical practice, challenges in national examination implementation, and criticism of the national examination. Both supporting quotes and contrasting views will be presented to aid interpretation and analysis.

Initial concept map

As described in Chapter 3, the national examination is a complicated issue and covers many aspects of medical education in Indonesia. To enable a clear depiction of findings, in this section I will use a concept map to describe connections between concepts and themes in this research. The concept map also represents the way the findings and discussion in the next chapter will be presented.

I have placed the national examination as the primary area to be explored in this study, using the views of the initiators of national examination to help provide an initial framework to help arrange themes. Literature was used to sensitize this framework further, allowing the introduction of important topics such as international mobility.

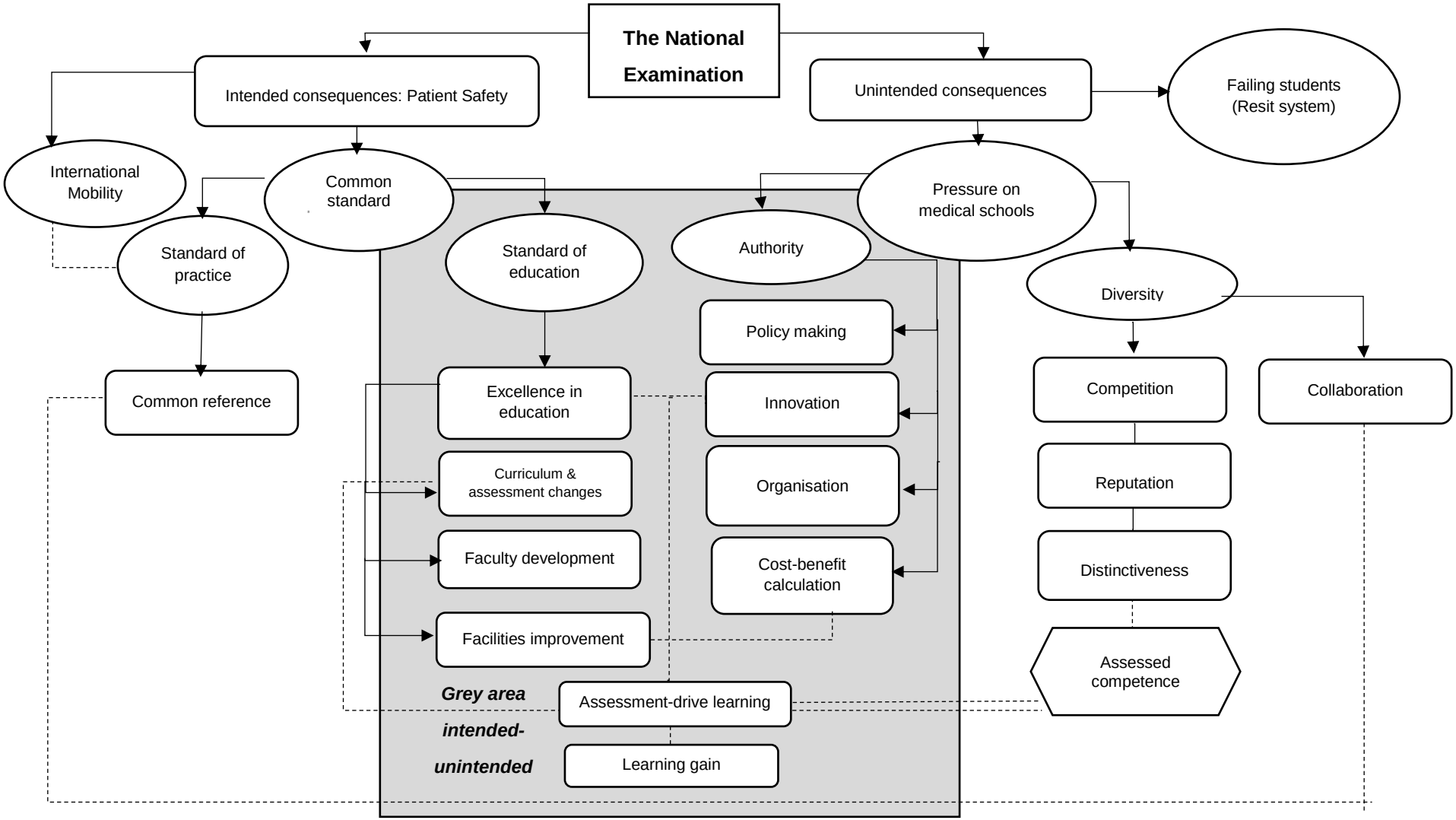
Themes emerged relating to the intended consequences of the national examination included achieving a common standard for education and practice; improvement in health care; improvement in educational practice; and anticipating international mobility. These themes were then ‘clustered’ into an overarching concept of ‘patient safety’. The context of patient safety in Indonesia, as will be described in the findings, gives a different view than that demonstrated in the literature. This will be further elaborated in the discussion in the next chapter.

In the concept map, there is a grey shaded area, which represents an overlap between intended and unintended consequences. Achieving excellence in medical education, i.e., improvement in educational practice (as the initiators of national examination in Indonesia proposed), has not always been viewed as an intended, positive consequence for other national examinations described in the literature. Impacts on medical schools (e.g. organisation challenge and the

“burden” of implementing national examinations) are either undescribed or viewed as ‘negative’ in the literature. Therefore, the themes fall into the category of unintended consequences. However, the innovation and other organisational changes are also strongly related to excellence in medical education so could arguably be viewed as *intended* consequences, indicated by the dashed line to show linkages.

Other themes included in the unintended consequences (from the viewpoint of the initiators of the examination) are external pressure for medical schools and the consequences of assessment for students and teachers. Both themes cover a wide range of topic, from competitiveness between schools, reputation of medical schools, failed students’ problem, and the pressure on teachers. More details on each theme will be presented in the following section.

Figure 9. Concept map representing themes and categories



5.3 Intended consequences of the national examination

Establishing a national examination is expected to generate an impact on the examination's stakeholders, as previously described in Chapter 3. Intended consequences of the national examination in this study refer to what participants perceived as the expected impact of national examinations in Indonesia.

The intended consequences as revealed in the findings are:

1) Achieving a common standard of medical education and practice
2) Improvement in health care
3) Anticipating international mobility
4) Improvement of education excellence.

Each theme will be presented in more details below, supported with quotes from participants.

Quotes from participants will use the following identifying codes:

VD: Vice Dean

PD: Programme Director

T: Teacher

S: Student

Number: Teacher or student individual identifier
Letter: School identifier

Quotes will be presented using *italic* in a different font. Some words/ sentences will be **bold** to represent essence or evocative attributes of the quotes.

Achieving a common standard of medical education

'Standardisation' as the purpose of the national examinations

The term mostly expressed by medical school representatives, teachers and students, when they were asked about the purpose of national examination, was 'standardisation'. They used phrases such as 'standardising medical graduates' and 'medical education' to refer to achieving a certain level of quality for both graduates and education. In achieving a common standard, participants thought that it should be applied to *every* graduate from *all* medical schools in Indonesia, despite the different status of ownership (private/ public) and geographic location. The idea was strongly expressed by almost all participants in all three groups of participants.

> *"I think the purpose of UKMPPD is to **standardise**, either the graduates or medical schools, so **there will not be any differences in health care** delivered to patients…" (VD-H).*
>
> *"It is important that **the schools, from Aceh in the west to Papua in the east, have the same quality** and **the graduates have equal level of competence…**" (PD-I).*
>
> *"If you ask me, I think the national examination's purpose is to standardise medical students nationally… So the output of medical education should be standardised…" (T1-K)*
>
> *"I think the national examination's purpose is **to standardise the graduates.** … **Our school, a private school, is different than the public schools.** After I passed the examination, I felt very proud since that means I have the same quality as the students from public schools…" (S4-D)*

Despite indicating that the national examination aimed to achieve the common standard of graduates and medical education, scepticism about the current broader Indonesian education system was expressed. Most of the participants highlighted that the standard should be achieved for all medical schools. In other words, participants perceived that there were current differences between medical schools: between public-private schools and between schools in different regions of Indonesia. "Standardisation" was seen as the means to overcome variations in quality in Indonesia, mainly stated as differences between medical schools (and students) based on regions and ownership status (public and private). The comments above resonated in all groups, ranging from only pointing out the differences to strongly sceptical views about medical education in Indonesia.

> *"We still need the national examination, at least for now… Because as **we know we cannot guarantee the quality of medical education in all schools**… Not with this kind of education system in this country now…" (PD-Q)*

*"For us, the private school, this examination gives us opportunity to prove that our graduates **have the same level of quality, compared to public schools'**. It will **improve public trust to our school** and consequently, we could toughen selection criteria for our admission process." (VD-E).*

*"In my opinion, it is for **standardisation because we have more than 70 medical schools...** Indonesian Medical Council only states CBC as a guideline, but the content and how it is implemented is the autonomy of medical schools. **So there should be a quality assurance for the graduates; they will have the same (competence)**…" (T6-E)*

*"Although our school is located in a remote area, passing the examination means that we **could do as well as students from Java**; that we experienced the same quality of education… That is what the national examination means: doctors from every part of Indonesia must **have the same competence**…" (S1-F).*

*"I think the national examination's purpose is to **standardise the graduates**… We know that **there are differences among medical schools**…" (S4-D).*

The issue of differences between medical schools was also expressed when discussing the challenges and advantages of national examination implementation, especially top ranked (A-accredited) and lower ranked school. The findings related to this issue were raised again when participants discussed challenges at School level as well as competition between medical schools:

*"… it is reasonable, it will not hurt me at all, that people **still have doubts in us because we were established just a while ago**… … Why do they have to do the competence examination? Is their quality poor? Are School X graduates, or School Y graduates like me (high tone, pointing at himself), poor in quality?" (VD-D)*

Some participants felt the national examination raised doubts about the quality of individual Schools' education; by asking Schools to meet a common standard, the government was seen not to trust medical schools.

*"**I agree with the opinion [that said the national examination is] doubting our quality** … we had been through a lot of assessment, every month we had an examination and the examiners were our consultants**. They assessed us as pass in the examination**, **why do we have to take another examination**?" (S6-L)*

These participants assumed that schools' education and assessment are equal in quality, i.e. has the same 'standard'. This idea contrasts with the majority of participants who expressed a view that differences in medical education practice are prominent among medical schools. Some participants even considered that these differences might lead to segregation and discrimination problem for graduates in postgraduate training or clinical practice. They were

sceptical about whether national examinations could minimise this discrimination.

> *"…However in the end, there is still **discrimination** "oh you were graduated from Makassar, oh you were graduated from School R, oh you were graduated from School ZZ, I was graduated from School X...". So, there is indeed a segregation. We, who graduated from east Indonesia were **underestimated** by the graduates from west **Indonesia**, even though we are the same… (T2-F).*

In this study, almost all participants agreed that the national examination was designed to achieve 'standardisation' for medical schools and graduates. The intended consequences of this exam, as perceived by participants, would be an equal level of competence for graduates and shared quality for medical schools in Indonesia. The consequence of the NLE was expected to overcome the main problem of medical education in Indonesia: differences between medical schools.

Identifying differences between medical schools

Most participants defined "the difference" as a difference in quality and discrepancy in medical education practice. Three main factors were seen as significant differences: **differences in the 'input quality' of students admitted, differences in teaching/ education practice, and differences in facilities.**

In Indonesia, public schools have stricter regulations for admission (Indonesia Ministry of Research, Technology, and Higher Education, 2015). Prospective students are admitted to public schools through a competitive centralised national university admission test. Some public schools also have an independent admission track for top ranked students in top high schools. Public schools ask for a higher standard required for admission. In contrast, private schools do not have centralised admission and have more freedom to make decisions about prospective students. Their decision in accepting students might be influenced by the role of their foundations as funders of the private school or other stakeholders, e.g. local government and public figures. Private schools' representatives acknowledged that the quality of their *input* is lower than that of public schools and it affected their national examination results.

> *"As a private school, we had **difficulties** in the early years of national examination. It is because our **input is second (in quality), if I may say, compared with public school.** … we had **very low pass rates**…"* (PD-C).

> *"The students; well **it is hard if the problem is in the student.** … **Low quality of students will affect the end result. That is why the admission process should be synchronised with the programme.** But still, **we are unable to make the admission process 100% based on quality.** There are other factors: **the mayor, chancellors, and others**…"* (VD-D).

This issue was also highlighted by teachers, who pointed out its impact on teaching and how they could identify the likelihood for failing the examination. They indicated that students who struggled in their undergraduate years might be more likely to fail the examination.

> *"Most of the **re-sits are students from the last batch** of the class to enter the clinical rotation… They **struggled during the preclinical years**…"* (T2-L).
>
> *"I was involved in the admission selection process. [It is known that] **the characteristic of students in 2009 is different than the previous one; the high schools they came from, their achievements**… I think [the result depends on the quality] of input…"* (T2-D)
>
> *"We can know **the students who are more likely to fail… We notice them since their undergraduate years** …"* (T6-I).

However, the issue of admission quality did not resonate strongly in students' groups. Only a few students pointed out that the current admission process in medical schools needed improvement.

> *"I think **[what is important] probably the process in the beginning and during the study.** In the beginning… it is about the admission. But again, we cannot intervene people who want [to be medical students] if they have the money … We cannot do anything even though their knowledge is a bit lacking. … What I think is this admission needs an improvement… **[students must] not only be financially capable, but able to show appropriate level of capability**…" (S4-L).*

Differences of teaching and learning quality were perceived by most participants as differences in: **curriculum, learning activities, teachers' quality,** and **assessment**.

> *"… The ones who disagree [with the national examination], they just don't understand that **we cannot ignore the differences among schools**… **Differences in quality of teaching and learning, curriculum, and the students**."* (VD-J).

These differences might affect medical schools' preparation and execution of national examinations. For example, differences in geographical location, affecting accessibility and resources, would make a significant difference in teaching and learning.

> *"… For **a new school** like us, **to prepare all the infrastructures such as the buildings, manikin, and examiners was very burdensome**. If it was in **Java**, let's say the established School X**, it will be easier**…"* (VD-E)

> *"We **cannot use undergraduate assessment as a standard**… Because **from the west to east of Indonesia, medical schools can be very different.** I have been in Sulawesi, Kalimantan… That is very different… We **need a national standard**. "* (T7-I)

> *"I think it is **not on the same level, the [quality of] education** … It was, how do I say this, much of a luck factor (laughing)… Because there were many of the items were not taught yet [there]… There should be an equal level **for all regions of Indonesia, from west to east in Papua…**"* (T6-K)

Students reflected on their experience when discussing the difference between medical schools. They highlighted the difference in public and private schools, as well as new and established schools, in teaching and learning activities.

> *"I think **the competence that we got were different**. For example, we had so **many opportunities to practice skills** in district hospitals… Our friend from **the public school went for clerkship in the centre hospital and he did not get much chance or cases**, because of the health insurance system…"* (S11-B)

> *"In another **school who has residency programme [or public schools], the clerks will have less tasks** at the hospital, unlike us…"* (S6-K)

> ***"(The years of establishment) will quite affect (the quality)** of medical schools. We can compare between those who were established five years ago with the one with 10 years' experience for example. They **have younger teachers, who have less experience. It affects the quality**…"* (S3-K)

Some students raised concerns about the trend of opening new schools without strict quality assurance systems.

> *"I think **it is getting easier to establish a new medical school, even when the quality is questionable**. Why don't they use **[the fund] to improve medical schools, improving the requirements, so they will have high quality teachers and passing rates**. They want to establish a new one in this city (shaking head)…"* (S1-I)

> *"I think **the ones need to be preserved are only A and B accredited schools. They said that C-accredited schools will be closed** in 2017… Let's hope that within 2 years, they become B-accredited…"* (S4-L)

Students from medical schools in certain areas might have challenges during their study because of their geographical location and other related factors. However, they did not see it as a burden. This issue is discussed further later in this chapter. Students from bigger cities, and mostly established schools, acknowledged their schools' effort in education and assessment.

*"We **feel grateful with our teachers, the facilities, and the lectures which all have very good quality**… By undertaking the UKMPPD, **I do not feel being doubted**; I feel more thankful because I study here and have all that access so I **become more confident** …"* (S4-I)

Findings in this section showed that most participants perceived the main purpose and thus the intended consequences of national examinations in Indonesia would be to achieve a common standard in medical education. The examination was considered necessary to bridge differences between medical schools where educational practice, including its quality, could vary. However, this does not mean medical schools' educational practice must be uniform. Participants emphasised equality or being at the same level of quality as a result of the 'standardisation'. Contrasting opinions from a few participants highlighted the issue of government and public trust, regarding the quality of education in medical schools. The status of ownership (public/private), year of establishment, and geographical location might play a role in the differences. Participants identified differences in **the 'input quality' of students admitted, differences in teaching/ education practice, and differences in facilities.** How these factors affected the impact of national examination in particular medical schools will be discussed further in the next chapter of findings.

Achieving a common standard in practice

Differences in clinical practice emerged as one of the reasons why achieving a common standard is a strong purpose of national examination. Indonesia's medical practice has vast coverage in terms of regions and approaches to clinical care. Participants in this study expressed their views on the difference in clinical practice, which might reflect their experience.

Vice Deans noticed the lack of national guidelines for practice and teaching purposes, but they saw that as an opportunity to collaborate between schools and collegiate at a higher level.

*"There should be **a specific guideline** … we **only have SKDI, but the interpretation is vastly different** among medical schools. So I hope there is a guideline, not only to be **used during clinical rotation/ clerkship**, but also to **help teachers in preparing students** for the national examination. … If there is **an even distribution to bridge the differences**, it will be much better. There are **differences within an institution, let alone between different centres** (frowning)…"* (VD-E)

> *"… I think the **OSCE needs to be uniformed** … For example, **there are differences in performing IV line insertion**. That needs to be uniformed… So there will be **no one disadvantaged in terms of marking**. If it is a **national and comprehensive [guideline]**, that is the standard. We should take a look whether **every school does skills training the same way**…"* (VD-A)

Teachers, as well as students, expressed the same concern of differences between what was taught in the preclinical and clinical setting. This also included the differences between teaching hospitals and residency centres in Indonesia. To some extent, teachers highlighted their challenge in preparing their students for the examination

> *"… **different doctors might teach differently**. Even more**, in the same centre, different teachers in the same hospital**, they could teach differently. …. Sometimes students asked **which reference should they use**… such problem can cause **confusion** for them…"* (T2-B)

> *"We trained them clinical skills **using the reference** and they got used to it when they entered the clerkship. Some of the clinicians complained that **it is not the way they perform it in the real setting**. … students might **lose some principles when performing skills**. It could be because they **did not get used to it when they were in clinical rotation**. Some important physical examinations are also **skipped**."* (T6-D)

Meanwhile, students felt that the differences described above led to the uncertainty of what would be included in the examination. This affected their learning strategies, because it also became one of the reasons why they went to private revision courses. Most students agreed that by taking private courses and meeting with students from other schools, they can know the different of clinical practice between schools and centres. Some of the students thought that it was unfair for the regulator to ask for a common standard when, in fact, there are differences between regions. According to students, the examination mostly tested ideal scenarios, which were at variance with the reality of practice. Authentic situations (for example the shortage of medication and unavailability of facilities in certain area), as pointed out by a few participants, were often not reflected in the examination.

> *"Specialists were **graduated from different centres**, sometimes therapy given by doctor A is different than doctor B. We will see **which one is better, based on their experience**…" (S6-F)*

> *"Sometimes I feel that the examination is **useless** because in fact, the availability of treatment in primary health care is not as what we learned in theory. If the government wants a competence examination, they should **make the reality in primary health care [the same]**…" (S6-L)*

At the end, they proposed that national guidelines are necessary to help align teaching, learning, and clinical practice. The guidelines should be developed in collaboration with colleges of medical specialists (e.g. college of dermatologists, college of paediatricians) to reach the consensus and minimise differences in practice essentials. However, some participants worried that it could limit the competences students were willing to learn.

> *"There will be **some discrepancies between theories and the practice**… However, there should be a **national standard [for reference].** An example of this problem is that, for major cases in internal medicine, our consultants use Harrison's (Textbook of Internal Medicine), but nationally, we use PAPDI…" (S1-I)*
>
> *"There should be a **uniformed reference** from the upper level, from collegiate, and any updates from each clinical department… I think it is very important…" (S3-K)*
>
> *"It will be **helpful** to have one, indeed. (Asked if they would learn topics outside the reference, they all answered) "**Only the national guideline** then, the other [could be] later on…" (All Students – D).*

The need for national guidelines was an issue taken seriously by the national committee. At the time of this study, some participants were involved in designing a national guideline of reference for the undergraduate medicine programme.

The key issue of this section focuses on differences, or discrepancies in clinical practice, which were viewed as not an ideal situation, but which are found in Indonesia. Participants perceived that, without a doubt, this problem affected students' learning in clinical setting. Most participants from all groups thought that the national examination could help in solving this problem but was not the single solution. It is considered necessary for authorities and professional associations (e.g. college of specialists) to take additional steps such as developing a national guideline, which could be used for medical education and clinical practice.

Improvement in health care

Another purpose of the national examination as perceived by participants is improving the quality of health care. This purpose is strongly related to patient safety; however most participants did not mention the word/ term "patient". The most frequent term they refer to is "performance in practice". In this section, I will

explore the themes of health care improvement related to the national examination as expressed by participants.

In the medical schools' representatives group, only some participants expressed (without prompting) that the national examination was related to health care improvement when interviewed. Most of them mentioned it when they were asked about the impact of national examination to patients and community:

> *"There **must be [an impact]**… If we expect them [the students] to be **certified**, of course we will have **doctors who meet the standard. Public will have better health care**, that is one of the purpose [of national examination]… If they **failed** the examination, they cannot do anything; [because] they are **considered to be incompetent**. They **cannot get their licence for practice, registration certificate**, etc.…" (VD-A).*
>
> *"In health care, we must **have certain standard to deliver care to patients**. The national examination will give **benefit for patients** because the doctors **meet the standard.**" (VD-K).*

Teachers were the ones who referred to the health care improvement most often. Only a few teachers did not express agreement with the proposition that health care improvement and patient safety were a consequence of the NLE. They doubted that the examinations would make a difference to the patients:

> *"Students who **failed for three times** will have a consequence: some opted for **further coaching and training**, the other opted for the **decision that these students are not eligible to be medical doctors**. We must be **extreme** with this 'old pattern'; it means that **those who are not decent should not be medical doctors because it is endangering (the patients)**…" (T1-D)*
>
> *"We have to **stand up for this regulation** [of national examination as an exit exam], keep this standard… If we don't**, what will happen to the public** or community?" (T4-I).*
>
> *"As **the decree said**, by implementing this examination, **we want to protect the public**…" (T6-K)*
>
> *"I think the **OSCE is useful [to improve the quality of doctors]** because that is the way we do the clinical practice… but for the CBT, let's say the pathomechanism questions, **will our patients come with question** such as "Doc, I feel this symptom, what is the pathomechanism?". That is **impossible**, right?" (T2-F).*

In the students' group, the link between health care improvement and the NLEs was not strongly expressed as 'patient safety'. Students viewed the national examination as a mean to prepare themselves to work in real practice:

> *"I see UKMPPD as **a tool to prepare myself as a doctor**, **before going into real practice**…"* (S9-K)
>
> *"Of course **patients will get the benefit of it**. They will be **safer**; there will be **less malpractice**… Because the doctors who serve them are the ones who **meet the standard**, who have the **competence to perform their tasks**…"* (S1-F).

Some students disagreed with their colleagues' comments and expressed the view that the national examination had no correlation with health care improvement or patients. They viewed the examination as a 'separate' process in their education and not as part of their professional development as medical doctors.

> *"People **will not ask how many times you took the UKMPPD**. Even if we do not know what to do (in managing a case), **we can consult it with our seniors**. It's not like we do not know anything at all…" (S4-L).*

Improvement of health care practice as described by participants in this study resembled how 'the end result' of national examinations was perceived by stakeholders in Indonesia. The standpoint of most learners (students) and educators (medical school' representatives and teachers) was that the national examination would improve medical doctors' performance. However, a contrasting opinion was raised by some participants that, although the national examination would affect doctors' performance, it would not directly benefit patients. It is interesting that in this context, patient safety was not put forward as the main purpose of national examinations. This issue of patient safety and health care improvement will be explored further in the next chapter.

International mobility of medical doctors

Another intended consequence of the national examination is to ensure the quality of medical doctors practicing in Indonesia, considering the migration of medical doctors and other health care professionals into this country. Starting in 2015, the concept of an ASEAN Economic Community started to develop in South East Asian countries, which enabled health care professionals to practice in any ASEAN countries. Foreign-trained medical doctors or medical students must undertake the UKMPPD (national examination) to be able to receive a licence and enter clinical practice or residency programme. Some participants were aware of this issue and proposed that the national examination would act as a mechanism to ensure the quality of medical doctors from other countries.

> *"Yes, we have to think **about [the AEC]…** It is one of the reason [implementing national examination]. If everything is **'standardised'**, it is then **safe**…" (VD-I)*

Medical schools' representatives and teachers seemed to have similar views concerning international mobility. They had concerns about the differences of education system between Indonesia and other countries.

> *"Even though most schools have CBC as a curriculum, I think **we still need national examination**… Because there are still **differences in the content and the teaching**… And now we have the ASEAN Economic Community. We **should know where Indonesia stands in this**… So we **know our quality [compared with other countries]**…" (T1-K)*
>
> *"… Moreover, we now have **ASEAN Economic Community**. Patients are smarter and more critical so if doctors who are responsible for human life, do not have any **filter (for selection)**, how that could be…" (T6- D)*

Students did not have many comments about the international mobility issue. Only a few of them mentioned that they were aware of the issue and felt motivated to be competitive.

> *"… perhaps it is for us too, to encounter the **FTA (Free Trade Agreement).** Foreign-trained doctors must be able **to meet the requirement** too. So it is not only [to ensure] our competence, but for them too…" (S11-B).*
>
> *"…[after passing the examination] we are **ready to compete** [with international graduates]…" (S2-F).*

The issue of medical doctors' mobility in cross-border health care was not deemed an essential reason behind the implementation of a national examination. Therefore, most medical schools did not think their focus was on levering the quality to match international graduates'. They were more concerned about how to achieve a national rather than international standard.

Improving educational practice

Most schools put more effort into improving educational practice after the national examination was implemented. Of course, this view was significantly expressed by the policy maker: medical schools' representatives. They were the one experiencing the impact of national examination results and then trying to do something to improve it. Almost all Vice Deans and Programme Directors reported that implementation of the national examination induced or brought changes to the educational aspect of the schools. Only one vice dean stated that the national examination did nothing to influence changes in the school. As the one who holds the position of policy maker in terms of educational practice, they analysed the problem in their school and made efforts to improve it.

> *"Of course… When the result of our first batch was announced, which **was not something to be pleased about,** I went to do **investigation** how the curriculum and learning materials were used. I **consulted** with School I and School Y, whether any revisions needed… I also **rework** with the teachers… There are **three factors that determine students' result: firstly, the curriculum; secondly the teachers; and lastly, the students.** These three need to be **synchronised** to work…" (VD-D)*

As stated in the quote above, many participants mentioned the changes in curriculum/ learning content, faculty development, and students. The curriculum changes were not only limited to design, but also to the learning activities and environment (including facilities) and assessment methods; in both preclinical and clinical phases. Some schools that did not have a specific team/ unit to manage medical education, i.e. curriculum design and evaluation, learning activities, and assessment, began to establish one.

> *"We have a **medical education unit** here [in undergraduate medicine programme], called DME, just like what we have in faculty level, MEHDU. … Here in medicine programme, the DME **has the task for this [designing and managing education]**." (PD-M)*

Most schools described improvement in clinical teaching, since it is the crucial phase of education where students learn in hospitals and placement before the national examination. Most schools in Indonesia have main teaching hospitals and some smaller affiliated hospitals. In terms of geographical areas, the affiliated hospitals are sometimes quite faraway, sometimes even on different islands for some schools. Therefore, many medical schools' representatives emphasised their efforts to improve clinical teaching and clinical teachers. When the clinical phase was scrutinised, because of the challenge in clinical settings, teachers in the preclinical phase tried to improve the teaching so that students would be able to perform better in clinical rotation.

> *"I think probably the clinical years and clinical supervision have more impact in UKMPPD [performance]… We **do most of our effort in preclinical years;** where we can **intervene** and **design** the curriculum as we purposed… In clinical years, **our consultants [have more power] and they have their own way** [in training skills]. … They think of themselves as **someone who have more knowledge** [in those certain competence], so why [they have to do it]. So some of them are unwilling (to train students in that way) but most of them are now involved in preparatory programme… " (T6-D)*

> *"There is an **evaluation** in our main teaching hospital …, for example a lot of students cannot have a hands-on experience; so we **know what it is lacking** from this hospital. We **analyse what we can do** there and in other affiliated hospital [regarding the JCI accreditation]. For type C hospital, it is still doable. We **supervise closely with the Dean** to see this, to do visitation or clinical teachers training…" (VD-O)*

*"So we have **residents in training** in other affiliated hospitals, let me take an example from Paediatric Department. Residents and medical clerks go there; **students are supervised by trained specialists**, **assisted by residents**. …. The clinical teachers are staff there who are already trained, so they have **equal competence and authority with the teachers here**…" (PD-P)*

Other educational improvements planned by the schools were curriculum improvement, including teaching-learning activities, learning environment/ facilities, and the assessment system. Most participants in all groups viewed this as an effort to have better results in the national examination.

*"We have them **'drilled' by taking examinations a few times**, such as **progress tests**. We establish this and we **improve the assessment in clinical departments**, so **students get used to** that kind of assessment."* (VD-M)

*"We are now **building our future main teaching hospital**; you can see it on your way here at the front of this building. We hope it can be operated next year in 2017… Even though it is a new hospital, it is our main teaching hospital, a type B or A hospital. We already have one hospital in Sentul **which we bought two years ago**, so **we can have clinical rotation and placement there**."* (PD-Q)

*"That is where our **clinical skills programme progressing**. For now, we plan to evaluate the accomplishment of this programme; such as the **diversity of cases and the clinical skills (performed)**, will be mapped according to the targeted competence. (We evaluate) whether the targeted skills can be achieved or the opposite; where our students cannot perform the skills when they are in (the clinic). If that happens, we really have **to find another affiliated hospital that enables students to encounter the cases and perform the skills**. Especially since the national health coverage was introduced (laughing), some hospitals are becoming referral centres… We anticipated it by **assigning students to primary health care centres** with the same allocated time as in hospitals. We need to evaluate this step by assessing what the primary health care centres need. We are trying…"* (T2-D)

In most cases, students undertaking the examination were the ones experiencing these changes. They shared their experience of them and how their schools improved the learning activities to enable their learning. Clinical teaching improvement was one of the most notable changes since the introduction of national examinations.

*"I think, **slowly, there are changes** in this school. For example, they **bring back junior placement for students before entering the clinical phase**. We did not have that opportunity before we did the clinical rotation. We did not get to see the patients; only memorising the knowledge we learnt from the blocks. It will be **good for our juniors that they will be more prepared to encounter patients**…" (S4-L)*

*"For example, in surgery department… we did not have a log book but we have certain topic list, let's say twenty cases, so **we have to be competent in the cases** and **present it to the clinical teachers**…" (S9-K)*

Faculty development was one of the themes frequently described when discussing improvement in educational practice. Most vice deans and teachers showed that faculty development took place in their schools as part of the improvement after national examination implementation. Students did not recognise this issue as they did not discuss teachers' improvement.

> *"We plan to **involve doctors practicing in affiliated community health care centres** in the training and also the **hospitals**... It used to be only limited to our teachers here, but now we asked clinical teachers too to get them to be national OSCE examiners. **Now we have 30 examiners** and we are ready if we need to send them as external examiners to other school… I can conclude that it was our work, **to fulfil our needs, and now it gives us a good result: teachers' quality**. They have **better method and strategy of teaching;** whether it is in lectures, tutorial, skills training, or laboratory sessions. I am **very happy with the progress**, because we now have **teachers improving their skills** and **can interact with students** as expected." (VD-D)*
>
> *"One of the division in Medical Education Unit is a training team, who are responsible for teacher trainings and education. In a regular basis, perhaps every two weeks, they design this training as an update for teachers, for example assessment, teaching in PBL, tutorial method… We make it interesting for teachers…" (VD-K)*
>
> *"We plan to **invite teachers from affiliated hospitals**. Because we are a public school, we did not have problem on number of staff or examiners. But we are moving toward there. Now we are more **encouraged to improve our skills in developing test items**, for example…" T6-I)*

In an effort to achieve a common standard, changes will occur in medical education. Although the designer of national examinations expected this to happen, how the changes were actually carried out by medical schools, including innovation and collaboration, was not predicted. These changes involved changes in medical schools' organisation, which was affected by a more complex situation such as internal and external pressure. Thus, as reflected in the concept map (Figure 9), the improvement of educational practice sits on a grey area of intended-unintended consequences. The following section will explore the unintended consequences of national examination.

5.4 Unintended consequences of national examination

The unintended consequences, as shown in the concept map, could be viewed as overlapping ideas with the intended consequences. I have expressed it as unintended because whilst the consequences might be inevitable as the national examination is implemented they were not reported as seen or expected by the

existing literature. The theme of improving educational practice could also be seen as 'the grey area' of unintended consequences of national examination, as stated in above section. Findings of this study represent the Indonesian context, which may differ from other developing or developed countries. Unintended consequences of the national examinations found in this study were: pressure on medical schools (internal and external), collaboration, distinctiveness of medical schools, the growth of private courses, consequences on teachers and consequences on students (including failed students' problem). In the sections below, I will describe each consequence from all groups' points of view.

Pressure on medical schools

A prominent unintended consequence expressed by participants was the pressure on medical schools, whether from internal or external sources. They had to face the pressure, whether they liked it or not, because of the national examination. I will divide the themes into internal pressures and external pressures, to analyse each view in more detail.

Internal pressure on medical schools: authority

The internal pressure came from their own institution, i.e. policy makers in university level, members of senate, even their own staff, teachers, students, and current state of resources in medical school. I consider this as part of organisational challenge, where medical schools put more effort in improving their organisation, resulting in policy changes. As can be seen from Table 6, this theme was mostly expressed by vice deans and programme directors, as the leader of organisation.

In some situation, the pressure was induced by the results of national examination.

> *"[The report of medical school's national examination performance] was used by our university **to calculate the 'accuracy' and performance of faculties** here. The result is that medical school is second in performance after faculty of economy and business. It means that **we have competitive admission criteria.** We are also **a favourite** after faculty of economy." (VD-G)*

> *"Now we are **B-accredited school.** It's clear where **the low point is: human resources.** We still need improvement. The next one is about research; many research were not documented well, not yet published. We need quality assurance [system] too, which we are working now. We put **priority in our quality assurance unit.** … We give **grants for research writing**, if they don't have any budget, the faculty will take care of that. We also send our teachers for*

*postgraduate study. It hasn't been done before. School H gives **scholarship for 5-10 residency trainings** each year… Our **next target is the UKMPPD result: 70%.** …" (VD-H)*

Teachers expressed comments related to how the pressure affected their teaching experience. More about consequences on teacher will be presented later in this chapter (see: assessment consequences on teachers). Meanwhile, students did not recognise this issue as much as the other groups, but they *pointed out how their schools' condition affected their learning.*

*"I think the most significant part of implementing competence-based curriculum is **the perception**. In CBC, **students are more independent in learning**. In the conventional system, we 'feed' them a lot, but with the new curriculum, we **have a different perception.** Not only for students, **sometimes teachers also get confused with how they are supposed to teach.** To be honest, for senior teachers **it was very hard to accept this at first.** It was a hard negotiation with them [to adjust the lectures]…" (T1-K)*

*"To adapt with the national examination, we tried to implement the national competence and new assessment system, such as **vignette type MCQ.** For anatomy subject, it is very specific so **at first we were confused** on how to do it… But **slowly, we can facilitate learning,** let's say for anatomical structure, the way it's expected..." (T9-K)*

"As the first batch from this school, we experienced difficulties to prepare for the examination… It was because we never learned clinical skills using those manikins…" (S4-F)

To overcome the organisational challenge, many of the schools tried to change policies so they could move forward. One of the challenges is to get every stake holder in line for the improvement. The participants pointed out that it required leadership to have the same perception of the urgency on this matter in order to make changes.

*"First, we **report every national examination results to the founding body**. Second, well let's be honest, we can find this situation everywhere… Every year, for the admission of new students, **they ask us to accept a higher number of students**. That is the fact. The instruction from them in the letter said so. So we said to them, 'this is the **bargaining**: give us **trust**; in a short term we will design a programme and in a long term **we need an extreme funding outside the yearly budget**'. They agreed: **DEAL**. We gave them advice and they agreed to allocate special budget for this." (VD-H)*

*"[By having the examination], our curriculum is **more focussed**, and so is teachers' vision. In a political point of view, finally [the impact] gets to the founding body; they are **more determined to prepare for UKMPPD** because it will affect the admission quota and it will significantly affect them too." (PD-C)*

*"The dean, he did a lot… We went to the founding body who has the funding. From my experience, the dean is capable to give understanding to them that **this is an urgent need** for medical school. I, as a subordinate, saw that **the quick response from the founding body** means that it is how a leader should be able to do: **lobbying**… **A lot of things [have improved**], including this hospital…" (VD-E)*

The above comments came from private schools; public schools did not seem to have the same experience.

External pressure on medical schools

The external pressure on medical schools resulting from national examination implementation came from competitiveness between medical schools and the need to maintain their reputation. In Indonesia, the 'quality' of a programme, school or university was defined using the accreditation status, awarded by the MoHER (see appendix A). Therefore, there was an unofficial 'league table' where top schools were the A-accredited schools (mostly public schools, older and more established), middle ranked B-accredited school, and C-accredited schools (mostly new and/ or private schools). This league table was "common knowledge" for stakeholders and, to some extent, had become public knowledge. A school's reputation, including how their graduates perform, was often viewed from this league table. Schools with better results in national examinations would get more status from being in the top league. This was perceived by medical schools as a 'competition' between schools in Indonesia.

Medical school's representatives were more aware of the competition because they knew the current 'league table' nationally as the committee announced the top ten schools with the best results. Mostly, they understood the current position of their schools and set targets to improve it.

> *"… I still question [the national examination].* ***Wouldn't it be better to improve the accreditation system?*** *… I admit that the* ***UKMPPD is good*** *and* ***could be a good standard*** *… It could be the* ***barometer*** *for all medical schools. That means* ***School Z students and our students here are at the same level*** *if they passed the examination. But we must recognise that* ***not all of the students have that quality****. … Let's say if School Z or School X are* ***running fast, we are race walking****… But how about School U? Poor them****, they walk staggered. It is very hard for them****. They* ***could be pushed out*** *form the railway, right? They have* ***limited funding and human resource****…" (VD-H).*
>
> *"Our dean always reminds us that we will have accreditation assessment this coming August.* ***We must work hard; we do not want to be degraded to B-accredited school.*** *… That also applies for the national examination…" (VD-A).*
>
> *"We use the examination performance report from the committee as an* ***input for the university****. They count* ***the accuracy and performance of faculties*** *in this university. The result is that faculty of medicine* ***stands second*** *after faculty of economy and business. This means we have a* ***competitive admission*** *…" (VD-G).*

Most teachers were aware of this 'competition'. They acknowledged that medical schools targeted higher passing rates and, therefore, placed pressure on teachers too. Teachers perceived that some schools changed their policy, e.g. 'filtering' students before the examination and putting pressure on teachers/ examiners. Some of them questioned the fairness of these policies and reflected on what they did in their schools.

> *"… They are doing it [filtering students for examination],* ***other medical school in the neighbouring city does that too****… That means* ***our school is too fair****… too 'innocent', because* ***we oblige (the rule), and just being straight****…"* (T1-D)

> *"T6: We all know that* ***the highest OSCE score is*** *School W* ***[a private school****]. I saw that School W had a good preparatory programme, but* ***it does not mean they did not influence the examiners…***
>
> *T1: I feel* ***bad for our students; so many of them failing****…*
>
> *T6: No, no… we* ***have to be 'clean'****… However there should be a* ***correcting factor*** *for CBT and OSCE scores,* ***based on schools' accreditation level.****"* (T1-T6-K)

Realising that competition existed and led to these school policies, some teachers were concerned about the growing number of new schools and what they perceived as their loose regulation of accreditation.

> *"… Now the* ***number of private school is growing rapidly****. Although 60 schools now implementing the national examination, I'm sorry to say that it is really poor in the east. …* ***There should be a moratorium; freezing the opening of new schools. No new schools until they improved their quality****…" (T8-L)*

However, some teachers did not feel the UKMPPD results meant they had to be more competitive with other schools. Instead, they described their effort as part of self-evaluation and improvement.

> *"… In fact,* ***our school is always there [in the top ten]****. It is more as a feedback,* ***if our results are not that good then it is a reflection*** *for us… where is our lacking in details…"* (T9-I)
>
> *"All we tried to do was* ***to pass the examination****… We had the system running,* ***so the result, either it's [being] second or third, it is a blessing****… [The most important] was* ***the effort****…"* (T8-B).

Similar views were expressed by students. They did not think that UKMPPD made them competitive. They only focussed on passing the examination and did not feel their motivation was related to defeating their competitor examinees.

> *"We **did not feel like we have to compete** [with other examinees from other schools]… **Passing the examination is the most important thing** for us…"* (S5-D)

> *"**Passing [the examination] was the most important**. Perhaps there were some who felt [they had to take the top ten], but not us…"* (S2-I).

The competition between schools, i.e. being in the top ten or being in the lower rank, had a big impact on their reputation. Medical schools' representatives perceived that good results would raise their reputation (for new and private schools) or confirm their status (for top and established schools). Those who managed to get good results despite their accreditation level or ownership status were proud of their effort. Good results were considered as an initial step towards improvement in medical schools and gaining public trust.

> *"We were **appraised as an example** for Muhammadiyah universities. We performed well in the benchmarking test. … **[The result] gives us motivation**. **Getting into the top 10, I feel like, the hard work paid off**…" (PD-B).*

> *"We were **worried that [less number of prospective students and complaints from parent] might happened.** But the public response was beyond our mind. **[The number of prospective student] was doubled** than the previous year. This means **people viewed that we tried to change and our stricter admission process gave good impression**." (VD-E).*

In contrast, poor results were unacceptable especially if this happened to top schools. Stakeholders might question a medical school's reputation and capability in medical education. For some schools, the poor result was a 'wake-up call' to start evaluating and improving their education.

> *"There are **concerns from our senior teachers**… Because the examination is an exit exam now**, the lower our passing rate, the more questionable our reputation is**… '**How can we get this bad result when we are A-accredited school?'**. But we have to come back to the point, **asking ourselves how the education practice run here, is it good enough?** …" (VD-R)*

Most teachers understood that their schools' reputation was at stake. Teachers whose schools had good results felt proud and glad that they would not be underestimated. Some teachers tried to not be influenced by their school's reputation when they became examiners.

*"Because our school is new, this **UKMPPD proves how our quality** is. If **UKMPPD does not exist, we could be underestimated**. **… our students' [quality] is at the same level** as other schools'." (T6-F)*

*"Our neighbouring school's teachers said that **we are now as good as them**. We are **number four [nationally]**…" (T3-B)*

*"Nobody protested [the results]. We all agree that **we care more about our quality.** It is **for the sake of our school's name.**" (T5-K)*

The findings show that competitiveness was inevitable after the implementation of national examinations. Even though the 'league table' had previously existed, the results of national examinations did not always reflect this. New and private medical schools had the opportunity to show their potential and, consequently, gain better reputation. Schools, including established ones, were pushed to improve their results so they could be in the top list. A cross-cutting analysis of this theme will be discussed in Chapter 6 (Findings Part 2). The 'internalisation' of competitiveness created certain pressure for deans and teachers in determining policies and delivering teaching, but not for students. This reflected their interests and involvement in interinstitutional relations. Students focussed on passing the examination, mostly without worrying about reputation or competition. Medical schools representatives took the competitiveness as a *motivation* to change policies and introduce target setting. Most teachers understood this competition, and the status of their schools, so they adapted to the policies. They reported pressure when they performed their roles as teachers/ instructors or examiners. The consequences of this high-stakes assessment on teachers will be explored later in this chapter. In the next section, I explore the distinctiveness of medical schools' identity and collaboration between medical schools. These two themes emerged as responses from the consideration of external pressures.

Collaboration

Since its implementation in 2007, the national examination has led medical schools to collaborate in improving their capacity. Collaboration within regions was coordinated by the regional AIPKI, involving medical schools in adjacent areas. The most common collaboration was regional "try outs" or mock exams. This was carried out four times a year, just a month before examinations were

held. Regional try out gave feedback to schools on their students' performance so they could prepare their students better. Most schools stated that they also had other forms of collaboration, such as regional MCQ and OSCE item bank development, item writing workshops, teachers' training, and a preparatory programme for resists. They viewed these efforts as a mean of improvement together which gave much benefit for all schools, despite limitations in their regions.

> *"We have trainings and try outs for UKMPPD. In Region 3, we have **a try out a month before the examination**; at least 4-5 times a year… We routinely attend the **regional item development workshops** … That was the **formal collaboratio**n. The informal one, we often **consult our problems** with School Y ... Sometimes **informal chat** with other vice deans such as on fees and budgeting, is **helpful**." (VD-D)*
>
> *"In this region, we **alternately take the responsibility** to arrange the **workshop** [in reviewing test items]. … We also had **trainings and other activities**, but **not as intense as it is in Java**. At least five schools in this city joined the trainings. Now the schools **know about competence-based curriculum and how Medical Education Unit works**…" (VD-J)*

In improving educational practice medical schools established collaborations with other schools and stakeholders within and outside their regions. For some private and new schools, a long-term partnership with public schools regulated by government was viewed as a benefit. Public schools helped new schools in establishing curriculum and coached them in managing teaching and learning. Since the introduction of national competence (SKDI) in 2006, new schools had been guided by public schools to design and implement standard competence-based curriculum. At the time of this study, new schools had started designing and executing their programmes independently.

> *"We **started with [the help] from R university**. They arranged [how the learning] worked, because they were the one who had [clinical] departments. Starting from 2015 [when I was assigned], **not anymore**. We manage our education… **Signing MoU with 10 hospitals** including the district hospital and 12 primary care centres. … We **designed modules [and] log book, independently**. We developed **portfolio for the first time** here…" (VD-H).*

Besides improving the medical schools' capacity, collaboration worked to improve the region's and community's health. Local governments cooperated with medical schools to work towards better health care services in their regions. New medical schools in remote areas were supported by their local government. Scholarships, which provided full tuition fee and allowance, were allocated for

students from local communities to produce doctors who would later provide health care in those provinces.

> *"We were established in 2005 … Originally to **fulfil the demand of local health care provider**, so 90% [of students] were in **a scholarship-scheme**. … We went to get the top ten from each district in this province to be selected for admission. … Only three of them **get the scholarship until they were graduated**. … They had **high motivation** to become doctors." (VD-N)*

Some private schools also cooperated with local governments in providing allocated places to prospective students from remote provinces, especially from the east of Indonesia. As mentioned in the previous section, this created a special admission track within schools and there were consequences for adopting this policy.

> *"We have policy to aid **east region [of Indonesia]**, so we have a network in Borneo too. … It is about 10-20% [of new students] admitted from this track. They are from Borneo, South East Nusa, and Papua. This means [we are working] with **the not-so-bright students**, [who] sometimes [spend] the longest time to graduate. … They **have the same test** [with regular students], but with **different passing grade**."(PD-Q)*

Collaboration with health care providers such as district hospitals and primary care centres was the one most frequently described by medical schools' representatives when they were asked about their networking.

> *"We have our main teaching hospital here; plus five district hospitals and one psychiatric hospital as affiliated hospitals. We **cooperated with the district MoH office** to have a network **with primary health care centres**. We signed the MoU…" (VD-O).*

Students noticed that collaboration was an advantage for their learning, since they could encounter more cases in district hospitals and primary health care centres. They appreciated the regional try out to prepare them for the examinations.

> *"Having **try outs made us more prepared** beside of what we learned from our undergraduate study…" (S10-B)*
>
> *"If we seek for clinical cases **we cannot find in the main hospital**, we could **get opportunities in primary care centres**, for example worm infestation which was rare in big cities. … We also got normal baby delivery in primary care centres or **small district hospitals**." (S4-I)*

Teachers expressed similar views; they perceived that the collaboration benefitted their schools. Clinicians from district hospitals were recruited as teachers and registered in the higher education ministry. The collaboration

directly affected clinical teaching and faculty development since schools carried out training and workshops for clinical teachers for staff in the hospitals.

> *"Some departments in **clinical rotation are held in affiliated hospitals**. [We also reached] for almost every hospital near the northern coastal line and primary care centres. Their **staff [were recruited] to be clinical teachers**, we got them registered [in the MoHER]. … We had **internal trainings** for them." (VD-I)*

For new or private schools the recruitment of clinical teachers helped them to overcome the limited number of examiners for national OSCEs.

> *"We have 27 staff, currently only 8 of them are active and the rest are in their **post graduate training**. We have the rest [of staff] as examiners who are **clinicians in district hospital, army hospital, and health ministry local office**. In our last examination, we recruited them because we had **limited number of examiners**." (VD-F)*

Collaboration played an important role for medical schools in implementing national examinations. While the government had official programmes to encourage collaboration and smooth the implementation of national examinations, medical schools made an effort to establish their own collaboration. Collaborating in faculty development was perceived as one of the most crucial aspects by medical schools. It helped medical schools to strengthen their potential by improving the competence of teachers and clinicians. It also gave clinicians and hospital staff the benefit of getting involved in education and expanding the capacity of hospitals/ primary care through faculty development programmes.

Distinctiveness

In response to the competition between medical schools, some schools tried to be distinct in their curricula. Some schools had an elective subject or block, while some others had specific programmes in their clinical rotation. Medical school representatives viewed the distinctive curriculum as a strong point of their medical education. They assessed the need of their community and tried to tailor their medical education output to meet that need.

> *"[We **designed the curriculum] in compliance to our task [in community]**: covering competence and skills to manage **health issues in coastal and river basin area; industrial [and occupational] health, and frontier-related health issues**. Our area is near the border of Singapore and Malaysia." (VD-L).*

Teachers supported this innovation and perceived that some of the competence learned in the distinct programme should be set as an example of distinctiveness. The inclusion of local health issues was seen as necessary for that medical school's curriculum. Similarly, students argued that the distinctive competence could be used in a national curriculum. Students understood that the distinctive curriculum would be a benefit for them in the future practice.

> *"There should be **20% local content in the curriculum** … It started as **local content module** … it is arguable that in our curriculum we have this distinct content than [other schools**], there are cases which we could only encounter here in these islets**…" (T1-F)*
>
> *"We learnt about **climate, weather, sea condition**. The next module we will learn in real setting, such as going to fishermen's villages, free diving, visiting ships, training in hyperbaric chamber… … Because we know that our school's vision is to **meet the need for doctors in these islets**, we were trained to be able to **survive** out there…" (S6-F)*

Curriculum changes led by the national examination's implementation had focussed on producing outcome as listed in the national standard of competence, i.e. the list of competencies (knowledge and skills on medical cases) that should be acquired by graduates. Medical schools had made similar changes in their curriculum to comply with the national standard and implemented a competence-based curriculum referring to the standard. However, instead of having uniform curricula, most schools maintained or innovated to keep the local context represented in the curriculum. The distinctive content was designed considering the local context and aimed to be one of the strength of medical schools. This kind of distinctiveness was well received by teachers and students. Even though this content was not assessed in the national examination, teachers and students considered that it was necessary to have contextual content in the curriculum to meet community needs. This can be seen as part of the authority of medical schools, where they could maintain their uniqueness while complying with a national standard of competence.

The growth of private revision courses

An unintended and unpredicted consequence of national examinations was the growth of private revision courses. The growing number of private revision courses established since the introduction of national examinations, especially

OSCE courses, has become a phenomenon. In 2007, when the first national examination took place, there was no other resource for learning other than programmes offered from schools. In this study, participants mentioned at least 8 names of private revision courses in different cities. Some private courses offered courses in many cities and home-based distance learning courses. This may indicate the high demand of students needing support in preparing for the examination. The national committee reported that the main reason for students undertaking private revision courses was to gain confidence (Committee of Indonesian Medical Doctor Competence Examination, 2013). This report made medical schools aware of private revision courses and how students viewed their preparatory programme.

In every focus group, at least half the student participants had taken a private revision course to help them prepare for the examination. The most common reason was to gain confidence and motivation. Private revision courses were seen an alternative option to discuss difficult test items and connect with students from other schools. The course usually took 6-8 hours every day in a full two-week programme. Private revision courses were carried out in small (5-10) and medium (10-20) groups of students, facilitated by 1-2 tutors. Some students reported that this scheduling and learning environment was helpful to motivate them to spend more time studying.

> *"I am lazy… and **worried because I am not that smart**. I tried to join the private course that **made me had to study**. At least **I did not just stay at home** … at least **I was 'forced' to study**…" (S5-B)*
>
> *"[The main reason] was **to be able to keep studying**… **to be 'forced' to study**…" (S5-I)*
>
> *"We **all took the private course**… It is **more detailed [in learning topics]**. We also formed a **small study group and discuss the exam topics** together…" (S5-D).*

Students reported t that after completing their clinical rotation they did not feel like they were prepared for the examination so they needed to take private courses. Most students stated that they only took CBT (computer-based test for MCQ) private courses. They perceived that preparatory programmes from their schools were lacking in comparison to private courses', especially for CBT, but they thought what they learnt for OSCE in schools was sufficient. Some schools did not have an OSCE preparatory programme while some other soffered small group clinical skills training sessions.

> *"I think **the preparatory programme from our school was lack in terms of its content**… There were **uncovered topics** such as worm infestation … [Our teacher] said they already forgot about it but we got the topic from private courses. **Our friends who did not take the course, knew from us**…" (S4-B)*
>
> *"I did not take the OSCE private course because **the one we had [in our school] was really helpful**." (S4-F)*

Some students thought that their possibility of passing the examination was lower if they only took their schools' preparatory programme without the help of private courses.

> *"Let's say, if I did not take [private course]… **If I only learnt from what I did in clinical rotation or the preparatory programme; it may only be 50-50 percent [chance of passing the examination]**." (S4-D)*

Even though most students thought that taking a private course was necessary, it had disadvantages. Most private courses cost 2-3 million rupiahs (around £150) and some students had to add travel costs to their budget if the private course was not located in their city. This high cost was also one of the reasons for students not taking private courses. A few students thought that their school's programme was good enough to prepare them.

> *"We needed to go to Surabaya [in Java] to take the preparatory programme. It cost us **more than five million rupiahs (£250), for the courses and flights**…" (S4-F).*
>
> *"I did not take the private course since **it was too expensive**. I practiced the MCQs with my group of friends…" (S9-K)*
>
> *"I did not join the private course because **it's such a waste of money and energy**… **What I studied during clerkship is sufficient** to prepare me for the examination…" (S9-B).*

Most medical schools' representatives, as well as teachers, were surprised to see the high percentage of students taking private courses. They felt that their preparatory programme adequately prepared students and no other course was necessary. They had concerns about students who relied only on private courses to succeed in the examination.

> *"We **let them taking the private course**, but we also have an obligatory programme here. … [My concern] is **students thought that they don't need clinical rotation; they just [need to] take the private course and they will pass**."* (VD-H)
>
> *"It was almost **80% of our students** [who took the private course]; it is a lot. If we see **the modules, it's not that different** with ours. In our school, **we have different programme for first takers and resits** [which the private courses don't have]."* (PD-C)

> *"I **felt hurt** when I knew [most students took a private course]. How come **our specialists 'lost' by fresh graduate tutors**? That is an **insult**. They said **they did not feel confident with our programme**…"* (T6-I)

However, in some schools, representatives and teachers did not object if students wanted to take private courses. They admitted that their programme had limitations or they did not have a preparatory programme.

> *"We **collaborated with AU medical school [to have a preparatory programme]** and students also took a **private course**. They agreed to arrange their own timetable for those [courses]…" (VD-F)*

> *" … in the programme, students **tend to be afraid [to ask]**... even though we wish there is a discussion. ... perhaps because students **see us as their teachers**, they still do not want to 'come out'…" (T5-D)*

The key issue raised by the growth in private courses was the contrasting views of students and educators (teachers and medical school representatives). While medical school representatives and teachers had concerns about the quality of their programme compared with private courses, almost all students participating in this study took the courses. Students considered them to be more helpful than just taking preparatory programme from their schools. Three features which students sought from private courses were learning environment, networking opportunity, and a practical approach to national examinations. The growth of private courses was an unpredictable and unintended consequences of national examinations, although this could be seen as an opportunity for medical schools to improve their preparatory programme, as some schools subsequently did.

Assessment consequences for teachers

Consequences of the national examination from teachers' point of view focussed on how it affected teaching. Teachers reflected on their 'double-role' experience as teachers and examiners when discussing this issue. They were mostly aware of the national examination as a high stakes examination and how the results might affect their schools. This led to teachers trying to adapt to the changes in their schools and putting more effort into preparing their students. Teachers needed to keep up with the changes and identify their students' potential and weaknesses. Competitiveness brought by the examination also challenged teachers to exert extra effort in the preparatory programme. Most teachers

perceived that it was better being stern in the preparation with their students' fate at stake.

> *"They must know;* ***all teachers must know [the competence being tested].*** *Here, we* ***must have the same perception on what we should teach*** *them…"* (T1-I)

> *"We did not feel it affected how we perform as examiners. It affected* ***more on how hard we prepare them****.* ***[After the exit exam status], I taught harder****, even in my modules… I* ***did not think like that previously****, but now… If I think [of this], it is* ***better to have a stern move than let them being stalled*** *in other school [because of failing]…"* (T1-K)

As examiners, some of the teachers said that it affected their performance: for some schools teachers became stricter and in other schools, became more lenient. However, it is unclear whether the status of the exit exam affected their judgment of students' performance or not. The concern was raised toward OSCEs administered in other schools by some teachers who were assigned as external examiners. Most teachers were anxious when they were assigned as examiners, especially since they know it is a high-stakes examination.

> *"In the preparatory programme, of course it* ***affects us as instructors to prepare students****; that they have to pass the examination. But as* ***examiners****… Yes, indeed, the* ***exit exam made us more anxious****…" (T2-D)*

> *"… I think it was just a personal concern… We were* ***worried that examiners will go 'pass the students'****… But here, we* ***try to be fair****… really fair [as examiners]." (T6-K)*

> *"****Yes I think [it could affect our judgement]****, that is why I* ***suggest to not use OSCE****. If we want to do OSCE, [we must] send students to other school so it is* ***free from conflict of interest****. We know how our students perform…" (T1-L)*

The role of teachers as examiners could be viewed by students undertaking the examination from a different angle. Most students were more worried about CBT rather than OSCE. The main reason revealed was because their own teachers were the examiners in OSCE. Students felt more relaxed because they thought their teachers will not do 'harm' to them as examiners.

> *"We were more* ***worried about CBT than OSCE****… Perhaps it was because* ***we knew who the examiners [in OSCE] were****…" (S11-B)*

> *"… yes there was* ***a feeling of [relaxed] because the examiners were our teachers whom I know****." (S5-I)*

However, there were also students who felt more burden because their teachers were also their examiners. They understood that their teachers would not go easy on them and might even be stricter than examiners in other schools.

*"I was **scared of CBT** because my peers said that it was difficult. … But in fact, in November, **many students failing OSCE**. So then we thought we cannot underestimate the OSCE. Even though we know the examiners, **we could fail**…" (S6-F).*

*"In OSCE, I was palpitating. … The examiners were our teachers. I thought it would be **embarrassing** if I could not do a simple [procedure] in front of them." (S2-K)*

The national examination, as a high stakes assessment, so far brought consequences to those involved in teaching and learning. In this section, I have attempted to explore what these consequences were and how teachers experienced them. Teachers participating in this study described the consequences as their adaptation to policy changes (including curriculum changes and preparatory programme) and their changing role as national OSCE examiners. Changes in teachers' performance, as described above, were expressed in most schools, but how school characteristics affected this will be presented in the next chapter. The next section will explore the NLE's consequences from the student point of view.

Assessment consequences for medical students

As described by some of the participants earlier in this chapter, the NLE in Indonesia was perceived as determining the 'fate' of medical students: whether they were declared as competent and graduated as a medical doctor (MD) or should spend more time studying. All participants identified that students undertaking national examinations might be the most affected by this high-stakes assessment. In this section I will explore the consequences of the national examinations for students, focusing on their experience in undertaking the exam and the consequences for students of failing the examination.

Learning strategies and psychological impact

To understand the consequences of national examinations on students' learning, students were asked about their experience in preparing the examination and how it affected them. Most students were not aware of, or did not consider, the NLE's consequences (i.e. passing or failing the examination) when they were in their preclinical years, even though they knew about the exam. They understood

that there was a set of competencies that should be acquired during their learning, but they did not reflect on how that would be achieved.

> *"We knew [about the standard of competence]* ***since [we were] in preclinical year****. We* ***knew there will be a national examination****, but* ***we could not imagine how it would be****."* (S4-L)

> *"Actually, when we entered clinical rotation****, we were told by our clinical supervisors, the tips and tricks*** *[for OSCE] … to learn clinical cases with level of competence 3 and 4. Our friends knew that we had to learn certain competence. But* ***because of learning activities in clinic*** *as such [took a significant amount of time],* ***we only read the standard of competence (SKDI), but not to learn [the competence]…"*** (S10-B)

> *"We* ***knew*** *about the national examination, but* ***we did not realise that we had to go through such a huge thing*** *[like that]. We also thought* ***'it's ok, it's still quite far'****…"* (S2-I)

The state of being *unconsciously incompetent* was what most students experienced throughout their preclinical and early clinical years. Some students described it as 'just rolling on' or 'surviving' through clinical department/ hospitals without having the need to learn for the examination. It was not until nearing the end of their clinical rotation/ placement that they became aware of, and then started preparing for the examination. Knowing that the national examinations acted as an exit examination, along with its consequences, students reported a change of behaviour and learning strategies.

> *"What we learnt during the clinical rotation was only* ***for a short term****, to pass departments' examination. … We thought about having to pass the examination* ***after we finished the rotation, after we did our final exam****." (S5-I)*

> *"I thought [about the examination] during my clinical years. … Because* ***if we read SKDI, we knew what competence [we should acquire]*** *in that department, so* ***we knew what we aimed for****." (S8-K)*

In internalising this awareness of the examination, most students felt the psychological impact of having to pass the examination and some of them used it as an internal motivation. They also related their effort to their responsibility to their parents (who paid for their tuition) and fear of embarrassment. External motivation for some students included *camaraderie* with their colleagues and respectfulness towards their teachers. Some students made efforts in adjusting their spiritual behaviour; i.e. better practice in their faith, which they believed would help them with the examination and gave *inner peace*.

> *"…Adding the accommodation cost to it, we* ***will be very sad to burden our parents*** *if we failed the examination…" (S4-F)*

*"We **prayed to God** and **asked for forgiveness to other people**, just in case we had wrongs to them…" (S4-D)*

"UKMPPD made me more religious… I would feel ashamed if I fail the test…" (S10-B)

"Our teachers motivated us… But the biggest motivation was seeing our colleagues succeed the examination and graduated…" (S3-L)

*"The **jittery** was… wow! [I] **Thank God how it went through**, but before… my mentality was **"scared"** (laughing). It's more about **psychological warfare**…" (S6-D)*

The psychological impact of the national examinations was described in those quotes as both motivating and burdening. The burden was more prominent for resits, who had failed on their first try. The burden felt by students who had failed made it difficult to learn and prepare themselves for the resit examination. This also had an impact on fellow students, taking the examination for the first time, who found it de-motivated them.

*"When I talked to my friends who were resits, they **felt reluctant to join our study group**… Because of the **psychological burden**, it was **hard to motivate** them…" (S3-B).*

*"Some said that **psychological burden is the main problem**… They shut themselves in the bedrooms and were afraid to go out…" (S2- D)*

Despite feeling the burden of failing the examination, some of the resits participating in this study viewed their failure as an opportunity to improve their performance so they could be fit for practice.

*" … (when I failed) in August, **[my reflection] was that I did not learn that much**… So, I used the **opportunity to learn again** what I had learnt during my clerkship…" (S9-K)*

The consequences of NLEs for students' learning were prominent during their final year rather than in preclinical years. In this study, it was revealed that this started as an awareness of competence acquisition, internalisation, changes in learning strategies, and psychological impact. However, how these consequences were experienced by students appeared to be affected by how their schools and teachers perceived the NLE. This issue was explored using the cross-cutting analysis, which will be described in the next chapter.

Failing students

The consequences of assessment results, whether passing or failing the exam, should have been predicted by the designer of the NLE. However, the impact of failing the examination was poorly understood. In this study, it was found that failing students or resits could cause an unpredictable scale of problem. Students who failed the examination were deemed not fit for practice, so they could not graduate, and therefore must spend more time in their schools. Medical schools, by regulation, must take responsibility for preparing their students to pass the examination. The high number of resits in some medical schools was quite significant. This high number was found to be more prominent during the year when the regulation of CBT and OSCE as an exit examination was implemented (2013-2014). The number of resits taking the examination were as high as 1300 in 2014, which constituted approximately 15% of total examinees in that year. Many of those failing students had failed the NLE more than once. The burden of failure for schools, students, and families was perceived to have significant impact, and this led to criticism and protests. Failing students affected the school's reputation and accreditation while for the family it was a major financial burden. The time and cost of medical education was highlighted by most participants.

> *"I think the **national examination 'debilitates' medical students** because [it makes them] **longer to be graduated**. We must acknowledge that **not all future doctors have strong background**; some of them just **borderline** and **want to return the money they spent to study in medical school**. With this, they cannot do anything. **How much an appointed doctor in 24-hour clinic can get in a month? Nine to ten million rupiah [around £500], it will not be enough to live** in Jakarta…"* (VD-G)

Disputes about the national examination and its regulation were still on going at the time of this study. A judicial review was rejected by the Constitutional Court of Indonesia and in 2016 it affirmed a decree on medical education including the regulation of national competence examination. However, the problem of failing students existed, and this led to the Association of Indonesian Medical Schools (AIPKI) attempting to seek a solution. Some schools opposed the idea of limiting a student's opportunity to undertake the examination to three times, which was discussed in an AIPKI meeting in November 2015. These schools thought that it was better to let failing students graduate just because they already spent years

in medical schools. 'Cutting off' students' careers without a clear solution was seen as harmful for both students and medical schools. They highlighted again the single-shot assessment as their reason for not saying that failing students were incompetent.

> *"Resits are mostly **failed in their CBT, not the OSCE**. It means that **they have the required clinical skills, it is just their fate**. … It is a natural thing. … Okay, if UKMPPD must go on, we must find an **alternative for the decision of limiting the chance up to three times**. We need **another solution**. We **cannot just ask them to move to other school** or **change subject**. It is fine for the first four semesters, but **for the final year students, no**."* (VD-D)

> *"Yes, **it is [a financial burden].** Students spent tens of millions, even **hundreds of million rupiahs** now just for the **entrance fee**. Adding the living cost to it, it could reach **billions [more than £50,000).** [The failed students] are **not young anymore**; they are **over 30-year-old**, **what is left to do in his life then? Why don't we just give them their diploma?** Whether they want to get licence to practice or not, **the most important thing is that they are graduated**. … We **must give their diploma**. But now it is not the regulation, is it?"* (PD-Q)

> *"We **did not think [the UKMPPD] is unfair**. We **support** it. In the higher forum**, many people have the same opinion with us**. The **'dropped out' system**, which was **suggested for students failing UKMPPD three times, or using the 2n+1 rule [for the length of study]**, has not been applied yet. If it is [applied], **the protest will be worse**…"* (VD-E)

Some medical school representatives shared their experience of dealing with failing students, which ranged from just a discussion, a small protest, a boycott, and, in an extreme situation, *a small riot*. There appeared to be a link between the culture of the community where medical schools were located and how failed students responded to their results.

> *"… in 2014, it was **chaotic** … ten students' fail result was nullified. They had a good luck … they were resits, but they already graduated so we cannot say anything. We **let them take the examination** [from IDI]. They protested to us before, but not like a boycott… It was probably because of our **culture** as Balinese; we rarely made a fuss…" (PD-M).*

> *"…They already paid the examination and preparatory programme fee; it made the **parents upset.** It is **3.6 million rupiahs [around £200]** in this medical school… that is burdensome [for parents]. … Isn't that **a hassle for this country** too? That is what **AFKSI [Association for Private Medical Schools] concerns** for. … Just **leave [the failed students] to us**. We are **established school**, our **graduates work well**, **why do we have to do that?** We have experience, here, where **[failing students] burnt tires, burnt everything**… They **did not allow their juniors taking the examination** when they did not want take it… [They said] **'We don't want to do the exam! Burn the tires!'** If I am not mistaken, it was **2013 or 2014**… I said to them **'It is impossible for you to get the diploma (shaking head and waving hand)'**. We ended up **being locked; the chancellors and dean were locked up** in rectorate. We could not go out and **were forced to hand them the diplomas**…" (VD-J).*

The problem of resits became a huge issue at a national level, which led the Indonesian Medical Doctor Association (*Ikatan Dokter Indonesia* – IDI) to subject

the national examination to a parliamentary hearing and judicial review in the Constitutional Court of Indonesia in 2014-2015. IDI proposed a remediation programme and decided to administer their own examination (i.e. not the official one by the national committee) for the resits who had graduated and held their diploma at that time in order to reduce the high number of failed students and resits. Medical school representatives were aware of this issue and they had their own views on this matter. Some medical schools representatives reported that the resit problem and dispute over the national examination had become a political issue.

> *"As far as I know, **that kind of urge came from private schools**. But we took that module programme from IDI too. … We only had one resit at that time. He was our '**top scorer'; being failed 7 times**. … However the **student did not want to take the IDI exam** and could pass the national examination." (VD-N)*
>
> *"Actually, it is just a **dispute** of IDI's arrogance with medical schools. If we get in depth of this problem, what is the real aim of this? It is for IDI to have a power as an organisation. Now we know that IDI is not purely a professional organisation; there are **political intruders…** [It's] just like what happened in Medan, what did they do? Like a political party, [they] threw chairs and desks [during the assembly]."(VD-G)*
>
> *"…[What] AFKSI (Association of Indonesian Private Medical Schools) did is **a political thing**, really… At that time, they **did not want to [agree] with Indonesian Medical Council** (KKI) [about the national examination]. … I said [to them], [what we did] was just asking KKI, **failing students must be supervised closely**. [We must] make a real plan. **[The national examination] must be able to distinguish: those who are competent, pass; those who aren't, must wait.** Wait. But at the end, **there was a dispute by a gentleman from IDI**…" (VD-J).*

While the problem of failing students was still there, and could recur in the future, some schools decided to do something about it. They wanted their students to pass the exam, so schools with several failing students arranged a 'special treatment' for the resits. They identified student's deficiencies and offered a preparatory programme individually designed for resit.

> *"Students who had a non competence-based curriculum (CBC); they did not experience skills training programme. There was **no OSCE and Clinical Skills Laboratory**. They only learned clinical skills during their clinical rotation. That was **the hardest part [for us]**, the transition [from non-CBC to CBC] had been almost 4 years and [the resits problem] was ended by UKRK, an IDI's examination specific for resits. There were many students **failing** … almost 200 students." (VD-H).*
>
> *"We have a **supervision** for resits. We recruited our teachers for **mentoring [programme].** We also let the fresh graduates involved in the mentoring programme." (PD-B).*
>
> *"We have [a programme for resits]. They are supposed to have [consultations] with their supervisor and then take the **supervision programme**. Honestly, **those who failed more than three times are really down and lack of motivation. Not only because of their knowledge, but also the motivation. Psychological support is essential** … **We do everything to make it work**…" (VD-K).*

*"We had **collaboration** within this region … We put together [the resits] from medical schools in this region at school U. There were six schools participated. We **worked together [to give trainings] for our students who had conventional curriculum**. … This was **regional AIPKI initiative**." (PD-Q).*

The findings above show that there were different responses to student failure in medical schools. There were dissenting opinions about how private and public schools responded to the resits problem and its complicated impact on medical education.

5.5 Challenges in national examination implementation

Having described the consequences of the NLE, I will now move on to explore how the implementation of the exam took place in Indonesia. This section is expected to give a description on the process of changes that happened in medical schools, thus highlighting those consequences. It will also explore more conclusively whether the NLE is perceived by participants as being advantageous or disadvantageous. I will start the findings by discussing challenges in implementation, criticism of the national examination, and the advantages and disadvantages of the exam.

The most common challenge was the limited resources: human resources, facilities, and budget. To carry out an examination, a school must have the resources and facilities needed to administer examinations. This means they need computer-equipped rooms, rooms for OSCE stations, manikins and medical instruments, and a reliable internet connection. The cost of procuring these facilities was high; therefore, support from government and founding organisations were expected by medical school representatives.

*"In 2012 [when we had our first national OSCE], **we did not have the complete facilities**. We **asked [to our foundation] to build a new [skills and computer] laboratory**. We build the CBT and OSCE facilities, including **manikins**, which **cost billions rupiah**. It was **arranged in our yearly budget**…" (VD-J)*

*"It was unbelievable… we cannot argue that **the foundation's largest income is from medical school**. It means we don't just hand them huge amount [of money], but they give it back to us. Thus, significant changes: **buildings, facilities, human resource, a CBT centre,** were completed in just one month. A hundred **units of computer** which cost **1.2 billion rupiahs (around £80,000),** was completed in that month. OSCE centre needed 3 months including **manikins**… and **we are really grateful for HPEQ programme [from government]** …" (VD-H)*

Administering the examination for the first time needed significant effort by schools in remote areas. These schools had limited access to the internet and distribution of the manikins. They needed to travel to the main island, an extra cost, to enable the examination to take place.

> *"… It was **a hassle** for us. The CBT was fine … But **the changes were significant after OSCE**. For us, **a new school**, **preparing infrastructure** such as building, manikin, and examiners **[was painstaking]** … In remote area, with more than one medical schools and strict requirements for examiners, **we were in trouble** at first. We **had to go to other area to recruit clinicians** … there was a **strong refusal** from hospitals' director [because of the recruitment]. It was really a troublesome situation…" (VD-E)*

It was a challenge of the national examination that it was affected so considerably by medical school's organisational circumstances. The readiness of medical schools as an institution, including how they work with teachers to prepare their students, varied greatly between one school and another. Schools with strong support (e.g. public schools with government's support, private schools with a strong founding body) and located in Indonesia's main region/ island did not have as many challenges as schools with organisational problems or those located in remote area. This section re-emphasises how the impact of national examinations could have different manifestations depending on individual medical school's context and characteristics.

Criticism of the national examination

Since it first took place in 2007, the NLE has received varying degrees of acceptance. A dispute concerning whether this examination must be carried on was happening when this study took place (Constitutional Court of Republic of Indonesia, 2015). It was therefore not surprising that, when participants were asked about their thoughts on the national examination and room for its improvement, they raised significant feedback and criticism. The most common criticism was about the content and administration of national examinations.

The CBT content was criticised for its 'too broad' coverage of competence and uneven proportion of topics in test items. Some topics, such as bioethics, public health and biostatistics, were considered the most difficult ones.

*" … In CBT, there are 200 items in 200 minutes, so it is **a minute for an item**. If we see the composition of items, it covers **all topics that we learn in medical school.** The problem is, I think **200 items is too much**. The **load for students is high.** They have to understand a topic in an item; but 200 is too much load… If only it could be less (than that)…" (T8-D)*

*"In the last examination, an external supervisor said that these **questions were more relevant for residency**. It was **too difficult**, even for an internist…" (T9-L)*

*"CBT was more [worrying] because we **do not have the 'syllabus'**. We did not know whether from 200 items, the 50 items would be public health or 100 items would be an internal medicine cases; there was no such thing." (S6-B)*

Criticism of OSCE administration was related to the use of standardised patients (SP) and examiners. Students mostly had concerns about how SPs presented cases, which they perceived as sometimes inaccurate or inconsistent, and which therefore affected their performance.

*"I think **OSCE is prone to technical error** such as **SP error**, where they could say different things. When I asked him about fever, **he said yes there was**. When my friend asked him, **he said none**. After we finished the OSCE we had discussion about **how our history taking data could differ**. Examiners were **not aware with SP error**…" (S1-F).*

Although some students thought that it would be easier for them to have their own teachers as examiners, others thought otherwise. The most important feature of an examiner was to not interrupt a student's performance, which some students had experienced in their OSCE.

*"I have **more concern about examiners**. I don't know **whether he was tired or what**, but I did what the instruction asked. After I did the procedure, he asked "Are you finished just like that?". **I had to repeat my procedure** and then he said "that is how you do it, right. If you don't do it like that **you won't get scores**." (S3-B).*

*"There was an examiner in err, neonatal resuscitation case. The case was that the new born did not cry and we were asked to do the management. One of the task is physical examination, which was when I was confused whether it should be checking the Apgar score or head to toe examination including chest and head circumference… **The examiner 'meddled'** and **said "Do the examination first"…** [It was still unclear to me] what did it mean… It was unsatisfactory for me…" (S2-D)*

Teachers had more concerns about the quality of scenarios and rubrics used as instruments in the OSCE. As clinicians, they sometimes had different opinion on the *correct* answer/ procedure in an OSCE station. It was a dilemma for them when they wanted to pass the students because they thought the performance was sufficiently competent but the rubrics did not permit this.

*"I prepared them for OSCE… [in the examination] they were asked to do procedures, **which [the steps] was not as what we taught them.** So that was the problem. OSCE is **generally easier***

***because there must be subjectivity from examiners**, it is **impossible to be fully objective**…" (T3-F).*

Even though all test items were reviewed before being tested in the CBT or OSCE, most participants perceived that there were differences between the references used in the examination with the ones they used in teaching and learning. The differences between medical schools, discussed earlier in this chapter, could explain why this issue arose.

*"The problem is, **we do not know how different it is, the standard between regions can be varied.** … Because of the regions and **it is not equal between west and east regions**."* (S2-K)

Despite the criticism of test content, all participants agreed that a national reference, i.e. a guideline for references used in test items/ OSCE cases, would be a solution for the problem.

The next issue was the national examinations' status as an exit examination in Indonesian undergraduate medical education. In this study, the proportion of participants supporting 'exit exam' status was bigger than those who opposed it, although this proportion was different in every school. Those who supported the examinations perceived that at the end of undergraduate study there should be a rigorous assessment to determine the fitness to practice. They admitted that there was room for improvement, but this did not affect their commitment to the concept of a national examination.

*"I agree with the status of national examination as an exit exam. **Failed students should not be graduated and enter the real setting, since they still need to be trained.** It is medical schools' responsibility to make them competent before they encounter patients…" (PD-C)*

*"We still need the examination, at least for the next few years, because you know, our **[education] system is not strong enough** to ensure the quality of its process and output… But I do hope that **we will not need it in the future**, when **the quality of medical education is assured in a good level**. It is a good thing that such an examination exists now, at least that is what our dean thinks…" (PD-Q).*

*"If we are looking for the perfect [assessment] we will always be unsatisfied. We are **still improving continuously**, so there are changes [in assessment] and so on… But I cannot say that it is an inaccurate method, because there is always some problems…" (VD-J).*

*"I think the UKMPPD as an **exit exam is suitable** since it is **at the end of our study** in medical schools… But to assess competence, [I do not think this is right] because there are **differences between centres and collegiate**…" (S2-K)*

The whole concept of an *exit examination* was criticised by some participants because it was viewed as a 'single-shot assessment'. This view emerged in all three groups of participants (medical school representatives, teachers and students), who expressed disagreement about the value of high stakes assessment. They felt less authority was given to medical schools in determining their students' fate and that this was a significant down side of this examination.

> *"… I think it is a **human right abuse**. **The bomb is ticking** now… They finished their study, **why can't they get into practice**? … Why put their diploma on hold? … **Most clinicians agree** with me, while **preclinical teachers supported the examination**. They did not experience what it was like in clinical setting, **how the bullying was**…"* (VD-G)

> *"… there is **no autonomy for medical schools**. We held the education, but **we do not have the authority** to decide whether they are passing or failing. … Parents will not know if it is decided by the committee, they only know us. … It made the **disparity between schools and parents wider**…"* (T1-L).

> *"We had one day for CBT and one day for OSCE; **those two results were the only one seen [as our performance]**. … [They] **did not see how we learnt in day-to-day life**, so [the results] **did not reflect the learning process**. … It was a long process though…"* (S8-K).

Those who raised criticism of the exit exam status proposed that other assessment component should be considered when making the decision of passing or failing students. Other components proposed to be considered were GPA, clinical rotation/ clerkship performance and the accreditation status of medical schools.

> *"In my opinion**, the UKMPPD as an exit exam is amiss**… When students answering the questions, it could be **affected by other factors**, many things play… I think **we must look at their academic achievement during their undergraduate** years, beside the UKMPPD result. … I think it is better to consider how **many patients they managed during clinical rotation**. It is about their **experience**. "* (T6-D)

> *"Some of my colleagues who **failed the examination** told me that **the examination is unfair**… After six years of learning, our fate was determined **only by two examinations**. Well, I knew that they performed well during their clinical rotation, so perhaps **their failure was just an unfortunate event**. If only **their learning achievement during the clinical years were counted**…"* (S8-B).

> *"**[Our marks from the undergraduate programme] should have been considered**, so let's say just before the result announcement, **the dean could call [us] and consider these things**… But if [the students] were not good [achievers] from the undergraduate phase, then it does not apply…"* (S4-D)

Even though many ideas were proposed, there was a sense of doubt expressed when they were asked how to make a firm judgement based on those components. For example, they proposed the GPA to be included in decision

making but were unsure whether the assessment system in all medical schools was equivalent. Those criticising national examinations also mentioned the disadvantages it brought to medical schools and students, especially with resits. Further discussion of advantages and disadvantages will be presented in the following section.

Advantages and disadvantages of the national examination

The national examination was perceived to have a positive impact on medical education. More advantages than disadvantages were reported in the discussions with participants. This view was expressed by most participants in all groups, with different proportion of pros and cons found in different type of medical schools.

> *"The **impact of UKMPPD is huge** because we are now **equal with public schools.** We are **motivated to improve our quality and facilities**. We **feel more positive [impact]…"*** (VD-E)

> *"The **results in November was good**, including **private schools**. This means that **all medical schools were going on the improvement.** This also means the **committee accepted the feedback and improve themselves**."* (VD-D)

Other than improvement of educational practice (see earlier in this chapter), medical school representatives and teachers perceived that medical schools gained benefit by receiving 'feedback' from their performance in examinations.

> *"We are still **benefitting** from this exam. We know **where we are in the 'map'**. Even though we were at the top, we could fall. From there, we could **improve ourselves**…" (VD-K).*

> *"Exactly… With the UKMPPD, we, from the undergraduate programme, can give (feedback) to the clinicians… Because the clinicians, the specialists in clinical rotation, are 'untouchable'; they are difficult (to accept the feedback) especially from junior staff. The results of UKMPPD give us **opportunity to intervene the closest phase of education from the exam: the clinical rotation.**" (T4-D).*

> *"We **did not feel any disadvantages** at all. Our schedule is flexible, so it is not disturbing. [Taking part in the examination is] not a troublesome effort and we think it is good to have a standardisation'." (T6-I).*

In contrast, vice deans did not think national examinations would make any difference to the output or the current system of medical education. It added to the burden of medical students and, if they failed, to medical schools and teachers. Failing the examination also meant their duration of study became

longer than normal. This affect had an impact on medical school's accreditation points and troubled students and parents.

> *"Honestly, I think the **UKMPPD does not give much benefit**. If the students are granted completion of study by their school, then they should be graduated. There is **no need to do another examination**; [the government] has to **put more trust to medical schools**. Students passed the clinical rotation, so if there is any [urgent] case happens in real setting, **do not blame the education**; **it is just an accident**. … We feel that it is **disadvantaging** for us. After the UKMPPD was implemented, it is just **a few students enrolling in residency programme**…" (VD-G)*

Teachers made similar remarks, highlighting how the examination inconvenienced the medical schools and their students. They thought the cost and effort of national examinations was a burden that should not be passed on to students and parents. A similar concern was found in students' groups, where they were worried about the cost they had to pay if they failed the examination.

> *"Their five, six years of effort, **only to be measured in just 3 hours** and they are **stamped as incompetent**. It is an **irony** for them and their parents who **spend a lot of money**. … Is there any other way to do it?" (T6-F)*
>
> *"Beside the **psychological burden of failing**, **financial impact** is one of the disadvantages [of this examination]. We spent around 5 million rupiahs in total." (S5-B)*

In this chapter, we can see that in general most participants viewed the national examination as having more advantages than disadvantages. Changes in medical schools led by the national examination implementation were perceived as bringing improvement, despite the challenges and its high cost. Further exploration on how the NLE brought changes to the medical education system in Indonesia and how the stakeholders' characteristics were involved in this process, will be described in the next chapter.

Chapter 6 Findings Part 2: Understanding national examination as a contextual issue

6.1 Embracing differences

This section will revisit and expand aspects of the previous chapter. In chapter 5, it was revealed that most participants viewed ‘differences’ between medical schools as the main reason behind the need for ‘standardisation’. Differences between medical schools are considered as something natural existing in medical education. As discussed in the previous chapter, these differences involve many features, for example: curriculum, assessment system and practice, facilities and procurement, teachers’ and students’ quality, and learning activities. Most participants perceived that these differences were not seen as just a variance between schools, but as a factor that determined the quality of medical school graduates and, to a further extent, the quality of care delivered to patients. These findings led me to question “how different are the differences” and how this background, or context, contributed to national examination implementation in Indonesia.

How different is different? A perception of diversity between medical schools

In this chapter, I will present the differences as perceived by schools, based on their characteristics. It will be followed by a description of how schools perceived the impact of national examination on these differences and how this was dealt with.

There are some important points regarding the 'perceived differences':

1. Undergraduate curricula, assessment system, and learning activities

   Most participants expressed undergraduate curricula and learning activities as the most frequent area of differences. Public and established schools, especially the A-accredited ones, perceived that before the national examination was implemented, 'top schools' had had better curricula than private or new schools.

   Assessment systems and clinical skills teaching were the most prominent feature of curriculum differences. Before the introduction of a national standard of clinical competence (SKDI) in 2006, schools had varied curricula; with most of them using traditional (teacher-centred) curricula. Variation in curricula caused the different levels of competence achieved in schools, some of them were not quite up to the standard expected in SKDI. Only some of public and established schools used problem-based curricula. Learning activities were mostly lectures.

   > *"In 2007, we changed from **teacher-centred curriculum** to [the current] 'block' curriculum…" (VD-B)*
   >
   > *"[By implementing the national examination], it is expected that we **would have a more standardised curriculum**. Before, curriculum was varied, because it was decided by each school." (PD-Q)*

   Another frequently mentioned feature of curricula was clinical skills teaching and assessment. Before the introduction of SKDI and national examination, not all schools had clinical skills teaching and assessment in their curricula. Some private schools did not even have clinical skills teaching and facilities and clinical skills were only learned during clinical rotation/ placement. In 2006, only certain established schools had OSCEs or other form of clinical skills assessment. Clinical skills in undergraduate curricula were mostly taught in modules/ large groups and not assessed using the OSCE.

   > *"As the first batch from this school, we **experienced difficulties** to prepare for the examination… It was because **we never learned clinical skills** using those manikins…" (S4-F)*
   >
   > *"We used to do clinical skills assessment with one-on-one encounter with instructors; we **did not have OSCE**…" (VD-A)*
   >
   > *"We changed the curriculum according to the SKDI. We used to use the problem-based learning style, but now we use modules. … We did **changes in clinical teaching and assessment**." (VD-I)*

Clinical teaching in rotation placements in hospitals was often referred to in the discussion about differences in teaching and learning. Public and established schools had more affiliated hospitals for placement and, therefore, more clinical teachers to supervise medical clerks. However, clinical supervision might not be up to standard, especially for schools in remote areas (with limited number of clinicians) and smaller private or district hospitals. On the other hand, in some central hospitals, medical clerks did not have many opportunities to manage cases which, because of their complexity, were mainly assigned to residents and other health professionals in training. Assessment in clinical setting was organised similarly the undergraduates: very few schools implemented performance-based assessment. Before the national OSCE in 2013, most of the schools used long cases and vivas as their assessment method in clinical rotation/ placement.

> *"So we have **residents in training** in other affiliated hospitals, let me take an example from Pediatric Department. Residents and medical clerks go there; **students are supervised by trained specialists**, **assisted by residents**. …. The clinical teachers are staff there who are already trained, so they have **equal competence and authority with the teachers here**…" (PD-P)*

> *"In another school who has residency programme [or public schools], the clerks will have less tasks at the hospital, unlike us…" (S6-K)*

> *"I think **the competence that we got were different**. For example, we had so **many opportunities to practice skills** in district hospitals… Our friend from **the public school went for clerkship in the centre hospital and he did not get much chance or cases**, because of the health insurance system…" (S11-B)*

> *"Actually, it should be that way [not having a problem with the number of teachers]. But not only medical clerks/ junior doctors; we have **1200 residents in training, including the subspecialist training**." (PD-P)*

Most participants agreed that differences in curricula and assessment systems were important in creating the different results from the national examination. Although there were other factors that played a role (e.g. quality of students), this feature was considered a significant aspect that needed changing, as highlighted by C-accredited schools' representatives.

> *"Of course [we had **difficulties**]… When the result of our first batch was announced, which was not something to be pleased about, I went to do **investigation** how the **curriculum and learning materials** were used." (VD-D)*

> *"In 2007, we just started to learn how to do assessment… There was **no OSCE, only MCQ … A lot of students failed**, only a few passed [the examination]." (VD-J)*

Looking at these accounts, the national examination seems to have become a turning point for medical schools to start changing their education system. This will be described further later in this chapter.

2. Teacher Characteristics

In this study, teacher's characteristics were often mentioned by all three groups when they talked about differences. The most frequent concern was about the number of teachers and their education/ expertise (e.g. postgraduate trainings, teaching skills, etc.). Most established public schools had a sufficient number of teachers/experts but there was a deficiency in private/new schools. As reported by participants, compared to public schools, private and new schools had more difficulties in recruiting teachers or experts, so most teachers were retired lecturers from public schools. New schools in remote areas also had fewer teachers, and often invited teachers from public schools to come and teach.

> *"In private schools, teachers who were **retired** [from public schools], **without any degree, can teach.**" (VD-G)*
>
> *"This is a private school, so **human resource still needs more attention** [from our leaders]. Recruitment for tenures is complicated because of the policy…" (PD-B)*

Faculty development, such as teacher training and postgraduate scholarship, was limited before the national examination; with limited funding added another challenge to execute programmes. This made many participants from public and established schools think that the quality of teachers in private and new schools was lower than their own, thus affecting the quality of their output. Years of experience in teaching was considered an advantage for established public schools, where they had senior teachers.

> *"(The years of establishment) will quite **affect (the quality)** of medical schools. We can compare between those who were established five years ago with the one with 10 years' experience for example. They have **younger teachers, who have less experience**. It affects the quality…" (S3-K)*

Another task for medical schools who tried to change their curricula to competence-based was the 'culture' of teaching. It came especially from senior teachers/ clinicians, who preferred a traditional approach in

teaching. This challenge was found across most of the schools, both public or private, established and new schools. This 'culture' of teaching seemed also to be influenced by local culture where in some areas, such as Sumatra, disagreement was more outspoken and overt.

> *"I think the most significant part of implementing competence-based curriculum is the **perception**. In CBC, students are more independent in learning. In the conventional system, we 'feed' them a lot, but with the new curriculum, we have a different perception. Not only for students, sometimes **teachers also get confused** with how they are supposed to teach. To be honest, for senior teachers it was very hard to accept this at first. It was **a hard negotiation** with them [to adjust the lectures]…" (T1-K)*
>
> *"When we tried to explain [something], we were the one who **got 'hammered' down**. … The **difference between [cultural] climate** in Java, or Palembang, with us here [is prominent]. It is very different [here]. I have been thinking about this many times: we cannot pass our students if we stays like this. Because our problem is that many teachers cannot accept [the changes]." (VD-J)*

The quality of the teachers, as described in this section, contributed to differences of quality between medical schools. Even though teacher quality did not directly affect the results of national examination results, it was considered an important feature in determining the success of a school in improving their education quality.

3. Student Characteristics

In Chapter 5, students' quality was described as one of the most frequently discussed features that determines the quality of medical schools. Student 'quality' was perceived by some schools as more essential in affecting national examinations' results than teachers and curricula. This view was mostly expressed by new and private schools, who struggled with their national examinations' results. They were aware that the quality of their students' quality mainly originated from the input/ admission quality, and would be one of the main cause for poor results.

> *"As a private school, we had difficulties in the early years of national examination. It is because **our input is second (in quality)**, if I may say, compared with public school. … we had **very low pass rates**…" (PD-C).*

As explained in Chapter 5, private and new schools might have a lower quality of students compared to public schools. This was mostly because of different criteria of admission between established public schools and

new/private schools. However, improving input quality for private schools was not an easy task. There was still a common practice of nepotism in several schools as reported by participants. Private schools also had to face the demand for higher tuition fee from founding organisation, which mostly aimed for profit. Chapter 2 described how student admission for medical schools works in Indonesia.

> *"We have the best distribution, in terms of regions in Indonesia, for student admission. … We use **MCQ and interview as admission test.** … Formally, **there is no such thing [as nepotism]**, but in fact, there is. It is **hard to avoid** it, for example, favouring a son of a professor. (VD-G)*

> *"If the **curriculum is good, the teachers are good, but the students are not the bright ones, it is still difficult to get good results**… Low quality of students will affect the end result. That is why the **admission process should be synchronised** with the programme. But still, we are unable to make the admission process 100% based on quality. There are other factors: the mayor, chancellors, and others…" (VD-D)*

The differences in students' quality, including the output (graduates), made public schools think that the national examination would act as a filter in excluding poor performers.

> *"I think UKMPPD was **aiming for private schools** [graduates], but now they implement it for all schools. … Considering **the number of medical schools and the untrustworthy** ones, it could be as a **filter**…" (PD-R)*

Student quality undoubtedly contributed to differences between medical schools in Indonesia. National examination results made schools realise that they needed to change their admission policy, which will be discussed later in this chapter.

4. Facilities, budget, and access

   This last aspect of medical education was not explicitly mentioned as affecting the quality of medical schools before national examination implementation. However, it was frequently discussed when participants compared medical schools prior the national examination. In Chapter 5, this issue was described in a section about achieving a common standard and improving educational practice. Almost all participants, from all groups, perceived that facilities (including learning resources and other infrastructures) between medical schools were different in terms of quantity and quality. One explanation for this might be that public schools

were supported by the government while private schools relied on tuition fees and funding from founding organisations. In a similar comparison, established schools had more 'support' because they had been in the business for so long, while new schools were still developing and building their facilities (sometimes with limited budgets). In general, A and B accredited schools had more facilities and support than C-accredited schools. This was understandable, too, because one of the assessment criteria for accreditation was learning facilities.

> *"We are at the middle [of the table], but the ones at the end, Tadulako, Nusa Cendana, they could be thrown away from the line. They have **limited fund and resource**…" (VD-H)*
>
> *"Well, we are a private school. We need funding from students to run our programme. It is costly, to build our new hospitals, to raise the salary of our faculties, to have all these facilities… We **do not get any support from the government**, so we **rely on students' tuition as our income."** (PD-Q)*

Geographical location also played a role in this inequality. Schools in the main islands (Java, Sumatra, and Bali) had easier access to facilities and technologies compared with schools in remote/ less densely populated islands (Kalimantan, Sulawesi, Molucca, Papua). Challenges in procuring facilities affected how schools delivered their education.

> *"Perhaps for other school, [it was easy because] their skills laboratory is equipped with all the manikins… We must buy them [for the examination]. The problem is, we are in city A where equipment and manikin are very limited. … We **had to go to other city in another island** to buy them." (T5-F)*
>
> *"Before the UKMPPD, our **clinical skills training was just [limited]** to what we had [at that time]. … Our founding organisation and chancellor were ignorant to this condition, as long as students could learn, however [difficult] it was. But after we were obliged to have OSCE centre, **the impact [on founding organisation and chancellor] was huge**. Students finally **can get proper facilities** as they need…" (VD-E)*

Faculty infrastructure and learning facilities were often not considered as factors affecting graduate' quality. However, their differences in number and quality were prominent between medical schools before the national examination. The previous chapter has described how medical schools developed these aspects when they wanted to achieve a higher standard of education. Another perspective, from the medical schools' founding organisations and stakeholders, will be described later in this chapter.

Table 7 below summarizes the differences between medical schools before the implementation of national examination. Plus (+) sign indicates the frequency with which it was mentioned/ discussed in interviews/ focus groups.

Table 7. Medical education in Indonesia prior national examinations

Accreditation Status and Ownership	Curriculum	Teachers	Students	Facilities
A				
Public	Mostly problem based Traditional in several schools Established assessment system	Sufficient number Trainings available	Centralised admission, stricter admission process	Mostly complete and supported by government
Private	Mostly problem based Traditional in several schools Established assessment system	Sufficient number Trainings available	Private admission process	Mostly complete and supported by founding organisations
B				
Public	Problem based and traditional Developing assessment system	Some schools sufficient number	Centralised admission, stricter admission process	Mostly complete and supported by government
Private	Mostly traditional Developing assessment system	Sufficient number, several schools had limited number and shared teachers with public schools	Private admission process	Mostly complete and supported by founding organisations
C				
Public	Mostly traditional	Limited number	Centralised admission, stricter admission process	Limited facilities, supported by government
Private	Mostly traditional	Limited number	Private admission process	Limited facilities, supported by founding organisations

Table 7 underlines several main differences discussed by participants in this study before the implementation of national examination (UKDI/ UKMPPD) in 2006 or the first years after several new schools were established. Features highlighted by Table 7 above are relevant to changes made by medical schools to improve their national examination' results, which will be described later in this chapter.

This section provides an identification of Indonesian medical schools' educational features deemed to be unequal and affecting the quality of output/ graduates, as perceived by participants in this study. Concerns about these inequalities were what led to the introduction of the NLE and they continue to influence its results. The following sections will explain how the national examination results brought competition between the schools and led to schools making changes to overcome the inequality this highlighted.

6.2 Is competitiveness a bad thing?

Medical schools' awareness of competition

Competition between medical schools in Indonesia, before the implementation of national examination, was only made public through the accreditation level given by the National Accreditation Agency for Higher Education. Medical schools, or undergraduate medicine programmes (equivalent to M Top schools were A-accredited schools (see Accreditation system in Indonesia in Appendix A); which mostly were public schools (12 schools) and 2 private schools. These schools, at university level, were considered better in terms of the quality of education and governance. Middle level schools were B-accredited schools (31 schools), consisted of 10 public and 21 private schools. Lower performance schools were 8 public and 19 private schools. The top schools were mostly established more than 20 years ago. On the other hand, most of low performance schools were established in the last 10 years.

The competition became more prominent after the national committee announced the top 10 highest passing rates in the Dean Forum in 2014. The National Committee aimed to give feedback to medical schools, by giving them a full report of examinees' results, as well as their position (in regard to average scores/passing rates) regionally and nationally. In 2014-2015, the top 10 schools

did not always consist of A-accredited schools, with several B and C-accredited schools included. This had been viewed as a 'new league table', thus making medical schools more aware of this new competition.

In this section, I would like to show how the effort by medical schools in coping with the competition was made, in regard to their status of ownership and accreditation level. This will also include how medical schools perceived competitiveness created by the national examination, set their targets, and their current state when this study took place.

Most of the public schools' representatives and teachers were aware of their 'public school' status (being A-accredited schools) and, therefore, felt that they had an obligation to perform better in national examinations. After the 'new league table' emerged, they started realising that if they did not move forward to maintain their 'top school' status, the 'middle and lower rank' schools would leap past them.

> *"[The results] clearly **affected** us. We announced to [all faculties] 'Now results are being showcased!' … We know **whether our students get into the top ten [scores] or not**." (VD-I).*

This attitude was also found in long established private schools with A-accreditation. They were concerned whether they could maintain being in the top and perform better than new schools. Medical school representatives understood that their students were better and therefore could get good results. However, they still had concerns about preserving their school's spot in the top ten. One example was School K, a private school owned by a Catholic foundation, which had been A-accredited for twenty years.

> *"[UKMPPD made us] know where we're at [in the league table]. Even though we were **at the top ranks, we could fall**… [That is why] we **improve** [ourselves] to be on the top again." (VD-K)*

Teachers and students from established A-accredited schools, either public or private, were mostly aware of this competition. National examination results could affect their reputation and therefore they understood that they had to perform better in the examination. However, most teachers did not think that this created pressure on their performance as examiners. They had set priorities in preparing students to meet the national standard rather than just passing the examination. Even though there will always be failing students, these teachers seemed to believe in their students' capability to pass the examination. These teachers had more concerns about how they could use the results as an evaluation for the current programme. They wanted schools to make changes so students could

learn and perform well in the examination. This was also described in Chapter 5 (see: improvement of educational practice).

> *"I think all teachers agreed that we **prioritize the quality** [of our student when we become examiners]. … The **name of our school is at stake**." (T6-K)*

> *"We never felt like we were doubted [by the examination]. "… In fact, **our school is always there [in the top ten]**. It is more as a feedback, **if our results are not that good then it is a reflection** for us… where are our lacking in details…" (T9-I)*

On the other hand, students from top schools were also well-aware that their results might affect their school's reputation. However, they had more focus on their own performance and results, thus they did not think much about being competitive or showing their quality as top school students. Only a few students felt that their performance would affect their school's future. These students were aware that national examination results would affect the quota of prospective students, as regulated by government.

> *"We **don't have [that kind of motivation]**. The most important thing is **passing the exam**. Perhaps there were some [who felt that they had to be in the top 10], but not here…" (S2-I)*

> *"… it might be affecting [how I performed]. I have to pass [the examination] and **the passing rate will affect my school**. … if a school accept more students [than it should], I am afraid **the quality of doctors it produced will not be [good]**…" (S9-K)*

Since the announcement of top ten schools/ performers based on NLE results it became clear that accreditation does not predict results. Consequently, results from B-accredited schools could be equivalent to or better than A-accredited schools with some B-accredited able to get into the top three. Their representatives viewed this new competition as an opportunity to show their capability and lift their 'ranking'. A good reputation was another benefit of having good results, and this might be a motivation for middle rank schools. On the other hand, the fear of failure and bad reputation also made them more cautious about students' performance.

> *"I think if our **passing rate is good,** at least we could be compared to other medical schools who **are on the right track**. That is for now…" (VD-L)*

> *"They said that [the UKMPPD] was [aiming] for private schools; so they don't just let students graduating just like that. … We are **now no 4 [in the top ten schools]** after School V, School X, and School W." (T6-B)*

> *"Well sometimes **we do [feel competitive]**. But in the other hand, we were **worried of failing**…" (S4-B)*

> *"Last period, our school was at no 9 [in the top 10]. We had more resits in this period … so we were **worried that the rank will go down** [because of us]…" (S4-L)*

Meanwhile, newer private school representatives, whose schools were mostly C-accredited, had concerns about how they would survive the current competition and improve their current position. Good national examination results (>90% passing rate) for C-accredited schools would also mean they could accept a maximum of 100 students in the next academic year. On the other hand, they had to improve their reputation, so they could attract prospective students and maintain the continuity of their schools' funding (which relied on student tuition fees). However, these schools understood that they were in a lower level compared with top schools. Thus, the new private schools put a huge effort into improving themselves, which will be described in the next section.

> *"Yes, we feel that **we need to [perform better**]. … Last year we were at the top ten. … Our dean said that **what we put effort in, started to gain results**." (VD-H)*

> *"We were worried that [less number of prospective students and complaints from parent] might happened. But the public response was beyond our mind. [The number of prospective student] was **doubled** than the previous year. This means people viewed that **we tried to change** and our stricter admission process gave **good impression**. Our plan is to [improve] accreditation level," (VD-E).*

Both teachers and students from these schools had similar perceptions on this matter. They acknowledged their schools' low performance but did not want to give up and be underestimated in the examination. For them, the national examination also served as a means for gaining **recognition** of their achievement; that students from private and new schools were equally competent as students from top public schools.

> *"We often motivate our students "Even if you study here, **do not feel inferior** to students from other school so you have to learn better…". We do that often so it will lead them to study better and more convenient…" (T3-D)*

> *"Because we are a new school, by undertaking the UKMPPD, **it proved our actual [capability]** … being **acknowledged**… If there isn't any national exam, we would be underestimated…" (T6-F)*

At the time of this study, almost all participants from the three groups of participants, were aware of the competition and the 'new league table' created by the national examinations. Most participants viewed the examination as an opportunity to show their quality and the 'old league table' could be changed by national examination results. Top schools did not always get good results and middle and lower rank schools could boost themselves up to the top.

The pressure to be competitive

Following the previous section about medical schools' awareness of competition, this section will describe how schools 'internalised' the competition. On many

occasions after the national examination results were announced, top schools could find themselves no longer in the top rank or the other way around for low rank schools. This led to internal and external pressure to compete resulting in exerting efforts to 'survive' in the competition (i.e. targeting better results in their next national examination). These internal and external pressure could be viewed as unintended consequences of the national examinations and this section describes how the pressures were experienced by schools and how they responded to them, which reflected the internalisation. This process was different between top/ established public schools and lower rank/ private schools.

Private schools' representatives were the most outspoken about competitive demand and targets from their institutions. They mostly set targets because the national examination results would affect their reputation and funding from prospective students, as described in Chapter 5. Because of this, the results of the national examination became of interest to founding body/ organisations of private schools.

> *"We had this demand [from founding body and deanery] that our target is a minimum of 90% passing rate.* ***The whole components [of education]: input, process, and every other effort will be directed to support [achieving the target]****." (PD-C)*

The attitude of setting targets for national examinations' results was also common in new public schools, especially schools in rural or remote area. Along with private schools, they shared a similar need for recognition of their graduates' quality. Since these schools were aiming for quality improvement, their plan of setting higher passing rate targets was followed by targeting better quality of input for the schools' sustainability in the future.

> *"We think it is* ***important [to have a good result].*** *Our target is 75% [passing rate], minimum. … Before, we had it at 56%. We hope that we could improve it [in the next time]." (VD-F)*

In fulfilling the passing rate target, B and C-accredited schools stated that they had to carry out changes in their education system. Some of the changes have already been described in Chapter 5, but I will highlight the three most significant aspect of the changes: curricula, human resources, and infrastructure (buildings and equipment). If we look back in the first section of this chapter (Differences between medical schools), we notice that these features were also the aspects contributing to differences between medical schools.

For public schools with B and C accreditation, the changes were supposed to be easier to make because they had better support from government and local authorities. However, these schools had different challenges, such as organisational culture and geographical difficulties. For example, school F, a C-

accredited school located in islets in the far east of Indonesia, had full support from local government, but still found it difficult to improve their infrastructure because of the geographical location. Electricity supply and internet were some of the challenges. Recruiting teachers was yet another problem to be solved.

> *"We did not have our own gen-set, so we have to ask the university for the supply. … Here in city A, the **electricity could be down at any time.** … The internet too, we asked university to add more bandwidth and we had to **hire outsource** to be our IT staff. … We also found **difficulties in recruiting teachers** … in general, we were **lacking specialists.** [It is hard to ask them to teach] when they have task in hospitals…" (VD-F)*

For B and C-accredited private schools, bringing changes would also mean approaching their funding organisation to support the programmes. Most of the changes these schools brought in undergraduate education demanded high cost, therefore secured funding was required. It was difficult to execute the changes if the deans/ faculties did not get financial support from founding body/ funding organisation, which happened in several schools. Medical school' representatives needed to assure the founding body that these changes were necessary for improvement so that they could approve the allocated budget.

> *"First, we **report every national examination results to the founding body**. Second, well let's be honest, we can find this situation everywhere… Every year, for the admission of new students, **they ask us to accept a higher number of students**. That is the fact. The instruction from them in the letter said so. So we said to them, 'this is the **bargaining**: give us **trust**; in a short term we will design a programme and in a long term **we need an extreme funding outside the yearly budget**'. They agreed: **DEAL**. We gave them advice and they agreed to allocate special budget for this." (VD-H)*

> *The dean, he did a lot… We went to the founding body who has the funding. From my experience, the dean is capable to give understanding to them that **this is an urgent need** for medical school. I, as a subordinate, saw that **the quick response from the founding body** means that it is how a leader should be able to do: **lobbying**… **A lot of things [have improved]**, including this hospital…" (VD-E)*

Most of these schools found that their funding organisations were eager to support their effort when they proposed that the changes would bring their schools to a better level. For some schools, their funding organisations took the initiative to push the deans to get better passing rates and, in the future, improve their accreditation status.

> *"[By having the examination], our curriculum is **more focussed**, and so is teachers' vision. In a political point of view, finally [the impact] gets to the founding body; they are **more determined to prepare for UKMPPD** because it will affect the **admission quota** and it will **significantly affect them** too." (PD-C)*

From all the private schools participating in this study, only one private school said that they had difficulties in getting funding support. It was because this

school, school J, was a long-established school with C-accreditation. The representative stated organisational culture and bureaucracy as his challenges.

> *"We made [the planning] a few times, many times. Faculty development for the next few years and so on… … But it was **stopped because of the budget**. We proposed [the programme] but chancellor might not accept it. … **After [national] OSCE, it was much easier**." (VD-J)*

The top A-accredited schools, which were mostly public schools, expressed different experiences regarding competition. Their effort to respond to competition mostly happened after they (medical schools' representatives or teachers) realised the changes being made in other schools. Some schools who did not prioritise the results of national examination became aware of the competition after some private schools performed well and got into the top ten.

> *"There are **concerns from our senior teachers**… Because the examination is an exit exam now**, the lower our passing rate, the more questionable our reputation is**… '**How can we get this bad results when we are A-accredited school?'**. But we have to come back to the point, **asking ourselves how the education practice run here, is it good enough?** …"* (PD-R)

Comparing the two categories of schools (A and B-C accredited), it was clear that they received different pressure regarding the national examinations. In general, top schools experienced more internal pressure than external pressure, while it was the other way around for B-C accredited schools. Most of public schools experienced internal pressure such as maintaining their reputation and setting their own goals for improvement. These schools had a high self-awareness of their public image as top schools; not only amongst the deans, but also the teachers.

> *"We **never get such pressure [to get 100% passing rate]**… It was more like a **personal concern**; we will prepare our students better. … We did not want it affecting [our role as] examiners and being more lenient to students." (T6-K).*

The external pressure for public schools happened when B and C accredited schools get into the top 10 of national examinations results. Top schools' representatives admitted that this phenomenon had made them realise there was current competition. However, some public schools' representatives explained concerns about how some private schools tried to improve their national examination's results by 'filtering' students for examination. Although this was not a preferred option for some schools, they admitted that it could help them to get better results. Since this strategy was only done by a few private schools, there were also some other private schools who shared the same concern about this 'filtering' policy.

"We're just worried about those new schools, as far as I know, they only have a few examinees. … If we could count their passing rate, let's say 3 passing from 3 examinees, that would be 100% right? So we don't know how that [would be fair]. They did the ***selection [of students to undertake the examination]*** *and they don't have that many students…" (PD-R).*

"Because the other medical schools do it too… But to us, actually the problem is that ***there are worries if there will be complaints (following that policy)****, "Why can't I take the examination?"… I think that is the way it's supposed to be, now it's up to our dean… Because I think this is the* ***'side effect' (of the policy)****; if we do not allow the students to take the examination, that means students do not get any opportunity (to take the examination)… Again, the problem is that* ***other medical schools, the private ones,*** *a lot of them do it too…" (T2-D)*

The analogy for this new competition could be depicted as a running competition; where top schools run at the front and 'pull' the middle and lower rank schools toward them. The national examination (UKMPDD) led schools to move forward. However, in any competition, there will always be late-runners, in this context that means some schools struggling to compete and catch up with the others. One of medical school representatives stated that top and middle schools could make progress but some lower schools might struggle just to stay on the track. For example, one school stated that despite their effort to improve their quality, they still found it difficult to catch up with top schools.

"… I still question [the national examination]. ***Wouldn't it be better to improve the accreditation system?*** *… I admit that the* ***UKMPPD is good*** *and* ***could be a good standard*** *… It could be the* ***barometer*** *for all medical schools. That means* ***School Z students and our students here are at the same level*** *if they passed the examination. But we must recognise that* ***not all of the students have that quality****. … Let's say if School Z or School X are* ***running fast, we are race walking****… But how about School U? Poor them****, they walk staggered. It is very hard for them****. They* ***could be pushed out*** *form the railway, right? They have* ***limited funding and human resource****…" (VD-H).*

"We have the [test] items and other activities [in our regional collaboration]. But ***it did not go as strong as in Java****; and we* ***do not have experts in medical education****…" (VD-J)*

The characteristics of these struggling lower schools identified by participants were remote area, C-accredited schools, and newly established schools. However, there were some established schools with low performance who revealed that they indeed could not catch up with top schools.

*"****The top schools run fast*** *in Indonesia… They* ***don't have difficulties*** *[like we have here]. Here, it feels like* ***we do not have a run to catch the tail [of those schools]****." (VD-J)*

This section has attempted to describe how participants perceived the competition resulting from the national examination. For new and low rank schools, the competition of national examination results meant that they had an opportunity to show their quality and improve their status. For established medical

schools, either public or private, results of national examinations acted as a reflection of how they performed nationally.

The differences of pressure and responses to competition between medical schools intrigued me, and prompted me to explore deeper their effort to survive in the competition. It is important to understand whether achieving a common standard in medical education would cause ‘fierce’ competition between medical schools; which is not considered a good step in education. Would lower rank schools fail the competition and be left behind? Would the top schools lift themselves higher and, by doing so, close opportunities for lower rank schools to improve? In exploring this issue, it turned out that the most frequent theme emerging in the discussion was collaboration. The following section will present how collaboration mattered for medical schools in surviving the competition.

Collaboration: Sharing and supporting to survive

Having described the meaning of competition for participants in the previous section, I will move on to describe how medical schools responded to the competition and explore how their characteristics affected the responses. In this section, the focus will be collaboration and cooperation between medical schools and the different role of public/ established schools and private/ new schools.

Collaboration was one of the most frequent actions described by medical schools as helping them execute their programme of change. Collaboration emerged as an unpredicted theme, which was expected to be less common in a context of competition. As explained in chapter 5, collaboration and cooperation aimed to share similar concerns within groups of medical schools (e.g. private schools in a region) or offer support for partner medical schools.

The collaboration between medical schools in Indonesia started with a government project to improve education quality for health professions education (HPEQ), funded by the World Bank in 2011-2014. This project initiated collaboration between medical schools in the form of a partnership between established public medical schools with new schools (either public or private). More than 20 new medical schools have been established since 2006 when the national examination was first implemented. Appointed public schools were tasked to guide and coach new schools: designing curriculum, training teachers, and executing teaching activities, or just as a consultant in curriculum and assessment. The HPEQ Project also offered aid for learning resources (e.g. manikin, books, and technology-based resources) procurement and research in medical education. This project was praised by most of the medical school

representatives, who thought of it as a benefit and helpful toward their improvement.

It was not only new schools who had advantages from the collaboration. Established public schools gained reputation and positive points in their accreditation assessment for being a coaching partner.

> *"We **learnt PBL** from School X [when we first started], we frequently go there to **discuss**; find the right design [for our curriculum]" (VD-O)*

> *"We **coached** BG University medical school; we **supervised** them. School D too, but they already capable of running their programme. … We keep **communicating**, **supporting** each other." (VD-I)*

After HPEQ project finished in 2014, many schools still maintained their partnership, mostly in a form of one-on-one consultation for curriculum design and faculty development. New/ private schools representatives saw this collaboration as an important part of their programmes' continuity. As described in Chapter 5, curriculum and assessment improvement was one of the most frequent initiatives taken by new schools to upgrade their 'standard' of education. Faculty development programmes, such as teacher training, were carried out locally or teachers were sent to public schools to attend workshops or trainings.

> *"Since the beginning, we designed our programme just like IU, **copy pasting** because they were our **supervisor partner** [in HPEQ]." (VD-G)*

> *"We **collaborated** with School W. … We asked them to hold a **preparatory programme** for students. … Because our partners were School Z and School W, [they know] our development from the beginning." (VD-F)*

The reason why this kind of collaboration lasted longer than the "obligatory' collaboration task might be because public schools also gained advantages from it. Representatives from public and established schools expressed pride and gained reputation from being able to be referral centres for educational improvement. Moreover, in some collaborations, public schools gained profit because they were paid for providing professional consultations. The established-new schools' collaboration could be seen as providing **support** from the top performers to low achievers. All participants did not seem to be worried that this kind of collaboration would be a disadvantage for their own school's position in the competition. The collaboration was viewed as a win-win effort for both parties, even though this might add more competition in the future.

> *"We have three medical schools under our **supervision**.. We **coached** them [from the beginning] until they had graduates. We **fully [support them]**." (PD-P)*

Another common form of collaboration was regional collaboration between medical schools who were members of AIPKI and between private medical schools who were members of AFKSI. As described in Chapter 5, collaboration within regions involved test item development, OSCE examiners training, and regional try out for the national examination. Many school representatives considered regional collaboration as helpful to evaluate their performance within regions and compare themselves with other schools. The forum also became an opportunity to solve problems together, e.g. the high number of resits.

> *"We have trainings and try outs (mock examinations) for UKMPPD. In Region 3, we have **a try out a month before the examination**; at least 4-5 times a year… We routinely attend the **regional item development workshops** … That was the **formal collaboratio**n. The informal one, we often **consult our problems** with School Y ... Sometimes **informal chat** with other vice deans such as on fees and budgeting, is **helpful**." (VD-D)*

> *"Official collaboration in AIPKI is within region 3 and nationally in AFKSI. We have trainings and try outs for UKMPPD. … In this region, we **alternately take the responsibility** to arrange the **workshop** [in reviewing test items]. … We also had **trainings and other activities**, but **not as intense as it is in Java**. At least five schools in this city joined the trainings. Now the schools **know about competence-based curriculum and how Medical Education Unit works**…" (VD-J)*

> *"The **progress test was a collaboration** of this school F [from eastern Indonesia], N from Medan, and K from Jakarta. We involved all teachers to write items, including clinicians. … Usually we had progress test once a year…" (VD-F)*

> *"We had collaboration with UM automatically because it's our **neighbour**, and also school M because they are our **supervising partner**. We visited school P to **develop our laboratories**. Our school also actively collaborated in Islamic Medicine Forum (FOKI)." (VD-E)*

> *"We had **collaboration** within this region … We **put together [the resits]** from medical schools in this region at Y school. There were six schools participated. We **worked together [to give trainings]** for our students who had conventional curriculum. … This was regional AIPKI initiative." (PD-Q).*

A similar form of collaboration was founding body collaboration, for example *Muhammadiyah*, an Islamic organisation, had a specific association for their medical schools. Muhammadiyah performed benchmarking tests periodically to give feedback to schools. The results of these tests were motivating for schools. Muhammadiyah schools also supported each other through item bank development and teacher training.

> *"We, in Muhammadiyah medical schools' forum (FKTPM), have a **benchmarking** test, and our school acts as a centre." (PD-C)*

> *"We were appraised as an example for Muhammadiyah universities. We **performed well in the benchmarking test.** … [The result] gives us **motivation**. Getting into the top 10, I feel like, the hard work paid off…" (PD-B).*

While this could be seen as similar phenomenon with regional AIPKI or AFKSI collaboration, Muhammadiyah's collaboration had a further aim: improving the quality and reputation of Muhammadiyah medical schools. This was to help them

compete with other private schools and with established public schools. It was considered important since there were some new medical schools under Muhammadiyah. By gaining a better reputation, they expected better prospective students and thus, the continuity for their income would follow.

New and private schools collaborated in order to improve their programmes in general. On the other hand, established schools tried to improve their capacity as 'top schools' by working on specific aspects of their education which needed improvement. For example, school K, which previously had no experts in medical education, sent their teachers to pursue postgraduate study in medical education and form a medical education unit thereafter. Other public schools had focussed on improving clinical teaching and decided to expand their placement in hospitals by cooperating with their regional health trust. Some other schools focussed on faculty development including faculty recruitment, teacher training, and postgraduate scholarships for teachers.

> *"Yes [we improved our clinical teaching], so now we have our main hospital here, plus a district hospital, and as far as Sumatra to East Nusa and Papua. … We cooperated [with the Health Ministry] for **undergraduate and postgraduate training**. … Clinicians in those hospitals are recruited to be clinical teachers and we gave them **training**." (VD-I)*

> *"[We formed] a **Clerkship Education Unit (CEU)** to manage clinical rotation. … Our school has programmes to recruit junior teachers. They will be given priority to continue postgraduate study." (PD-R)*

The collaboration described by participants in this study lessened the unwanted impact of the competition created by the implementation of the national examination. Participants described collaboration as an important and integral part of their effort in improving or maintaining education quality. Sharing and supporting are key issues highlighted by most participants. This section has connected the concept of competition as an unintended consequence of national examinations to the concept of achieving a common standard in education. In looking at medical schools effort to achieve the standard in a cross-cutting way, I will describe this concept and its relationship with innovation and diversity in the next section.

6.3 Ways to move forward: excellence and innovation in education

As the previous section revealed how collaboration helped medical schools to respond to competition, this section focuses on further issues considered as unintended consequences of national examinations. Some medical education experts argue that national examinations represent a backward step in assessment practice and hinder innovation in medical education. In this study, there were some criticisms of national examinations as an assessment method, but I rarely found any opinion claiming it negatively affected the assessment system (see Chapter 5: criticism on national examination). Moreover, most participants spent more time describing and discussing their efforts in improving medical education, despite pointing out the challenges and problems in their schools. This section examines how medical schools with different characteristics changed their education and assessment practice.

Earlier in this chapter, Table 7 was presented to describe features of medical education deemed to contribute to differences between medical schools. The changes driven by national examinations were mainly linked to areas where medical schools felt they were lacking. Medical schools carried out changes as an effort to improve their educational practice. This was one of the most highlighted impacts of national examinations in this study, as described in Chapter 5. Although themes linked to improvement (e.g. curriculum improvement, assessment improvement) emerged in almost all schools, it is important to notice that improvement made by schools were not the same. As highlighted in the previous chapter, schools also prioritised innovation. The innovation theme will be the focus of this section.

In this study, innovation was interpreted as any improvement made by medical schools which had never been attempted before. The improvement was not necessarily related to high technology and sophisticated methods in education. In the Indonesian context, innovation is seen as a breakthrough to overcome problems or challenges in medical schools. Part of the emphasis of innovation that will be described in this section is developing distinct components/ units of curricula as part of maintaining schools' identity.

Improvement in medical education was extensively described in Chapter 5, but this section will view it from a different angle: the accreditation status and ownership of medical schools. As stated previously, medical schools had different challenges after national examination was implemented; thus, they had different responses to the competition it brought. An external policy commonly undertaken by medical schools was developing and strengthening their programmes by collaborating with other stakeholders. Internal steps taken by medical schools mostly related to their curricula (for undergraduate medicine programmes) and teaching-learning programmes. Differences of improvement and innovation carried out by medical schools showed how their characteristics played a role in their responses to the NLE.

For established, especially A-accredited public and private schools, improvement in curricula was considered easier since most of them had more systematic and outcome-based curricula even before the national examination. Most of the schools adjusted their curricula to comply with national standard of competence (i.e. change them into competence-based curricula and develop the content). Therefore, they prioritised evaluation of curricula and achieving educational excellence. Evaluation was conducted to identify their strengths and weaknesses.

> *"[National examinations] is **all about quality [of medical education].** By maintaining quality, at the same time [national examinations] gives feedback to medical schools: "Are we doing the right thing? Are we delivering the utmost quality of education?" … We **evaluated areas of weaknesse**s; where our students found it difficult." (VD-A)*

The A-accredited schools, which were mostly public, made innovation by designing a distinct component of their curricula. Since most of their programmes were well-developed, the point of improvement was made to meet the needs of local community or the future challenge of health professionals in Indonesia. For example, School M viewed that their local community needed integrated health care, therefore they designed a programme for an interprofessional community placement for medical, nursing, and pharmacy students. They aimed to bring context to interprofessional education (IPE), which was lacking in their previous curriculum.

> *"Our distinctiveness is **the interprofessional placement** in preclinical year; in the third semester where they worked in a team with nursing and pharmacy students, in a community." (PD-M)*

In developing their curriculum and executing improvement, School M decided to form a unit/ department of medical education, performing tasks which previously had not been overseen by a specific unit.

> *"We formed **a medical education unit**, called DME (Department of Medical Education), [whose task] specifically **[manage] undergraduate medical education**. … DME is [responsible for] curriculum design. [Previously] we did not have an expert in medical education; but now we have interns who are willing to study it. We plan to send them for postgraduate study in medical education." (PD-M)*

Another example, school P, identified their weakness in preparing students to enter clinical rotations. Taking roles in clinical settings was a challenge for students in School P, where students struggled with their learning. Therefore, their curriculum team designed a specific transition programme to help students adapt to their clinical role and learning.

> *"We have one semester for **transition programme; from preclinical to clinical phase**. … [We use] **family medicine setting**, but they encounter real patients. Why students were bright in preclinical but struggle in clinical phase; we tried to solve it by this pre-clerkship programme." (PD-P)*

As a top school, School P had problems with limited clinical supervision due to clinicians' workload and other postgraduate training tasks (residency or subspecialists programme). Their innovation was to train and partner residents in training to take a role in supervising medical clerks.

> *"So we have **residents in training** in other affiliated hospitals, let me take an example from Paediatric Department. Residents and medical clerks go there; **students are supervised by trained specialists**, **assisted by residents**. …. The clinical teachers are staff there who are already trained, so they have **equal competence and authority with the teachers here**…" (PD-P)*

Similarly, A-accredited private schools carried out innovation to improve their education excellence. School K, an established private school, stated that their aim was to extend their A-accredited status. As previously described in this chapter, they did not target a specific passing rate for national examinations because their results had been very good throughout the years. They chose to evaluate and improve their programmes such as improving assessment systems and clinical teaching.

> *"[I would describe] the changes as not something massively significant. It was merely a smooth changing … In changing the curriculum, we evaluated the first periods of national examinations,*

to be included in our tracer study, to understand how we should change the curriculum. … [The results] are used for self-assessment: "what are we achieving? Where are we in the table?" … We are a private school; so we need to know where we are. ***[Education] keeps changing. When we change, that's where we think of improvement.****" (VD-K)*

Faculty development was also a focus for School K. Even though in their case it was not as extensive as new schools, faculty development was considered important to support education excellence. Similar to School M, School K also formed a Medical Education Unit (MEU) and sent their teachers for postgraduate education in Medical Education and Management. The MEU was vital for curriculum development and assessment system.

"MEU is our ***think tan****k. We are [in the process of] designing a new curriculum for 2017; the last curriculum was revised in 2012.* ***It's time to change*** *… MEU acts in designing and evaluating curriculum." (VD-K)*

While the top A-accredited schools focussed on achieving education excellence, B-accredited schools focussed on improving teaching, learning and assessment practice. Aiming for better national examination results, they revised their curriculum and instructional design for effective teaching and learning. They conducted more collaboration with other medical schools (in the region or within private schools' association) and district hospitals/ primary health care centres. Public schools were supported by government budgets and private schools were supported by their founding organisations. However, both public and private schools were given the support of the government's HPEQ programme, which helped them collaborate and develop facilities and learning resources.

"We got scholarship from HPEQ; giving our teachers opportunities to pursue postgraduate study. … I think HPEQ is a ***good move [from government].*** *We learned a lot from School X and other schools. … Previously we might feel that we were okay, but after seeing other schools; there were* ***positive things*** *to be taken home." (VD-L)*

"We did massive changes; [starting with] HPEQ in 2011-2012. We ***changed the curriculum****, referring to SKDI. We got support from HPEQ and that really helped. Starting in 2014, we had a community project … we* ***introduced students with primary health care****. We made new policies [regarding education] in that year…* ***Massive changes in 2014, especially in clinical rotation****. We used to do it in HU medical school; our supervisor partner. Now we can do clinical rotation on our own, in our own hospitals." (VD-H)*

In terms of teaching and learning, most of the B-accredited schools highlighted the importance of clinical teaching and assessment. They realised that there were limitations in the supervision by clinicians and their current assessment method

at that time. Some schools moved forward with their improvement in assessment using portfolios and progress tests.

> *"[The improvement] is **noticeable in clinical rotation**. We used to have the placement in other province's hospitals; which made supervision limited. To maintain [a good clinical teaching], we will have [improvement] in **assessment**…" (PD-C)*

Infrastructure and facilities were another feature these schools had developed in the last five years, especially for private schools. For example, School R, a private school owned by a Christian foundation, built a new hospital to be their main teaching hospital. This step was taken considering their growing number of students and limited places in their previous affiliated hospitals (which were not owned by the university/ foundation). Additionally, School R had been building new buildings for their teaching and learning centres. This massive construction was seen as an investment for the future. Similarly, School H, a private school owned by an Islamic foundation, built a skills training and test centre for OSCE, which was equipped with manikins and computers.

> *"We are now **building our future main teaching hospital**; you can see it on your way here at the front of this building. We hope it can be operated next year in 2017… Even though it is a new hospital, it is our main teaching hospital, a type B or A hospital. We already have one hospital in Sentul **which we bought two years ago**, so **we can have clinical rotation and placement there**." (PD-Q)*

> *"In 2013 we opened a **CBT centre**, with 100 units [of computers]. … Our dean said that students should get used to CBT system. Our students are not less bright; they just don't get used to use CBT. We were the [first] among CBT centres. … In the same year, we also built **OSCE centre**, with 24 stations [rooms]. We use [the rooms] for skills trainings too. In the near future, we will **build our teaching hospital**, a 12-storey building…" (VD-H)*

Meanwhile, faculty development was the focus of B-accredited public schools. School L, which already had sufficient infrastructure, conducted more human resources improvement. Other than teacher training in teaching and assessment, they needed innovation in organisation and leadership. The culture of 'improving performance' had its focus in teachers' ability in teaching. Some teachers found it difficult to adapt to the competence-based curriculum and assessment, however feedback and teacher training helped them to improve.

> *"If an institution has the willing to change, it is **possible to overcome challenges**. However, it needs the right timing: t is not easy for us to have **equal [teachers'] quality as medical schools in Java**. If we have human resources as strong as School X, we won't lose [in national examinations]. We got an A-accreditation [in last month's assessment], so being in Sumatra is not a challenge. **Leadership** is important. … We **evaluated teachers' performance**. … [It is*

*important] to know the quality of teaching, we performed evaluation using **online feedback from students.**" (VD-L)*

Innovation came in different ways for C-accredited schools. If A-accredited schools worked on details of their curricula and programmes, B-accredited schools made significant changes in curricula, assessment, human resources, and infrastructures, the C-accredited schools could be viewed as taking little steps of improvement on every aspect. Since C-accredited schools were mostly new schools and located in rural areas, they faced different challenges compared to A and B schools.

Medical school representatives, teachers, and students from C-accredited schools had a general opinion on how they acted for improvement: slowly changing every aspect of education while overcoming challenges. They mostly started their changes as they prepared to administer their first national examination.

*"Thank God there was **improvement** after the trainings [for teachers and students]. In our second batch, from 25 students, 22 completed their study, and 17 of them passed the examination. I am very happy with the progress we made. … We should improve some aspects. …. I want the weak points to be identified and covered in the future trainings. … **There are three factors that determine students' result: firstly, the curriculum; secondly the teachers; and lastly, the students. These three need to be synchronised to work…** We need to make sure the curriculum complies with SKDI. God's will, the curriculum and learning material are good enough because we designed it with School I… The **teachers: training and implementation**. Trainings without evaluating its implementation is nothing. The students; well it is hard if the problem is in the students… If the curriculum is good, the teachers are good, **but the students are not the bright ones, it is still difficult to get good results**…" (VD-D)*

*"Our first target was **to be able to be a test centre for CBT and OSCE**. It was for our first batch last August [2015]. … First, we prepared the **infrastructures**, to be eligible as CBT and OSCE centre." (VD-F)*

These schools faced similar basic problems in their needs assessment: limited infrastructure and human resources. For example, Vice Dean of School N, a newly established public school in Borneo, understood that they still had a limited number of teachers and facilities. Therefore, he stated that his school's focus was teacher recruitment, training, and facilities procurement. Despite these limitations, he proudly showed documents on School N's new curriculum and programmes. The key change was that School N able to be independent after being supervised by School Z for the first five years of their establishment. How School N developed their curriculum and executed their programmes was seen

as an innovation since it was a new and significant move for them. They were making changes to an established (albeit new) system and introducing new ideas.

> *"Our first **accreditation was C; [which] we want to change**… In the first years, we already knew that there will be an examination; therefore, our Dean was keen on many trainings: test item development and review, etc. … We knew about CBT, and we went paperless; we already prepared for that. However, the problem came when we did not have a dedicated building. … [Finally] we got a grant from the MoHER so we can **build our new hospitals**. … In 2012 **we made changes based on quality assurance results**." (VD-N)*

Most C-accredited Schools in rural areas served the role of improving the health care system within their provinces. In some cases, there was mutual agreement between medical schools and the local government to 'produce' medical doctors willing to take roles in district hospitals/ primary health care centres. To support this objective, medical schools identified the health needs of their community and specified their curricula to accommodate it. For example, School F which was located in eastern islets of Indonesia, aimed to produce maritime and islets doctors, where graduates were able to manage emergency cases, transporting across seas, and able to deal with limitations in facilities.

> *"There should be **20% local content in the curriculum** … It started as **local content module** … it is arguable that in our curriculum we have this distinct content than [other schools**], there are cases which we could only encounter here in these islets**…" (T1-F)*
>
> *"We learnt about climate, weather, and sea condition. The next module we will learn in real setting, such as going to fishermen's villages, freediving, visiting ships, training in hyperbaric chamber… … Because we know that our school's vision is to **meet the need for doctors in these islets**, we were treated to be able to survive out there…" (S6-F)*

Another example was School N, which was located in Borneo and dedicated one of the units in the undergraduate curriculum to in-depth learning about tropical medicine because in that province the incidence of tropical diseases was high. A similar move was taken by School E, a private Islamic school aiming for graduates with Islamic values. They added Islamic medicine and ethics to their curriculum.

> *"Our vision is to graduate medical doctors who are professional, competent, and **bring Islamic values**. … We expect [the graduates] to not only knowledgeable, but **also apply these values in practicing skills** and daily life." (VD-E)*

In general, these new schools tried to be 'different' to set their identity as a distinct medical school compared to the established ones. While established schools aimed to improve their curriculum, new schools wanted to add more value to their status. Being a 'different' medical school, with better national examinations' results, would also attract more prospective students.

Looking at these improvements and innovations, I did question participants, especially medical school representatives, whether the innovation was worth the cost. The cost of innovation or any education improvement could be burdensome, especially for new schools. Most schools admitted that the cost of making changes was high, as well as the cost of administering the national examination. However, the cost was considered an 'investment' to gain more 'benefit' in the future, especially for new schools. The 'benefit' was not described as gaining profit, but having a better quality of education. By doing so, they expected to get a better reputation and all that follows.

> *"**Medical school is the icon of this university**. We must admit that university's **biggest income is from medical school**. That is also why **our founding organisation are willing to support** us. [We did] massive changes: infrastructures, facilities, human resources, CBT centre, which only needs a month to be finished. … Lastly, we **improve our education system**, including curriculum; all supported [by founding organisation]. Moreover, we got **specific budget** to improve national examinations results, which then lead to trainings [for teachers and students]. All aspects must be improved. Why? Because we know the **bargaining**. If we have **low results, we cannot accept more students in the next year.** That is why our founding organisation think that improvement is important." (VD-H)*

The national examination was seen by medical schools as a start to move forward. This view came from the majority of schools where innovation and improvement had developed significantly. However, there were a few schools struggling in their effort to do so. There were many factors involved in determining how schools could successfully improve I their education, as described in this chapter. In this study, improvement in medical education arose as a main theme when discussing the impact of the national examination. How context and other factors play role in 'creating' this consequence, including how these findings stand in the current literature, will be an important part of discussion chapter (Chapter 7). This section concludes with a table (Table 8), listing key features of the national examination's context in Indonesia.

Table 8. Key features of the national examination's context in Indonesia, organised by accreditation status and ownership

Changes in educational practice	A-accredited schools	B-accredited schools	C-accredited schools
Perception of current education problem	The established schools did not recognise problems in their education system because high achiever students succeeded; until results of the national examination showed other schools could performed better.	Being in the middle rank of table, with fewer problems compared to C-accredited schools. B-schools were still being questioned about quality (especially private schools) and struggling to get recognition for achievement.	Mostly were new schools with limited human resources (teachers and staff), infrastructures (building, facilities), and learning resources.
Value of national examinations for medical schools	As a feedback for institution and maintaining reputation	As an opportunity to show achievement and improve accreditation status (i.e. reputation)	As an opportunity to improve and sustain via support and sharing
Focus	Maintaining quality and improving specific area of curriculum	Improving teaching and learning activities, assessment system	Improving input quality, curriculum, teaching and learning, assessment system
Policy changes* (details in Chapter 5)	Faculty development Preparatory programme	Filtering students for national examination Stricter admission criteria	Filtering students for national examination Stricter admission criteria
Assessment practice	Progress test Performance based assessment in clinical rotation Computerised MCQ and OSCE	Portfolio Performance based assessment in clinical rotation Computerised MCQ	Clinical skills assessment Performance based assessment in clinical rotation
Innovation	Specific elective/ curriculum Interprofessional education Collaboration with primary health care/ district hospital in clinical teaching and assessment	Specific elective/ curriculum Clinical teaching strategies	Specific elective/ curriculum
Key feature for improvement	Evaluation of current programme	Collaboration with other stakeholders Support of founding organisation	Agent of change; leaders Support of founding organisation Support of local government

6.4 Patient safety

While the first three sections of this chapter are cross-cutting analysis of themes and concepts, the last section will be more of a reflection on one specific concept: patient safety. Patient safety has always been in the centre of discourse on the national examination (NLE). It is considered the main reason for and purpose of the NLE, to the extent of the need to measure the NLE's impact on patient safety. However, in this study, it became clear that patient safety did not sit at the same place as it does in the Western literature. While this does not mean that patient safety was non-existent in the discourse or practice of medical education in Indonesia, its role in the implementation of the national examination contrasts strongly with what is already known, largely from developed, usually Western, experience. In this section, I will describe the concept of patient safety in this context of study.

Having identified the importance of patient safety within the research and policy literature surrounding national examinations, I included questions/ prompts on patient safety in the interview and focus group guides (see: Appendix G, H, and I), mainly in the section exploring the NLE's purpose. I expected to find "patient safety" as the most frequent concept expressed when describing purpose and intended consequences of the NLE. In the first few questions about the NLE's purposes, participants did not explicitly state "patient safety", which made me change my interview strategies to use more prompting questions or confirming statements. Other factors to be considered in interviews and focus groups were nonverbal expression, and the flow of conversation (frequency, timing and duration), and other terms used in relation to patient safety.

In most interviews and focus groups, patient-related purposes (safety or better health care services) were not mentioned as the main purpose of the NLE. Instead of focusing on patients' interests, the main concept of the NLE's purpose was about achieving the common 'standard' in education. A common standard of practice was mentioned frequently, but rarely did the participants explicitly relate it to patient safety. Achieving a common standard in practice also meant that new graduates must be able to meet the standard of competence, it is expected that

wherever in Indonesia health care service is delivered, patients will be managed with qualified doctors.

The end result of better medical doctors' competence is better patient care. However, this was not explicitly stated by participants. Even after prompting, some of them still only focused on "better education" not on the NLE's impact on patients. This led me to investigate further what and how they think about the NLE and its relation to patient as the end user of health care.

The purpose of the NLE in relation to "patients" was mentioned by 14 of 18 medical school representatives when discussing the purpose of the national examination. From these 14 interviews, only 2 interviewees stated patient safety as the purpose of national examination without prompting: School P and School E. Even though they did not mention the term 'patient safety' they underlined the importance of "protection" and "rights" for patients.

> *"…The regulation has a **noble purpo**se; perhaps our colleague whom are competent in the field stated that doctors should be standardised because **we are dealing with human**. We **cannot be careless for humanity**…" (PD-P).*
>
> *"…I am talking from a user or patient's point of view. They **deserve the right to be treated by standardised doctors,** wherever it is, graduated from any schools. [This is why] every doctor has the same [procedure] to get a licence for practice…" (VD-E)*

The other schools which stated patient's interests as the purpose of national examination expressed it after a prompting question was asked. In answering the prompting question *"What do you think is the impact of national examination on patients?"* they used the term "standard of care" and "benefit for community". Some of them related patient safety to competence, i.e. knowledge and skills acquired by doctors in delivering health care in the community. This view of "patient safety" was similarly found in the rest of the medical schools' representatives, across each accreditation status and ownership. In these schools, "patient safety" did not seem to be in the centre of the dialogue.

> *"This [field of medicine] is developing continuously… Time evolves, so does the need of health care. Isn't that so? If I say 'Oh I do not want to renew my [knowledge and skills]', **how can we serve the needs of our community**? It increases a lot nowadays… We **have to give them [the resits] some training; don't let them unable to treat patients or cause them to die…**" (VD-J).*
>
> *"In health care, we must **have certain standard to deliver care to patients. The national examination will give benefit for patients because the doctors meet the** standard…" (VD-K).*

This concept of patient safety as NLE's purpose was even vaguer in teachers' and students' focus groups. Only some of participants agreed, after probing questions were asked, that patients are benefitting from or affected by NLE.

> *"… We can **reflect on the results** [of national examination], whether we have poor patient management, so we will be **motivated** to learn more, for **[the good of] ourselves and patients.**" (S11-B)*
>
> *"Yes, indeed [national examinations' purpose is **related to patient safety**]." (S2-S4-D)*
>
> *"We still need national examinations, we still **need "the standard**". If there isn't any, **it will be bad for the public**…" (T4-I)*
>
> *"To be honest, the national examination is a mandate of decree: **to protect the public [patients]**. … It may not feel good for students, especially public schools'. However I think it is a fair method." (T6-K)*

Despite the majority of medical school representatives expressing their thoughts about patients benefitting from the national examination, there were a few schools who were willing to disagree until there was clear evidence to support the link to patient safety. They seemed to hesitate in explicitly stating it and referred to the idea of "patient safety" as something that "ideally" happens as an impact of national examination. They emphasized the importance of a doctor's performance in real practice and the need for evidence.

> *"Let's take it like this… We must calculate it, if you like. We cannot make any assumption. There must be a research **to investigate whether the UKMPPD really has an impact on knowledge, on health care delivery**… So we don't know whether the UKMPPD is important… But clearly, it gives **advantages**, students learn and get better knowledge. What should happen is that the **health care improving** because the purpose is to protect the public. That is [what I believe will happen] if the quality of doctors is excellent as well as the UKMPPD…" (PD-R).*
>
> *"I think the UKMPPD has more [priority] in that area; it's okay if we see it in the aspect of skills, but when we are **in the community there are many things affecting**. In my opinion, [it is] an opportunity for students to practice not only in skills laboratory, but it will also determine their performance in the community, isn't that so? So I want to emphasize that **this examination is not 'everything' but we need to improve the learning process** so the implementation in real practice is 'in the tune'." (VD-L).*

Opposing comments in the discourse that links the NLE to improved patient safety seemed to originate from scepticism toward the national examination. For these participants, clinical practice in real setting seemed to be a separate process from undergraduate education. Therefore, patients, as a distant stake holder, are not benefitting from the NLE.

> *"I **do not think there is a direct effect of national examination to the patients**, the community. What examinees performed during the examination **do not reflect** how they will perform in real practice. There should be a **research** to explore that…" (PD-Q).*

> *"Honestly I think **there is not much advantage** [of national examination]. If the school decides to graduate the students, then it is how it is. There is no need for another examination, [they] **should have more trust to the schools**. [Students] have gone through clinical rotation, so if a case happens in real practice, we **cannot blame the education**; it is just an **accident**." (VD-G).*
>
> *"I **don't think patients will come asking "what is the pathophysiology of this disease doc?**". There is no way patients [will do just as in CBT questions]." (T2-F).*
>
> *"Yes, there were [effects on patients and community]. For example, rational prescribing and so on. … But I think **sometimes it has no use [of such].** When I practice in primary health care, the prescribed medicine is not the same as what we were taught. … I often feel like **[the NLE] is not important**." (S6-I)*
>
> *"There is **no impact on patients or community**. We will **not be asked how many times we took national examination** (laughing). … We can still ask seniors or other doctors [if we do not know]." (S4-L).*

This section had attempted to describe the different concept of "patient safety" in the Indonesian context. My findings showed that patient safety is not an overarching concept of NLE's purpose, but rather a detached and poorly defined concept. 'Patients' and 'clinical practice' seemed to be separated from undergraduate medical education. This may reflect the state of medical education in Indonesia, where education excellence is the focus and patients are not greatly involved nor embedded in education. How this contextual patient safety concept related to the research literature will be presented in the discussion chapter.

Chapter 7 Discussion

This study aimed to understand the impact of the NLE on students, teachers, and medical schools in Indonesia. This chapter will discuss how the findings of the study contribute to knowledge of the NLE through presenting the consequences of introducing the NLE in the Indonesian context. Key findings will be explored in three sections: 1) The intended and unintended consequences; 2) Competition and collaboration; 3) Patient safety. These three sections will be concluded by an overarching discussion of the NLE. A reflection on research context and methodology, a reflection on sampling and analysis, and my personal reflection as a researcher, will be presented at the end of the discussion. This section will also address strengths and limitations of the study. The last section will propose future possibilities and opportunities related to the findings; its implication for theory and practice in the assessment of medical education.

7.1 The impact of the NLE: intended and unintended consequences

Intended consequences refer to the purpose of the NLE and the desired impact identified in the research literature or by the NLE's designers. Unintended consequences refers to the unanticipated or unpredicted, but not necessarily adverse, impact observed following implementation of the NLE. Each consequence is discussed from the perspective of students, teachers, and medical schools.

Intended consequences of the NLE

The main intended consequence of the NLE was **the improvement of education and assessment practice**. The improvement, albeit in this study which was still in a developing phase, showed that this high-stakes assessment met its designed purpose. The findings affirmed those from the research literature, which reported changes in education and assessment practice occurred as a consequence of

the NLE. Changes in education and assessment practice were found in the US and Canada, e.g. the introduction of skills training in curricula and the use of performance-based assessment (Hauer et al., 2006). Similar findings in South Korea by Lee (2008) and in Taiwan by Lin et al. (2013) j showed that the improvements and changes (e.g. the increasing number of skills training facilities) could be found generally in countries implementing the NLE. Findings of this study showed that in Indonesia, a developing country, the NLE was generating similar consequences. However, it must be noted that the Indonesian context posed different challenges to the US, Canada, Taiwan, and South Korea, which all are highly developed countries. Consequently, this study offers a new point of view of the impact of the NLE.

Although the findings confirm the literature to some extent, the highlighted difference is that **the improvements were perceived to be significant and continuous** in Indonesia. The significance was prominent in almost all parts of education: curricula, assessment, and facilities, and faculty development. Table 9 describes the differences of medical education before and after the implementation of the NLE in Indonesia. The table shows that there were challenges in medical education that could be considered features of developing countries, which consequently might not be found in highly developed countries. The significant challenges in Indonesia were: high number of medical schools, limited resources (including human resources and facilities), and less established assessment practices; especially in C-accredited schools. These challenges showed that medical education in Indonesia is developing and is at a different stage from developed countries.

After the introduction of the NLE, there were significant changes, for example: schools in remote islands, with limited funding and resources, attempted to design a better curriculum, improve their assessment, and add new facilities in order to be able to become tests centres. This meant they could deliver the NLE themselves, which they achieved in less than the five years since the schools were established. The improvement made was not up to the same standard as in highly developed countries (e.g. video-equipped skills training rooms in South Korea). However, it *significantly changed* the teaching and learning practice; therefore, the NLE could be argued to have a proportionally bigger impact in Indonesia. The changes affected the experience of teachers and students

experience, which they shared by participating in this study. Faculty development was another impact of the NLE found in this study, which is rarely found in the research literature. In this study, faculty development played an important role in medical schools' improvement. Details of how the NLE affected teaching and learning will be discussed later in this chapter.

In achieving a common standard, schools must refer their curricula to the SKDI (National Standard of Medical Doctors' Competencies), which was used as a blueprint for the NLE. The introduction of SKDI as national reference for curriculum outcome was helpful for new schools when designing their curricula. This study found that by establishing a common standard (i.e. including the bench marking reference for learning outcomes and competencies) medical schools were able to design their curricula to meet the expected outcomes. The schools found it helpful, although periodic improvement of SKDI is needed to keep it updated. The phenomenon of the NLE driven-curricula was often found in the literature, which was usually followed by the concern of "teaching and assessing for the test". As Harden (2009) stated, the NLE driven curricula might miss essential competencies and local values. However, such concerns were not prominent in this study. Instead, most medical schools aimed to have their own distinct curricula features of by including local competencies. This point will be addressed further in the section of unintended consequences.

Affirming the literature, this study also revealed that the introduction of the national OSCE drove significant changes in clinical skills teaching and facilities. It affected the policy of medical schools to introduce or strengthen their clinical skills curricula. Before the national OSCE, clinical skills teaching was not part of the curricula in several medical schools. There was no clinical skills teaching and assessment before the clinical phase because there were very few clinical skills training facilities and clinical teachers in those schools. Because the NLE demanded medical schools be able to deliver the national OSCE (along with the facilities and examiners), the curricula changes followed suit. This is similar to the early introduction of the USMLE Step 2 and the CCME clinical skills assessment, where only a few schools taught clinical skills curricula at that time (Hauer et al., 2005; Hauer et al., 2006).

Table 9. Comparison of medical education in Indonesia, before and after the introduction of NLE

Accreditation Status and Ownership	Curriculum and assessment		Teachers		Students		Facilities	
A	**Before NLE**	**After NLE**	**Before NLE**	**After NLE**	**Before NLE**	**After NLE**	**Before NLE**	**After NLE**
Public	Mostly problem based Traditional in several schools Established assessment system, with limited assessment on clinical skills	Competence-based Student-centred Assessment of knowledge, skills, and professionalism	Sufficient number Trainings available	Sufficient number Postgraduate education in medical education added Leading collaboration in regional/ national	Centralised admission, stricter admission process Mostly came from top high schools	Centralised admission, stricter admission process Mostly came from top high schools	Mostly complete and supported by government Became standard for other schools (training centre, lab, etc)	Mostly complete and supported by government Adding specialties: simulation, e-learning, more affiliated hospitals
Private	Mostly problem based Traditional in several schools Established assessment system, with limited assessment on clinical skills	Competence-based Student-centred Assessment of knowledge, skills, and professionalism	Sufficient number Trainings available	Sufficient number Postgraduate education in medical education added Leading collaboration in regional private schools' association	Private admission process (questions about unfair admission)	Stricter private admission process	Mostly complete and supported by founding organisations	Mostly complete and supported by founding organisations Adding affiliated hospitals and primary care centres
B	**Before NLE**	**After NLE**	**Before NLE**	**After NLE**	**Before NLE**	**After NLE**	**Before NLE**	**After NLE**
Public	Problem based and traditional Developing assessment system, with limited assessment on clinical skills	Mostly competence-based Student-centred Assessment of knowledge, skills, and professionalism	Some schools sufficient number	Sufficient number, recruiting more teachers	Centralised admission, stricter admission process	Centralised admission, stricter admission process	Mostly complete and supported by government	Mostly complete and supported by government Adding affiliated hospitals and primary care centres
Private	Mostly traditional Developing assessment system, with limited assessment on clinical skills	Mostly competence-based Student-centred Assessment of knowledge, skills, and professionalism	Sufficient number, several schools had limited number and shared teachers with public schools	Sufficient number, recruiting more teachers	Private admission process	Stricter private admission process	Limited facilities, supported by founding organisations	Some still had limited facilities, supported by founding organisations, starting to add resources & build facilities
C	**Before NLE**	**After NLE**	**Before NLE**	**After NLE**	**Before NLE**	**After NLE**	**Before NLE**	**After NLE**
Public	Mostly traditional, in a development (new schools) None/ limited clinical skills training	Mostly competence-based Clinical skills training was embedded in curriculum and assessed	Limited number, limited training for teachers	Limited number, recruiting more teachers despite limitation	Centralised admission, stricter admission process To meet the needs of local health care professionals	Centralised admission, stricter admission process	Limited facilities, supported by government	Limited facilities, supported by government
Private	Mostly traditional, in a development (new schools) None/ limited clinical skills training	Mostly competence-based Clinical skills training was embedded in curriculum and assessed	Limited number, limited training for teachers Mostly were retired public schools' teachers.	Limited number, trying to recruit more teachers despite limitation	Private admission process	Stricter private admission process	Limited facilities, supported by founding organisations	Limited facilities, supported by founding organisations, starting to add resources & build facilities

Improvements related to facilities and resources were more prominent in C-accredited and new schools, as can be seen in Table 9 (shaded rows). As intended by those introducing it, the NLE in Indonesia was able to lever the quality of new or poorly performing schools, especially in relation to resources. The government wanted medical schools to be up to standard and facilitate students' learning with high quality resources. This included not only teaching halls, rooms, and laboratories; but also facilities for clinical teaching and hospital placement. Thus, they were 'pushed' to have a standard clinical skills centre and manikins/ equipment, which could be used to facilitate clinical skills training. This is unlikely to be an intended consequence for highly developed countries implementing (or planning to implement) NLEs, since their facilities and resources are already of a high standard. However, the increase in facilities for learning, especially for clinical skills learning, was also found in other countries implementing NLE for clinical skills, such as South Korea and Taiwan (Lee, 2008; Lin et al., 2013; Liu et al., 2013). What makes it significant for the Indonesian context was that, despite its costs and challenges, medical schools made an effort to improve their facilities and resources. The new and lower accredited schools (B and C) tended to struggle more with these efforts. The costs of the NLE will be addressed later in this chapter.

Improvement in assessment practice

The NLE was believed to be more likely to encourage changes and improvement in assessment practice, although this idea was deemed a *'myth'* by some experts. A centralised assessment was considered as hindering innovation in assessment, since it makes it more difficult to lead initiatives in assessment at local school level (Harden, 2009). New approaches are more likely to be introduced in schools where decisions on assessment are taken locally and therefore a centralised assessment, such as the NLE, raises concerns about how assessment practice will improve. Schuwirth (2016) and van der Vleuten (2009) had proposed this concern about how the NLE could be a backward step in assessment. The NLE has been seen as a 'single-shot assessment', involving external measurement, risking misalignment of assessment and education, and the opposite approach to programmatic assessment (Schuwirth, 2007; van der Vleuten, 2013; van der Vleuten, 2009). Despite the debates, there is very little evidence about how the NLE affects the development of assessment.

Following curricula changes, this study found that almost all participants perceived that **assessment practice in their schools was improving**. Participants compared their experience in their medical school's assessment, before and after the introduction of NLE. The changes and improvement of assessment practice were part of policy changes by medical schools, which followed their development of curricula and resources.

The findings from this study give another perspective on how the NLE affects assessment practice. In established medical education systems (e.g. in the Netherlands and the UK), where assessment theories can be easily applied and advanced it might be the case that NLEs could adversely affect assessment practice. However, this assumption might not be valid in a different context, from the example in countries with different medical education systems.

In a developing country, where not all medical schools have a modernised assessment system, the NLE can drive improvement in assessment practice. Since the NLE in Indonesia partly aimed to improve education quality, this high-stakes assessment was considered a way to meet that aim. The NLE set a 'standard' of assessment practice, particularly by giving examples of written assessment using MCQs and performance-based assessment using OSCEs. Although the NLE itself was often criticised for its content and technical administration problems, positive changes in assessment practice since the introduction of NLE were significant. Medical schools that did not have good assessment systems were 'forced' to follow the NLE-driven changes.

Table 9 highlights an important point that before the introduction of the NLE, some schools implemented 'traditional' assessment practices. Written assessment mostly used MCQs and essays, using recall questions instead of analysing/ synthesizing questions. Teachers were not used to write scenarios/ cases for assessing the application of clinical knowledge. Assessment focussed on giving scores, often subjectively, rather than providing feedback for learners. In this study, some established schools had already moved their focus toward individual student's learning by performing progress testing and providing more feedback for students and teachers. After the NLE, performance-based and workplace-based assessments were increasingly used to assess clinical skills and professionalism in undergraduate and clinical placement.

It was an intended consequence of the NLE to improve the assessment practice. However, this consequence involved an unintended consequence: the **competition** between medical schools. The competition to have good results and lower failure rates in the NLE led schools to improve their curricula and assessment. As a result, there has been significant improvements to assessment practice, especially in underperforming medical schools.

Later in this chapter, I will discuss how the NLE could lead to the unintended consequences of both competition and collaboration. The competition produced by the NLE opened opportunities for ***collaboration*** between medical schools and other stakeholders. The most prominent example is that the national OSCE led to the collaboration between new and established schools in the designing of clinical skills curricula, facilities, and clinical teachers training. Since the introduction of the NLE, assessment in clinical skills, especially OSCE deliveries in medical schools, has been the means of improvement through collaboration (Suhoyo et al., 2016). The collaboration in OSCE deliveries involved the MoHER and medical schools in developing item banks at national and regional level, through the regional AIPKI. They also delivered item writing workshops for teachers within the region. The collaboration will be elaborated on further in the next section.

The improvements in education and assessment practice as found in this study showed that the NLE led to those intended consequences. Whereas this confirms the literature to some extent, this study suggests that the improvement in a developing country, such as Indonesia, can be significant. The impact of the NLE on assessment practices in developing countries with developing medical education, such as in the context of this study, was not perceived as a “step back” nor a hindrance by participants. This national, large scale, high-stakes, centralised assessment could act as a driver to help establish good assessment by introducing a rigorous method to assess core competence and stimulate medical schools to design their assessment accordingly.

Improvements in teaching and learning

Most studies of NLEs did not explore changes on teachers and students, especially how teaching and learning might be affected by NLE. Although

changes in teaching and learning may greatly affect the output of education (i.e. students' performance), current literature did not consider the impact of the NLE on teaching and learning from the point of view of teachers or the students. Considering that the NLE's main purpose is to improve patient safety, many researchers have been more interested on the impact on students' performance in clinical setting *after* the NLE. However, the impact of the NLE on teaching and learning cannot be underestimated, since it is known that students performing better in medical schools have a tendency to perform better in clinical setting (Tamblyn et al., 2002). Roberts and Swanson (2016) restated the opinion that students' performing better in NLEs had been predicted to have better clinical performance. However, most of the literature concerning the NLE's impact on teaching and learning has focussed on student's scores, which may reflect performance before (e.g. MCAT scores, GPA) and after medical school (e.g. NLEs' scores, postgraduate examination scores). Although there are currently no rigorous criteria for measuring the impact of NLE on teaching and learning, this study offers *a different point of view of understanding it*. As described before, this study found that both students and teachers perceived that the introduction of the NLE led to changes in policy related to education programmes (e.g. curriculum, assessment, and faculty development).

It is a well-known assumption that assessment drives learning. Assessment can drive changes in learning activities, although this assumption should be viewed in connection with longitudinal changes in learning. However, in the discourse of NLEs, it is uncertain how it may affect student's learning: in a positive or negative way. Harden (2009) proposed that NLEs would lead to only assessing what was deemed important and leading to students only learning what would be on the test; a decision which might miss important subjects or competences, such as professionalism. Another risk of NLEs raised by Harden (2009) was that NLEs might 'misalign' with medical schools' assessment. This might be true, as some participants in this study thought of the NLE as an 'external' measurement; a separate assessment and not integral to undergraduate assessment systems in medical schools. This was mostly because before the NLE, their assessment systems were not established nor had alignment with the NLE. In the Indonesian context, this was considered necessary to trigger changes, to build a proper assessment system for the 'developing' medical schools. The 'misalignment' problem had been highlighted as a risk of the NLE on assessment practice.

However, the NLE could be approached as integral to medical schools' education and assessment systems: it completes the course of assessment throughout the undergraduate programme. Currently, this approach is being considered by the GMC, where they are introducing the MLA and seeking the best assessment method to fit into medical schools' existing assessment systems (Archer et al., 2016a).

With the concern of teaching/ learning to the test and the misalignment of the NLE with medical schools' own assessment systems, how did the NLE drive student learning in this context? This study revealed that most students did not project their learning toward the NLE, at least until before they entered the clinical rotation. Assessment systems in medical schools had more impact on student learning than the NLE. Of course, this occurred in the Indonesian context, where the NLE sits at the end of their six-year study (compared to the USMLE with its multiple steps). Since students experienced the curriculum and assessment changes (i.e. they were part of a developing medical education system), how did it affect their learning?

What this study offers as an answer is a different way to look at students' learning. The impact of the NLE described by students was related to changes in their knowledge and attitude toward competence-based learning (including learning strategies), their learning experience in schools and clinical rotation. It was because they were part of the changes: they experienced the process; thus, they had different perceptions on how they experienced the improvement. In some cases, students, especially from new schools, compared their learning experience with their juniors, who might experience better facilities and curricula as a result of the policy changes. Those who experienced competency-based curricula had a better understanding of the learning outcomes (competencies) that they were expected to achieve. Improvement of facilities and placement (hospitals, primary health care centres) gave them more opportunity to learn and prepare for clinical tasks during clinical rotation. The clear goals and better learning environment helped students to feel more prepared to be a professional. Their sense of 'professional identity' and readiness to take on clinical tasks were frequently related to how they would perform in the NLE. This side of students' learning was often missed from literature, where the focus was more on how *the scores* of the NLE reflected their competence and predicted their future

performance (Tamblyn et al., 1998; Wenghofer et al., 2009; Thundiyil et al., 2010; McGaghie et al., 2011).

Their self-determination (i.e. being ready to take on professional tasks) was improved when students performed well in the NLE. For some students, passing the NLE made them determined that they were "able to meet patients the next day". This supports Patel's work, where students who had 'invested' time and effort to study and performed well in the examination believed they were ready to take on professional duties (Patel et al., 2015). Although this did not occur in all schools participating in this study (some schools were still in a challenging condition with resource limitations), it did not lessen the fact that the NLE changed their learning experience as a result of changes in the education systems in medical schools.

Another important point from the students' perspective was the personal impact of the NLE. Succeeding in the NLE brought ***confidence, the sense of readiness, pride,*** *and* ***equality***, as found in this study. Pride and equality were more prominent for students from new, private, and remote schools. It also leads to questions on learning gain: whether students from private and new schools, might gain more learning than students in public and established schools as a result of the NLE. Although the purpose of the NLE in Indonesia was to have competent graduates from all medical schools, this perception of pride, equality, and acceptability to students was not previously predicted. The NLE has previously only related to performance in clinical performance or postgraduate study, not preparedness for practice. Therefore, this consequence would fit into a 'grey area', where some of the intended and unintended consequences overlap.

Consequences of the NLE on teachers, on either their teaching strategies or professional development, were rarely described as the consequences of the NLE in the literature. This might be because most of the research on the NLE was conducted in highly developed countries, where it was assumed that teaching quality was not a problem. However, there has been no research on how the NLE may affect teaching quality and faculty development. In the Indonesian context, the quality of teachers played a significant role, especially for schools with limited facilities/ resources. The number of teachers, with certain educational background and training, had become one of the indicators for assessing medical schools' accreditation. The ratio of students and teachers was

used as an indicator for accreditation, therefore, in 2015 there were 45% of schools with C-accreditation, the lowest status given by accreditation body. The number of teachers was a problem for new, private or remote medical schools before the NLE. This problem persisted for some schools who struggled with their funding and organisation. Consequently, the government introduced the NLE in Indonesia aiming for better education quality, to improve medical schools' 'capacity', with teacher quality as one of the focuses. This study found that to improve their NLE results medical schools had to improve both the quantity and quality of teachers.

Improvement in teaching practice can be seen in the increasing number of teachers in some schools and increasing activities for faculty development. Medical schools offered postgraduate trainings, even more specifically for medical education, to help the implementation of new curriculum and improve NLE results. Although the content and delivery of the NLE had been criticised, faculty development was still the most frequent positive feature spoken about by participants in this study. The significance of teacher training, either delivered by their own schools or in collaboration with other stakeholders (including hospitals), was considered as a benefit of the NLE. This finding might be relatable to by other developing countries although the phenomenon appears not to be an issue for developed countries, where it is rarely explored in the literature.

Unintended consequences of the NLE

The findings of this study demonstrate several unintended consequences alongside the intended ones. Thus, this section will discuss how the improvement led by the NLE was followed by, or partly affected by, the unintended consequences.

A common standard: NLE-driven curricula and preserving diversity

As the NLE in Indonesia and the SKDI drove changes in curricula, it was expected that there would be a common standard achieved. The phenomenon of the NLE-driven curricula was common in countries implementing the NLE. However it raised concerns about whether the 'standard' curricula would also mean a 'uniform' curricula. Harden (2009) had raised his concerns about how the NLE as a centralised examination could lead to uniformity and supress diversity; with

local competencies less likely to be recognised. Therefore, it is important to understand whether the NLE in Indonesia led to the outcomes Harden suggested, which I will address in this section.

Whether NLEs can lead or follow curriculum change has been a question raised in the debate of NLEs. The NLE may reflect *"what is taught"* or *"what should be taught"* in the curriculum. This debate has been linked with the concern that NLEs might lead to a uniform curriculum and prevent innovation. When the USMLE Step 1 was introduced there were similar concerns about how it would impact on the curriculum. . Some medical schools were worried about even the slightest change in curricula, while other schools wanted specific modifications of curricula without a firm agreement on how to make the changes (Swanson et al., 1992). Swanson et al. (1992) elaborated further how, in the USMLE Step 1, the examination did not reflect what was taught because there was diversity of medical school curricula. The USMLE stated its purpose was to assess basic clinical science competence, but that this should be interpreted broadly in the light of curricula. The highlight of Swanson's argument on how the NLE affected the curricula, was that the *goals* and *process* of curricula must be distinguished. Similar curriculum goals might have a diversity of process in delivering curricula, e.g. traditional discipline-based approach, problem-based learning, etc. On the other hand, similar processes of curricula might have different goals. In the case of USMLE Step 1, the NBME did not expect schools to make changes to their curricula. The USMLE only determined "what the examinees *should have learned*", not "what the students *should be taught*". The NBME tried to involve the majority of medical schools in assessment item writing and ensured that it was neutral with regard to curriculum process (i.e. not favouring a particular instructional approach) because, in the US, each school had its own authority and responsibility in determining curricula goals and process. Swanson's conclusion on the USMLE Step 1 emphasised the *context* of medical education in the US, which affected how the NLE influenced the curricula.

In the context of medical education in Indonesia, it is important to note that the system is still developing. Before the NLE, there was no agreed standard of core competencies for medical graduates. There was a guideline for curricula in the decade before the NLE, but it mainly covered the knowledge domain (clinical knowledge). Therefore, the 2006 national standard of competence was

considered a breakthrough to guide medical schools' curricula and assessment, which then was aligned with the NLE (*Five-year implementation report of national licensing examination*, 2013). The SKDI worked in a similar way as the GMC's *Tomorrow Doctors* but had a far bigger role in terms of determining the blueprint of the NLE. This means that the NLE in Indonesia had a purpose to drive curriculum changes, setting learning outcomes and assessing what examinees should have learned.

If the NLE in Indonesia was intended to drive curriculum changes, did it meet the purpose? This study found that medical schools changed their curricula and revised them following the SKDI's review every 5 years. Medical school representatives interviewed in this study reported that the SKDI helped them to identify competencies, design, and measure outcomes of curricula. SKDI actually helped them to formulate curricula and learning outcomes: knowing which aspects and competence would be assessed in the NLE. They agreed with the core competencies listed in the SKDI, although some competencies need to be considered with regard to particular colleges (e.g. college of dermatologists, surgeons, etc.).

Was the diversity a casualty of this process? This study found that this was not the case in Indonesian context. Referring to the terms used by Swanson (1991), although the learning outcomes were almost similar, medical schools had different approaches (curriculum processes) in achieving curriculum goals. Medical school representatives mentioned several approaches they used: problem-based learning, disciplined-based traditional curriculum, and modified problem-based modules. They highlighted how they determined learning outcomes based on SKDI, but they had authority to design their own curriculum, including its particular contents. This was demonstrated by in medical schools' decisions to add local values into their curricula, such as the islet doctor's competencies, disaster management, community health practice, etc. The local values served to meet the need of local health problems or to offer added values for their students. This point emphasizes the importance of local values as proposed by Harden (2009), but at the same time also refutes his claim that the NLE would supress diversity.

The diversity of curricula in the Indonesian context was an important part of the developing medical education system. While the schools tried to improve their

education and assessment practice, at the same time they tried to form an identity that would be distinct and recognisable in the competition introduced by the NLE. Although not all schools made the same effort, this move reflects how the competition led by the NLE played a role in affecting curricula. Offering excellence in education by bringing added local values was found prominently in top schools, where the results of the NLE were not a major concern for faculty. To summarise, in Indonesia where there was a competition led by the NLE, some schools relied on the diversity of curricula to be competitive.

This highlights that the concern about the lack of diversity following the implementation of the NLE was not found in Indonesia; competition led by the NLE made schools even more eager to be distinct. This finding offers a different point of view on the NLE's impact on curriculum diversity. The impact of the NLE on curricula should be viewed as a complex process, where it does not simply produce a one-way influence on policy. The way medical schools took the NLE as a policy and implemented changes in curricula is affected by the interaction of stakeholders in the system (other medical schools, the government) and the competition created by the NLE.

The financial impact of the NLE

The NLE is known to be costly: it needs significant financial support from stakeholders and, consequently, from examinees. This may seem a common consequence of the NLE, not only in developing and limited resource-countries but also in developed countries, such as the US and Canada. The NLE, especially if administered country-wide (not just in a centre), would involve more stakeholders, more resources, and need higher costs. Moreover, in this study, the NLE led to changes in medical education system and medical schools, which were even more costly than the administration of the NLE.

The concern of the costs of NLEs had been explored and debated in the literature. In the US, even though test centres were only located in several cities, there were concerns regarding the cost of the USMLE Step 2 (Clinical Skills Assessment) when it was first introduced. Papadakis (2004) pointed out that the burden of the USMLE cost would be too much for medical students. The expenses of examination fee, travel, and accommodation would be burdening students who already saw their education debt increasing. The high cost of the USMLE Step 2

became one of the arguments in opposing the examination. Questions about validity of the USMLE Step 2, and whether the expensive assessment would give more benefit than harm, was frequently stated by students, clinicians, and faculties. Despite this criticism, the NBME defended their argument in introducing the USMLE Step 2. The long-term impact of the USMLE Step 2 on society, patient safety, and medical education should be considered as outweighing its cost (First et al., 2013). To support this claim, the NBME had been conducting research to establish its validity and impact on patients.

Similarly, in Indonesia, the cost of the NLE was one of the main arguments in opposing it. In this section I will discuss how medical schools and students viewed this aspect of the NLE and how it affected school policy and student learning. As the cost was frequently mentioned as one of the *disadvantages* of the NLE, it is necessary to understand the breakdown of this cost. The cost of administering an NLE in Indonesia varied between medical schools. As Lin, et al. (2013) noted, medical school changes in resources and facilities related to the NLE, especially the OSCE, would be significant and, consequently, the cost of procurement of those facilities. Public schools were fully supported by the government through their annual budget, while private schools were supported by their endowment organisations. Schools who had facilities for computer-based tests (e.g. sufficient number of computers, test rooms, and a good internet connections) were able to be a “CBT centre”. However, according to the government regulation, medical schools needed to be able to administer the national OSCE in their own institution. This meant medical schools must have the resources and facilities to do so: sufficient numbers of test rooms, manikins, examiners, and standardised patients to meet the needs of their students.

Regarding this consequence, different school characteristics played a role in affecting medical schools’ responses. Established public schools found it easier to secure their budget for delivering the NLE than private schools and they and new schools found it hard to become test centres. As discussed in the previous section, endowment bodies might disagree with the high cost. However, in some schools, they could see the changes clearly and began to perceive it as their ‘investment’. A long-term goal for improving reputation and the quality of graduates were their reasons for supporting the medical schools to undertake the changes. Arguably, here the theme of competition also played a role; where

medical schools were not only aiming at *surviving the competition* in a short period, but for a longer period of time. Continuous improvement would mean a better reputation and thus attract more prospective students and securing funding for the future. This would explain the phenomenon of some private medical schools spending more to achieve better NLE results, because they *have to* be better to survive, while established public schools perceive themselves to be more secure. It is worth noting that in this study, schools with the 'investment' mind set were supported by strong organisational and managerial support. Medical schools with less support (e.g. deans/ programme directors not actively involving the endowment bodies) might not have similar consequence to those who had strong support. This was shown by an example of school J, whose vice dean had difficulties in executing their new programmes and improving their facilities because the chancellor and endowment body did not support the decision.

Other factors such as regional and local government support also affected the financial consequences, especially for new public schools. The cost of the NLE in remote regions was higher, because there would be additional cost to build or improve facilities remotely. However, public schools located in remote area, usually got more support from local government because they needed the graduates to provide health care services in the regions. The support mostly came in the form of scholarships and providing hospitals and staff for clinical teaching. This reflects **the importance of collaboration** between stakeholders, in sharing the cost of education (including the NLE), to achieve their interests: local government to meet the need of local health care services and the medical schools to improve their education quality.

It has been mentioned that the cost of the NLE was considered a disadvantage by students because of its fee and other related expenses, especially the private preparatory/ revision courses. It is interesting to view this issue from how students coped with such a *disadvantage.* In discussing this, it is necessary to reflect on Cilliers' study that explored the mechanism of the impact of summative assessment on students' learning (Cilliers et al., 2010). What this study highlighted was that the cost of the NLE played a role as an unexpected factor in influencing students' learning behaviour toward the NLE and how they responded to their results. The cost of the NLE was frequently mentioned by participants in

this study as a ‘disadvantage’ for them. The official examination fee was around £50 in 2015. While the cost of the NLE for MCQ was four hundred thousand rupiah (£25), this was doubled when the national OSCE was introduced. The findings revealed that most students did not consider the examination fee (which was around £50) harmful but were more concerned by the complementary costs charged by their schools or the private preparatory/ revision courses. These costs could go as high as £1000 for various needs: preparatory classes (by medical schools), private revision courses, lodging, flight tickets, and resit examination. These complaints were reported less frequently in public schools, where students were not charged for an extra fee and courses.

In conclusion to this section, the different views on the cost of the NLE by medical schools and their endowment bodies, especially how the schools coped with this challenge, showed how context affected the impact of the NLE. For students, the cost of the NLE affected their learning behaviour and their response toward failure. The impact of NLE costs on failing students will be described and discussed in the next section.

The consequences of the NLE on failing students

The burden of the NLE was significantly bigger for failing students, especially those who failed more than once. As explained in Chapter 4, most of these students were found in private schools with lower accreditation level. Life demands (e.g. financial motives as a breadwinner of the family) complicated this matter, where students who could not graduate after years in medical schools and their families felt frustrated and expressed this frustration toward their schools. As one of the medical schools representatives said: “*….the chancellor and staff were locked in a room and failing students went on small riots, burning tyres outside…”.* Such a complex problem perhaps would not be found in a Western context, where the medical education system is different (i.e. stricter regulations and, importantly, admissions) than in Indonesia. Thus, the impact of the NLE as a high-stakes summative assessment found in this study might well be different from those described in the research literature.

As Cilliers et al. described, the impact of a high-stakes summative assessment on a student's learning would be greatly affected by how they value it, in this case, leading them to appraise their learning goals and behaviour (Cilliers et al., 2010). This study found that some of the students felt that the NLE was their 'gateway' to professional work, where they finally could get an opportunity to gain financial benefit. This is a different 'value attached to the expected outcome' than that which Cilliers described in his article (2010, p.706) Most of the students in my study considered the opportunity to 'get their first salary as early as possible' as their 'reward' for passing the examination. This motive was often described alongside their family's expectations of them and comparison with their peers who pursued professions other than medicine. These students, who had very high investments in passing the NLE, had a very strong response to failure. In responding to the failure, Patel et al. described this process as external attribution, where students finally put blame on the system and were less likely to reflect on their own learning (Patel et al., 2015). How the disappointment by failing students in this study came to be expressed as an act of violence might be explained by the culture of the medical school's location. As the programme director of School M stated, his school, in a different island, did not face the same challenge as School J where violence occurred because of the different culture associated with the two regions.

On the other hand, some students valued the NLE as their opportunity to not disappoint themselves and their families, who, according to them, had made many 'sacrifices' for them to be in medical schools. For many students in Indonesia, who were more financially challenged than students in developed countries, failing the NLE after years of spending their money on medical schools would be a considerable burden. This was considered as their external motivation to pass the examination. When these students failed, their reaction was more inward and self-reflective. Most students described their peers who had failed the test as having a self-blaming, solitary, and depressive attitude. Their peers recalled that these students often failed to seek help and support. Thus, they were more likely to fail in the remediation. This phenomenon of struggling students fits with what Patel termed the failing cycle (Patel et al., 2015). If this was not recognised, it might affect both the school's achievement and the future of their students. Fortunately for some medical schools either their teachers or head of schools started to recognise this problem. They then decided to reach

out and give psychological support for failing students. For example, one of the schools offered a week of psychological support and religious activities in an outdoor setting.

The financial impact of the NLE, as well as the students' appraisal of this high-stakes summative assessment as shown in this study, might only occur in an Indonesian (or other similar developing country) context. The consequence of failing the NLE needs to be understood in the design of the NLE and its resit system. Although currently there is very limited research on this area, this study offers new insights into one of the unintended and overlooked consequences of the NLE: failing students.

NLE results as a feedback for medical school performance

The improvement driven by the NLE, as perceived by participants in this study, started from the tailor-made feedback on their students' results in the NLE, which they received from the committee. In this study, the results not only comprised students' *scores*, but also the summary of their performance for each area of competencies and a comparison with other schools. As an outcome of assessment, the result of NLEs is often considered to be a value indicator for measuring the quality of medical school programmes. This measurement is often taken as an input for the evaluation of a medical school's undergraduate programme, which then could be used in decision making by stakeholders, including the regulator. However, as Harden (2009) proposed in his paper, the use of the NLE's results and their statistics could lead to unintended consequences: misinterpreting the results as a basis for policy making.

The NLE results offer an angle from which to view the quality of education but it has limitations. Although this measurement is favourable for governments, funding authorities, employers, and other stakeholders relying solely on the NLE results for decision making risks problems such as tunnel-vision, sub-optimization, and gaming. Harden argued that policy makers should "do no harm" when making decisions and claimed the NLE results do not have adequate information to form a reliable basis for decision making. He pointed out that the NLE does not represent the complexities found in medical education system. Thus, the "score" of the NLE cannot be used as an indicator for curriculum evaluation. He linked this criticism of the NLE to the idea of standardised test

which may lack authenticity for professional tasks such as empathy and problem solving (Harden, 2009). Moreover, Harden argued that changing curricula are not likely to have much impact on the improvement of student achievements (NLE scores) as found in the literature (Violato and Hecker, 2007).

This criticism is reasonable, considering every assessment method would have strengths and limitations, especially the criticism of its validity and reliability. However, the discussion of how the NLE results could be used for decision making should not only consider the NLE's authenticity. Departing from Harden's arguments, I would like to propose another perspective of how the complexity should be viewed. The system where the NLE was taken as a policy *is* a complex system, which would be influenced greatly by its context. Its complexity is often reflected in how stakeholders interact, where decision making might consider many factors. Moreover, the result of the NLE was not limited to scores, but also passing rates, feedback for each test's component, and other impacts that may arise from the NLE. The result of the NLE might have more roles to play than just an indicator for programme evaluation and could therefore contribute to a decision-making process, either by the medical schools or other stakeholders. Using the results of the NLE only in decision making, would be reductionist and simplistic. But could the NLE reflect a more powerful dataset?

In the context of Indonesia, the NLE results were related to how medical schools prepared their students, their resources and facilities. It could also reflect the efforts of medical schools to improve their quality. The result of the NLE was not considered as a 'national ranking' for students, but more as an assessment of how medical schools performed in assuring the quality of their students. The government decided to use the passing rate as an indicator for medical school performance. It was then combined with accreditation status to determine the allocation for new students in the following academic year.

The decision to use the NLE results, as pointed out by the MoHER in their decree letter, was to ensure that medical schools took the proper number of prospective students according to their capacity and capability. It was also to ensure that medical schools had sufficient resources to support their educational process. Although this policy was opposed by some schools (mainly private ones), some schools in this study found the policy actually helped them to 'bridge' their vision of education with the vision of their endowment body. Since some private schools

were looking for profit, they accepted more students than they were able to properly support because of pressure from their endowment bodies. However, faculties and teachers found it more difficult to manage teaching when the ratio of teachers to students was low. In some schools, some of the 'over quota' students were struggling with their study, which made teachers question the admission criteria. The Ministry's policy helped the programme directors to evaluate and revise their policy on the number of prospective students and admission criteria.

The above paragraph describes one side of the complex system of medical education in Indonesia: the admission of medical students which caused the problem of failing students. In this study, these two factors were revealed to be significant problems affecting medical schools' performance, especially for private schools. Almost all private schools experienced the dilemma of having to compromise the quality of admission with their endowment body's favouring students, where later they found out that they had to deal with a significant number of failing students. Only after the government released the decree did the endowment body understood the high stakes of the NLE results and those medical schools were able to change the policy related to admission.

Admission was discretionary for some schools, so it was understandable that they might not give an honest opinion on this matter. Although some medical school representatives openly admitted that their students' quality was 'below standard' because of the admission policy, not all schools were keen to tell the story in detail. Therefore, in exploring this theory, I also looked at how teachers, who had the most frequent and direct encounters with students, give a different point of view from that of medical school representatives. In this study, most teachers found it more difficult to facilitate low performing students especially when they failed the NLE. According to these teachers, failing students were more difficult to motivate; particularly because they struggled to improve their performance in their undergraduate studies. Teachers had also noticed that most of the failing students had been identified as low-achievers or problem students, even in their first years. Thus, teachers expected a better input of students and better admission process.

The failing students became a problem during 2012-2013, where high number of failing students was prominent in some private schools. These students, who

failed the NLE multiple times, even took to the streets to protest about the NLE and conducted small riots in some schools. Although this problem was resolved by a special programme in 2014, it probably played a role in the government's decision to use the NLE results as one of the indicators for the admission policy. The government viewed failing students as the medical school's responsibility, thus encouraging the schools to be more aware of their education quality. This would also mean schools that did not meet the best criteria for accreditation and did not excel in the NLE were only allowed to be responsible for a limited number of students.

To reiterate, the decree in 2014 became the regulation for medical schools' admission criteria; where medical schools could only take prospective students according to their quota, which was calculated based on their accreditation status and passing rate (i.e. average percentage of passing students in a year). Medical schools eventually needed to improve their accreditation status and their NLE results if they wanted to take more students. This would mean the schools needed to ensure they met the requirements of quality assurance (e.g. curriculum, facilities, learning resources, teachers' training, etc.), which were only assessed once every five years. Moreover, medical schools needed to work hard to improve their NLE results.

This study found that private schools, who had previously accepted more students than they should have taken, obeyed the regulation although they had to challenge their endowment body to do so. Some schools proposed a 'revolutionary programme' to their financial supporters, which advocated improvement in educational practice to achieve better results in the NLE. It was said to be 'revolutionary' because for these schools, it was very hard to persuade the endowment body to carry out significant changes in education. For example, School E, a new private school, stated that they had to gain trust from their endowment body and propose the 'bargaining' plan: implementing stricter admission, improving curriculum delivery, and better preparation for the NLE, with assurance of financial support. School E was aiming for good NLE results, where they would finally improve their passing rate and gain a higher reputation locally. At that time, the endowment body finally realised that by improving their reputation they would get a long-term benefit. This is one example of how the

NLE result was used, which could contribute to an evaluation of undergraduate programmes, leading to organisational and policy change in medical schools.

Harden (2009) put the argument of 'teaching for the test' as an adverse impact of using the NLE's scores as an indicator for programme evaluation. Medical schools might not be able to avoid 'teaching for the test' if the NLE became a sole indicator for their system's quality. As Harden argued, based on a study by Hecker and Violato (2008), curriculum changes driven by the NLE had little impact on the NLE scores. Thus, it should also limit the assumption of medical schools adopting a 'teaching for the test' curricula. Medical schools might indeed change their curricula, but not necessarily aim to teach for the test.

The reasoning that Harden proposed is sound, but it is important to note that it might happen where the NLE scores are the only thing to be considered by policy maker. This was not the case in the Indonesian context, where the NLE scores were not used as a single indicator. As described in the previous section, the NLE scores led to competition between medical schools, something which has not previously been predicted. The scores were reported to each school with detailed feedback of their students' performance and were not to be used as an indicator for evaluation by government. Curriculum evaluation was conducted by the accreditation body, which was part of the quality assurance process. Although this system is still developing (now that the accreditation body is specialised for health care professional education), the accreditation status used multiple indicators for programme evaluation. Thus, it was expected that medical schools carried out changes not only to curriculum (i.e. not focusing on 'teaching for the tests') but in other areas as well.

From medical school representatives' point of view, the NLE results offered input for them on how well they were preparing their students to be fit for practice. Most medical schools found the input useful; partly because the input provided 'unbiased' and independent feedback on how their students achieved the learning outcomes. These schools shared the feedback with their head of departments and teachers; who would continue to evaluate teaching in their respective departments. With this cycle, these schools found 'the gap' between the expected competence and their learning objectives. For example, a school stated that they found their curricula did not cover prescription writing and formulation, which was one of the expected competencies required by medical

doctors in Indonesia. Their students did not get any opportunity to practice prescription writing before entering clinical rotation. After receiving feedback, they made changes to their curricula and strengthened the respective department. Indirectly, this example also illustrates how the NLE played a role in patient safety in the Indonesian context, which will be discussed later in this chapter.

In conclusion, results of the NLE are not always the appropriate indicators for programme evaluation. However, the NLE results in Indonesia are not limited to examinee's scores; they provide a more detailed feedback for medical schools. This study provides another point of view on the use of the NLE results where, in the Indonesian context, the passing rate could contribute to the quality assurance system and influence medical schools' policy on student admission. In the context of developing medical education, where medical schools need external motivation to improve, the NLE results could play a significant role in change-making. To use the NLE results as the basis of policy by the regulator, it is always necessary to consider how the medical education system works in the country and how the policy may affect the medical schools.

The 'league table': competition and collaboration

Earlier in this chapter (see: intended consequences of the NLE), the impact of the NLE-driven competition between medical schools was explored. This study found that there was a competition led by the NLE where medical schools competing to have a better NLE result drove the whole process of change and improvement. That competition occurred was inevitable, and it has been one of the main concerns for experts and stakeholders in countries planning or implementing the NLE. Having a NLE would mean creating competition between medical schools: a 'league table' where schools with high performers in NLE come first and schools with poor results in NLE may sit at the bottom of table.

Such league tables, which reflect competition between medical schools, may benefit or harm medical education. Although competition can be an external motivation for medical schools, a league table set by the NLE results is a consequence that every stakeholder tried to avoid in developed countries. It was feared that competition led by the NLE would widen the gap between schools and negatively affect a medical school's reputation. Poor performance in the NLE was also associated with employment in less well-respected institutions and poorer

performing organisations, which further added to the impact of the NLE on the reputation of schools and employers (Noble, 2008). One of the arguments found in the literature is that the NLE result alone does not provide sufficient information on how medical schools perform, which makes any judgment based solely on NLE results irrelevant. This kind of consequence, i.e. giving ranking to medical schools based only on student' scores (Scholastic Aptitude Test-SAT, Medical College Admission Test-MCAT, Grade Point Average-GPA, and in this case, would be the NLE), was avoided by many countries and, therefore, the assessment of medical school quality should be taken very carefully by regulators (McGaghie and Thompson, 2001; Gorsira, 2009). Following my thesis about how context plays a key role in the discourse of NLE, I will now discuss the context of competition and its impact for medical schools in Indonesia.

In any context, establishing a ranking of medical schools is necessary to give the public accurate information about how medical schools are educating their students, i.e. educating future doctors. It is also important information for stakeholders (the government, regulator, founding bodies, and employers), which could affect how policy is made and implemented (e.g. funding allocation, recruitment) in the future. However, the rankings may not represent all areas that need to be considered in education. . For example, in the US, the ranking established by one of the publishers does not represent social accountability and cultural competence (McGaghie and Thompson, 2001). In the discourse of competition between medical schools, it is important to understand how the current measurement or ranking system works in both Western and Indonesian contexts. This study found that the local context of the NLE created a different interpretation of competition. The nature of competition that this study revealed was different than that found in Western (Europe and Northern America) contexts.

Although ranking systems exist in both contexts, methods used for evaluating medical school's program quality can be different. Countries without a NLE do not have the same competition as those who have a NLE. For example, in the UK, the ranking of medical schools comes from the national student survey (NSS), which has more focus on student experience than graduate achievements (The Higher Education Funding Council for England, 2016). The GMC assesses medical schools through the quality assurance framework, e.g. design and

practice of assessment; the GMC only gives recommendations on medical schools' programme based on their inspection (Archer et al., 2016). However, in the US and UK, the result does not rank medical schools in a 'league table'. They focus on feedback for medical schools, performing inspections and offering recommendations for improvement. On the other hand, countries implementing the NLE may argue that the public has the right to know the quality of medical schools and medical graduate's achievements in the NLE can be used as one indicator (McGaghie and Thompson, 2001). In the US, several publishers establish their ranking of medical schools (e.g. the U.S. News & World Report rankings) which includes features such as reputation, research activity, student selectivity, faculty resources, and overall rank (McGaghie and Thompson, 2001). Additionally, McGaghie and Thompson (2001) offered the impact on students and public service as another factor to be measured to establish medical school rankings. Reputation and prosperity cannot limit how medical schools are measured, since each school offers different goals and leads in different fields. This shows that the medical schools are in such an advanced state that the basic feature of how education is carried out does not become a concern. However, it is important to note that none of the ranking systems involve the measurement of graduates' quality (e.g. students' achievement or assessment scores), which directly affects medical schools' future, i.e. through regulator's policy.

Regarding such ranking systems, some of the features in Western countries were similarly measured in Indonesia (see Appendix A: Medical schools in Indonesia); where schools were ranked into A (top), B (middle), and C (bottom) accreditation status/ levels. The accreditation system affected several regulations related to medical school policy. The most prominent, as stated in the literature review (see Chapter 2: Background of NLE in Indonesia), was that the accreditation status and passing rate of NLE affected the quota of prospective students for medical schools. This led to a different context of competition. In Indonesia, where 44 medical schools were private schools who relied on student's tuition fee as their income, financial security became the motivation to get good results in NLE. Schools were competing to improve their accreditation status and NLE results, especially those private schools with B and C accreditation. Since the variation between medical schools (especially the top and bottom ones) was quite significant, the hypothesis would be: with the NLE, those who were on top would continue to be at the front, while the bottom ones could get into worse condition

because of the competition. Thus, the gap should have been wider and the "common standard" would not be achieved.

In Indonesia, in fact, the competition or the 'league table' was often referred to as the top ten medical schools achieving best results in the NLE, which was reported each period by the national committee. Although there was no published official 'league table' (i.e. the report was confidential to the dean's forum), people would assume that the best schools achieved the best results in NLE. However, some schools used their 'best' results to advertise themselves in public or the media. Arguably, this led the public to make a 'judgement' about a medical school's quality based on their NLE results. Consequently, there were concerns about the adverse impact that might follow such competition.

However, this study found a different phenomenon. Competition led by the NLE aimed to ensure medical schools met the standard, but medical schools in Indonesia worked collectively to achieve this. This is an interesting point to be highlighted: **collaboration** between medical schools and other stakeholders in order to achieve improvement. Schools found means to improve themselves by collaboration: faculty development, expansion of clinical placement and facilities, curriculum development, and assessment practice. Although it was initiated by the government through an aid programme many collaborations continued after the programme stopped, which showed that this trend is likely to grow even bigger. It was recognised that new and private schools were benefitting from this collaboration, as found in this study. These schools needed support to stay in the competition. The deficiency in teaching staff (as described in Table 9) could be covered by collaboration with local teaching hospitals, whereas, those clinical teachers gained recognition and training for their involvement in academia. Established schools acting as a supervising partner for new schools also gained benefit from the collaboration. Reputation, recognition, and pride as schools that had credibility for the top standard in education became an advantage for those schools. Additionally, the continuity of partnership, even in the form of local trainings, gave financial benefit to the established schools*. The win-win collaboration between medical schools and stakeholders was not predicted, or even discussed as a consequence of NLEs in the current literature.* To conclude, in Indonesia, there is a different view of competition and collaboration as a consequence of the NLE.

My analysis of collaboration, as described above, brought me to reflect on theories of **collaboration** and "**coopetition**", especially how they could be applied in medical education. Collaboration is defined as a process where *autonomous stakeholders* of a problem domain *engage* in an *interactive process constructively*, using *shared rules, norms, and structures*, to act or decide on issues related to that domain (Wood and Gray, 1991). Coopetition is a term to describe a relationship between organizations involving competition in some segments and cooperation in others (Muijs and Rumyantseva, 2013). This concept of competition and collaboration was first described in business and marketing, when Muijs and Rumyantseva studied the phenomenon in educational marketplaces. They proposed that *competition and collaboration can coexist* in certain ways which benefit the organisations involved. The collaboration offers a range of benefits which makes competing organisations want to engage in it. However, there were no specific theories to explain this phenomenon.

Using theoretical perspectives for collaboration as reviewed by Wood and Gray (1991), I would like to explore collaboration in the context of the NLE-led competition using the following perspectives:

1. Resource dependence

   Before (and after the first few years of) the NLE implementation medical schools in Indonesia, especially new and private schools, had limited numbers of teachers and resources. These schools were in a state of developing, where the support provided by collaboration helped them to improve.

2. Strategic management/ social ecology

   The collaboration enabled medical schools and other stakeholders involved (government/ the MoHER and the MoH, affiliated hospitals, etc.) to achieve their interests, either their individual or collective gains. While the medical school's main interest was the quality of their education and graduates, the regulator's main interest was protecting the public. By ensuring the quality of education, regulators aimed for better patient care. (How patient care and safety was perceived in this study will be discussed later in this chapter).

3. Institutional/ negotiated order

   Medical schools had been involved in collaboration initiated by government (or other conveners) through formal partnership and collaboration programmes. The government played an important role as convener; through its authority it was able to initiate and establish a certain relationship and environment for stakeholders to collaborate. After the NLE, the association of medical schools (e.g. associated by regions, within one endowment body, or an association of private schools), had programmes for improving their education practice.

4. Political

   Collaboration could occur for 'political' interests; stakeholders using their power and resources to collaborate. For example, the competition between top schools in improving their 'power' of leading and providing expertise (e.g. assisting new schools, centre for medical education, centre of education excellence), at the same time opened an opportunity for collaboration with bottom-rank medical schools who needed their assistance. Another example of this perspective was the collaboration between private medical schools to strengthen their relationship and support to be able to compete with public schools.

The perspectives above could have linked with each other since, in this context, collaboration was a process involving many stakeholders and the wider educational environment. Collaboration did not focus on the organisation/ institution itself, but more on a complex interaction and relationship between stakeholders. In explaining this perspective, Wood and Gray (1991) outlined three critical issues of collaboration, which could be translated into an Indonesian context:

1. **Preconditions** that make collaboration possible and motivate stakeholders to collaborate.

   The precondition usually refers to the existing problem domain and the context in which collaboration may occur. In the context of Indonesia, the NLE acted as a problem domain, where for new and private schools it posed more challenges and complexities. This study found that competition led by the NLE was the most significant precondition for the

collaboration to occur. The stakeholders involved were medical schools, the government/ regulator, and employers (the MoH and hospitals); all had an interest to act on the issue of the NLE as a problem domain. In the process, the stakeholders could hold a role as a convener who initiated the collaboration.

2. The **process** through which collaboration occurs
   The focus of collaboration is not on the organisation/ institution itself, but more focussed on a complex process involving other stakeholders and the environment. A convener is needed to initiate the process of collaboration as a response to a problem domain. Wood and Gray (1991) proposed the importance of a convener's role as an initiator who invites stakeholders "to the table".

3. The **outcomes** of collaboration.
   Outcomes of collaboration are related to how the problem domain stands after the collaboration. While a solved problem is the common goal, Wood and Gray (1991) also noted several outcomes of collaboration: distributed risks and costs, policy changes, collective understanding between stakeholders, and achieved interests of each stake holder. The success of achieving outcomes depend on how the collaboration can endure: its longevity, shared and mutual understanding between collaborators. In the context of the Indonesian NLE, stakeholders had different interests, which will be explained later in this section.

Looking at those issues, I would like to further explore how the process of collaboration in Indonesia occurred and how this phenomenon is perceived using Wood and Gray's theories. The role of convener in the context of Indonesia's NLE *shifted* from one stake holder to another. In the beginning of the NLE, the collaboration was initiated by the government between new and established schools. The government (i.e. the MoHER), as a proactive convener, set the agenda for medical schools to collaborate through partnership (established-new schools) and regional collaboration. This was a reasonable step for the government following the implementation of its new policy, the NLE. As the government had the power to initiate the collaboration, the collaboration happened through a 'mandate' process, where the convener used formal

authority and control to convince stakeholders to participate in the collaboration. The obligatory partnership, regional location of medical schools, and the need for adaptation to the new policy counted as preconditions of this initial collaboration. Many schools described how the initial collaboration transitioned from one driven by government/ regulator to other collaboration initiator after the HPEQ project/ funding ended. That role shifted to other stakeholders whose roles can be divided into:

1. Proactive conveners: endowment bodies, association of private medical schools, association of medical schools in each region, and association of Islamic medical schools

   These stakeholders initiated the collaboration between medical schools with similar identities (supported by the same endowment bodies, private schools, or within the same association). Conveners influenced medical schools by actively pulling them to collaborate.
2. Responsive conveners: established/ partner medical schools, district health ministry offices, affiliated hospitals, local government. These conveners facilitated stakeholders (medical schools, clinicians working in hospitals, and primary health care centres) who requested collaboration.

These conveners might exist at the same time since the process was continuous and overlapping. Stakeholders, in this context, might have self-interest and collective interest for the outcomes of collaboration. However, as Wood and Gray (1991) proposed, it is not easy to separate these interests, as they may or may not be identical to or shared with one another. This study found, in the context of Indonesia's NLE, bottom-middle rank medical schools and endowment bodies had the interest to improve their NLE results, thus they proactively collaborated through a variety of approaches: partnership with established medical schools, benchmarking, sharing of assessment practice, and faculty development. Meanwhile, for established schools and hospitals/ health care centres, the collaboration met their interest in improving reputations, expanding networks, points for accreditation (as partner schools/ affiliated hospitals), faculty/ staff development, and financial benefit. This kind of collaboration, where interests might not be identical or shared with all stakeholders involved in the process, was able to have a continuous run because stakeholders eventually achieved the outcomes they expected. The achieved outcomes, although they might be more or less significant for each stake holder, gave further support for the continuity of

collaboration. A summary of the collaboration process based on these theories is described in Figure 10.

Figure 10. Collaboration of stakeholders led by NLE in Indonesia

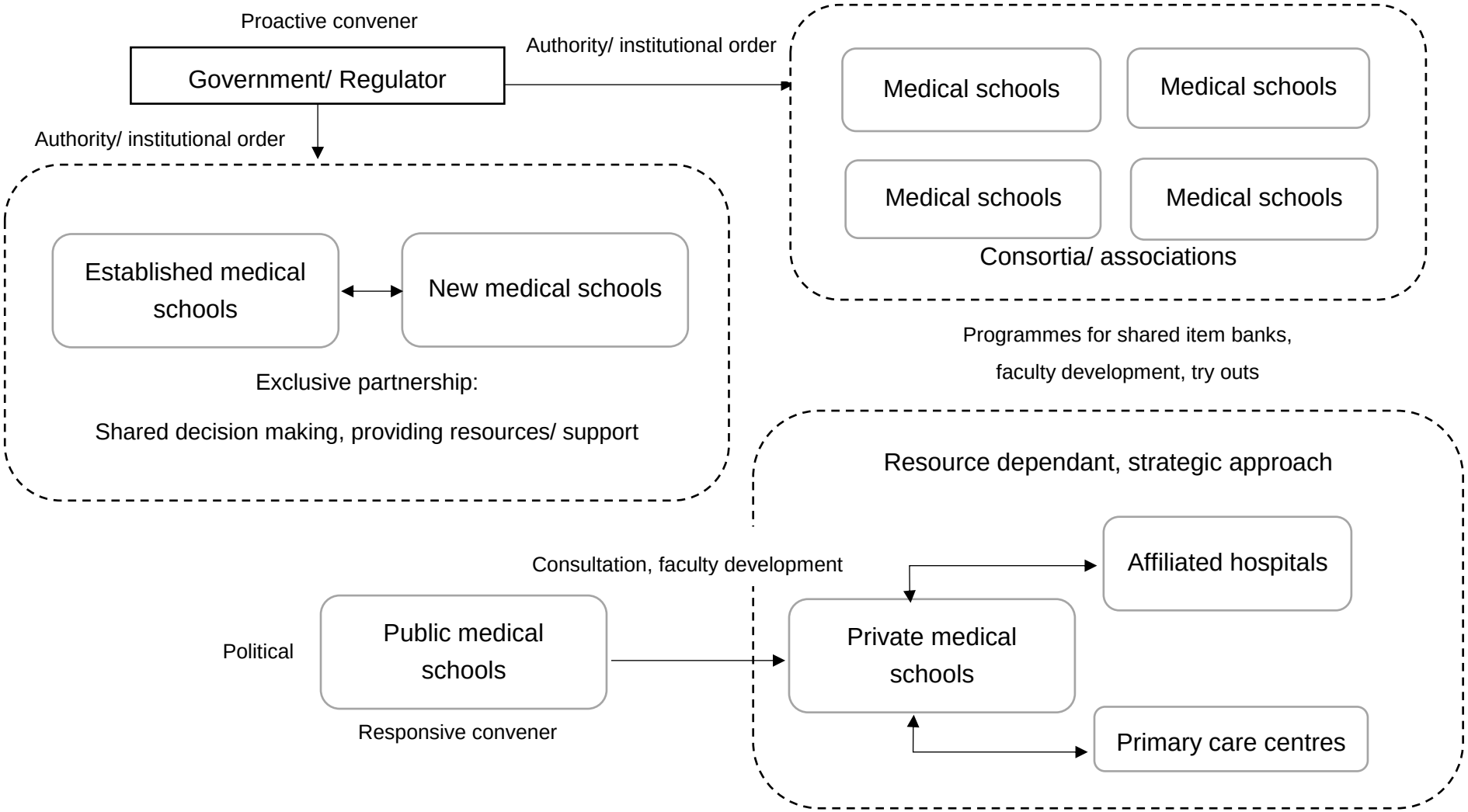


Figure 10 shows that the collaboration of medical schools and other stakeholders in Indonesia occurred in line with the theory of collaboration by Wood and Gray (1991): preconditions for collaboration (the NLE policy and competition), the process (conveners' and stakeholders' roles), and the outcomes (improvement and reputation).

The context of a developing country in this study showed in the nature of the collaboration. The preconditions where there were new and private medical schools, competition, and limited resources would not be found in developed countries. In the process of collaboration, the role of the government/ regulator in the initial collaboration might not be often found in developed countries. Previous studies on collaboration in developed countries, for example in the US, revealed that the individual prerogatives and strong authority of medical schools in designing and implementing their programmes, made them unwilling to participate in highly structured, centralised educational activities (Whitcomb, 2000). Whitcomb (2000) reinforced what Prideaux (2000) found in Australia, that formal collaboration (i.e. invited/regulated by government/ regulator) was minimal, while informal collaboration was more likely to occur. The strong individuality and authority of medical schools was not found in Indonesia, which has been known for its collective and sharing culture (Claramita et al., 2013a). Its culture of collective, mutual relationship, made the collaboration easier to occur. Before and after the NLE, there was a growing number of new of medical schools, which needed collaboration to design and deliver curricula through partnership established by government. The shared authority enabled the continuity of collaboration through partnership between established and new schools, while the collective culture enabled the collaboration through consortia (e.g. association of private medical schools).

Having understood the theoretical perspectives behind collaboration, I will describe some examples of how collaboration helps improve educational practice. Previous studies in higher education revealed that collaboration, especially when cross-institutional, played a role in improving educational practice. In medical education, the US and Canada shared their experience of collaboration. A study of collaboration's role in improving assessment practice by sharing assessment material was conducted in Australia (Malau-Aduli et al., 2016). The benefit of benchmarking, development of communities of practice and

learning experiences gained by the cross-institutional collaboration supports assessment's transparency and accountability. Malau-Aduli (2016) also proposes that the collaboration offered validity in evaluating clinical competence without the need for a prescribed national competence. Similarly, the OSCE collaboration in Indonesia highlighted the importance of sharing materials to improve validity. However, Suhoyo (2016) pointed out an additional benefit in the context of Indonesia, where collaborative national training (for teachers from across institution) helped the OSCE administration and assessment practice.

The discourse of competition led by the NLE in Indonesia came with a strong message about how context played a role in impact. In a developing country, with a developing medical education system, competition made stakeholders put in more effort in a positive way. Over time, challenges may arise from this competition as predicted, but the way medical schools are taking it forward through collaboration is unpredicted as an unintended consequence of the NLE. Revisiting the hypothesis, that the competition led by the NLE should have widened the gap between top and lower rank schools, this study found that, in the Indonesian context, *coopetition* emerged as a significant driver for improvement. This seems fittingly to sit well with the train analogy described by one of the medical school's representatives. Driven by the NLE, the top schools were the engines and front coaches, pulling the middle and lower rank schools forward through *coopetition;* collaborating while competing.

In the previous section, I discussed how medical schools' curricula changed driven by the NLE. It was revealed that most top schools had been moving toward 'value added' in their programme: what makes them different, what makes their graduates desirable for practice. This 'added value' offered by top medical schools showed that they did not worry about resources or the characteristics of their students or teachers. Comparing this to how medical schools in the Western countries set their goals and establish a distinctive identity, the top schools in Indonesia might be comparable. However, that was not the case for middle and lower rank schools. This point emphasises how medical education in Indonesia is still at a developing stage; a different context from Western medical education. The importance of context in the discourse of the NLE will, later, conclude this chapter.

7.2 The local context of patient safety

In the discourse of the NLE, perhaps the most important and central topic is patient safety. Since the beginning of its development it has been known that the purpose of the NLE is to protect the public from substandard clinical practice. The importance of patient safety in medical education also brought regulators to emphasis this practice in medical curricula. However, little has been known about how the NLE affects patient safety, protecting the public, and improving health care in a country. Many researchers have attempted to measure this impact, from exploring patient satisfaction correlation with postgraduate study scores, correlation with complaint cases of physician, and correlation with medical errors (Tamblyn et al., 2007). These studies offer different ways of measuring the impact of NLEs on patient safety, which indicate the difficulty of reaching a clear conclusion on this matter. Many indicators can be used, but patient safety itself is a result of a complex system where the medical profession is only one of the components.

The absence of a clear judgement on how the NLE affects patient safety leaves a continuous debate in medical education. Supporters of the NLE refer to existing studies, while those who oppose NLEs, choose not to consider the studies as evidence of the NLE's success. According to Harden (2009) there is no clear evidence that the NLE actually protects the public. Harden based his arguments on an assumption that, for comparable countries, the existence of an NLE does not make a difference to graduate quality (Noble, 2008). Furthermore, Harden's argument that the NLE would have more negative than positive impacts on clinical practice has limited evidence supporting it. The study by Tamblyn on patients' complaints refuted this claim (Tamblyn et al., 2002; Tamblyn et al., 2007). Tamblyn's studies found that the NLE designed to assess communication and clinical decision-making abilities could predict future complaints to regulatory authorities. Thus, a well-designed NLE that tests these attributes can benefit patients in the future.

While Harden used the US and the UK as examples to compare medical education he failed to notice a context where the countries are not developed and where medical education has more diversity and the health care system is still developing. Comparing international graduates would be a different thing, but not recognising how local graduates might experience *different* educational quality is

a gap in the current literature. This context of diversity within a country may affect how patient safety is perceived and translated into medical education, which is rarely explored in the literature.

This study did not measure patient safety; thus, it cannot give an answer to the question of whether and how the NLE affects patient safety. However, the findings add some insight into how patient safety actually sits in undergraduate medical education in a different context from most of the current literature. This section will also explore how the concept of patient safety could be perceived differently by students and educators. This insight would be helpful for the Regulator (decision maker) and employers (health care service providers) to be aware of; to bridge education and clinical practice.

As patient safety has been the main reason for introducing the NLE in many countries, prior to conducting this study, I assumed that the issue of patient safety would be quite significant when discussing the NLE. However, during the first interviews, patient safety was not brought up in the discussion. After that, I decided to use probing questions for this issue (see Chapter 3). Even after performing this method, the issue of patient safety did not occupy significant time in interviews. The absence of patient safety in the discourse led me to question the background of this phenomenon and how it was positioned in medical education in Indonesia.

In Chapter 5, findings revealed that most participants in this study did not think of patient safety as the essential purpose of the NLE. Rather than focusing on patient benefits, medical school representatives and teachers mostly stated that achieving a standard of competence for medical graduates was the purpose of the NLE. Meanwhile, students focussed on their preparedness to take on a clinical role. It showed that patient care seemed to be a separate concept from the output of education. This is an interesting finding, especially if comparing it to the debate introduced by Harden (2009) on whether the NLE assures better patient care. Some participants revealed similar arguments to those put forward by Harden: they might agree that the NLE led to better patient care if there was evidence based on research into this matter. This concern was apparently taken into consideration by the Government in Indonesia, since they had been working on a research project that started in 2017 to investigate the correlation of the NLE scores with performance in practice.

While most participants did not use the term ‘patient safety’, they referred to **components of safe practice** when discussing the purpose of the NLE**: competent doctors, knowledge of professional tasks**, and **preparedness for practice**. However, some participants pointed out the ‘unexpected’ factors in clinical practice: uncertainty and medical errors. These participants used the term ‘luck’ and ‘accident’ to describe medical errors that might happen in the practice. They believed that their education quality was sufficiently assured so that if medical errors happened, it was just ‘a bad luck’ or ‘accident’ with no implications for the competence of doctors.

From the point of view of medical representatives and teachers (i.e. the educators), the absence of patient’s interests in the discourse existed because of the lack of trustworthiness and validity of the NLE impact on clinical performance. These participants also believed that their schools delivered high quality assessment; thus, making their students quality assured. Yet, for some participants who spontaneously mentioned patients, the focus of the discussion was shifted to the affirmation of the NLE’s validity in measuring clinical and professional competence and its authenticity of clinical tasks.

Although most of the students thought their preparedness for practice would be reflected in their NLE results they did not think it would automatically affect their patient’s safety. A more striking comment from students was that the NLE was *not important* because patients would not *ask* about it (i.e. whether they passed or failed). This shows a lack of comprehension of the purpose of the NLE and, to a further extent, the lack of patient safety integration in the undergraduate curriculum.

Using the description used by participants led me to build a construct of patient safety perceived in Indonesian context. The regulators of medical practice (the MoH and the IMC) emphasised, in the guidelines for clinical practice, that patient safety and patient centeredness are the focus of good clinical practice. To be able to respond to that responsibility, medical doctors must have fitness to conduct clinical practice. The guideline indicates how important patient safety is in Indonesia’s context of clinical practice, which is also included in the standard of core competencies for Indonesian medical doctors (the SKDI). Even though there were clear guidelines and standards of competence, the interpretation and

translation into undergraduate medical education did not seem in line with the intended concept of patient safety.

What the findings of this study revealed is that the 'end product' of the medical education process seemed to have been forgotten, where medical educators and students did not think as far as the impact on patient. This lack of awareness could be derived from how the competencies of patient safety were embedded in the curricula and translated into learning activities and assessment. This proposed another challenge for medical schools and the regulator: how to put the concept of patient safety at the heart of medical education, while recognising the local context of Indonesia. Thus, the core competencies regarding patient safety need to be made clear and patient should be involved in education. Even though this study did not focus on patient safety, it offers an insight into how to view the issue and its challenges in Indonesia.

7.3 Context matters: An overarching concept

This chapter has been attempting to answer the research questions by presenting consequences of the NLE in the Indonesian context. Some of the findings triangulate with the literature, while others challenge the current belief of NLEs' consequences. While experts believed that the NLE might 'do more harm' than advancing education and assessment practice (Harden, 2009), this study made it clear that was not the case in Indonesia. Findings showed positive and significant consequences of the NLE, where almost every component of medical education was in the process of improving continuously. Moreover, what this study offers as new insights were the unintended, unforeseen consequences: competition and collaboration, which played a pivotal role in improvements to medical education.

After exploring these consequences in previous sections, it has become clear that ***the context*** made the consequences in Indonesia different to those reported and assumed in the literature. Indonesia's context as a developing country, with a developing medical education and health care systems, made it possible for the NLE to have a positive impact in both an intended and unintended way.

This discussion concludes by considering an overarching concept: how **context matters**. **NLE is a contextual issue**, which means ***context*** should be considered in the discourse of the NLE: its purposes, delivery, and consequences. In current literature, the NLE's context was mostly addressed in the discussion of NLE's purposes, but it has rarely been considered when discussing its consequences. A clear example of this matter was the debate on the NLE for European countries. Since the Association of Medical Education in Europe (AMEE) Conference 2008, medical educators described the debate in academic papers, weighing its advantages and disadvantages (Archer, 2009; Gorsira, 2009; Harden, 2009; van der Vleuten, 2009). For the advocators, the success of the NLE in Northern America could be replicated in EU countries, where there was diversity in curricula and increasing mobility of doctors across borders. For those opposing NLE, arguments rested on the unknown evidence of impact on patient outcome and assessment practice (Harden, 2009; Schuwirth, 2007; van der Vleuten, 2009). The strong argument was that the medical education system in Europe at that time could assure the quality of medical graduates. This was an important point where educators recognised the strengths and weaknesses of medical education systems in the European context in order to reach a conclusion on the need for a European licensing examination (Gorsira, 2009). This context is quite different from that in North America. The United States and Canada thought that the NLE was necessary because, at that time, they acknowledged the problems of medical curricula's diversity and the increasing number of international graduates (Melnick et al., 2002; Reznick et al., 1993). This shows that the need and purpose of NLEs are strongly related to the context of a particular country/ region.

Roberts and Swanson (2016) proposed that the NLE would become more common. Highly developed countries implementing the NLE was covered by Archer et al. (2016) in his review of NLEs as preliminary research for the GMC before implementing the Medical Licensing Assessment (MLA). The reasoning behind Archer limiting his review to highly developed countries based on GDP and human development index (HDI; set by the United Nation Development Programme-UNDP) was to find a comparable context for the NLE, which would help when projecting the future of the NLE in the UK. Highly developed countries in UNDP's list of HDI have very high values (>0.8) in measured dimensions of life expectancy, knowledge, and standard of living. Thus, these countries have

similarities in the context of education, since it was greatly affected by their human development, healthcare and higher education system.

Over the last ten years, many countries in Asia have been implementing NLEs, including south-east Asian (ASEAN) countries, in order to tackle problems emerging from curriculum diversity and the increasing mobility of health care professionals. Except for Brunei Darussalam, all other ASEAN countries have implemented the NLE, with varying approaches (Kittrakulrat et al., 2014; Rahayu et al., 2016). Referring to Archer's approach in looking for a comparison with the UK context, the ASEAN countries are not similar in terms of HDI. Indonesia is considered a developing country (HDI 0.689) according to UNDP's report in 2015, sharing comparable HDI values with countries like Vietnam, Philippines, Myanmar, India, and South Africa. The developing countries still face challenges in health and education, but indicates the trend for development (Kittrakulrat et al., 2014). Indonesia has been a developing country with medium HDI values (0.55-0.77) since the late 1990s. The state of medical education during this period, including before and after the NLE (1990-current), may reflect Indonesia's status as a developing country. Medical education is still developing, with new and private medical schools growing and facing challenge, which can be seen from Table 9.

As outlined in previous chapters, the NLE in Indonesia was brought in to assure the quality of medical doctors. The government also made it clear that they wanted to improve the quality of medical education to improve the health care system (*Five-year implementation report of national licensing examination*, 2013). This was also due to increasing number of medical schools without tight quality assurance system. In 2015, 45% of medical schools were C-accredited, with limited resources and facilities. This phenomenon made a national headline that year, raising public awareness of medical graduates' quality (Kompas, 2015). From this point of view, these are different aims compared with NLEs in highly developed countries' (e.g. the USMLE and MCCQE) where both were established to reduce the high variation of competence amongst medical practitioners. Consequently, the intended and unintended impact of the NLE in Indonesia would be different from those reported in the US and Canada.

The context of the NLE should also recognise the local needs and sociocultural characteristics of that particular region. As explored in previous section, the

culture of collectivity and reduced individuality made it possible for competition to drive collaboration between medical schools and stakeholders. The need for better health care professionals and system enabled the government to initiate action, in the form of regulation and establishing collaboration between schools, as a convener. The collaboration enhanced the changes and improvement, especially for several new and private schools. The local context also determines how significant the changes are, for medical schools and stakeholders. This kind of impact might be found in other countries with similar characteristics as Indonesia, rather than Western countries. The concept of context in the discourse of the NLE that this study recognises is promising for future development in this area.

Summary of discussion

Moving to the end of the discussion, I would like to draw together the summary of this chapter by challenging the concerns of NLE's consequences represented in the literature. The significant findings are presented as these key areas:

a. **Context matters**

   The significance of context emerged as an overarching concept for the findings. In the discourse of the NLE, be it on the purpose, implementation, and consequences, local context must be considered. Context may represent the variety of regions/ countries' characteristics: education system, health care system, human development index, and other indicators. However, the current literature is dominated by studies in the western or developed countries. Therefore, the consequences of the NLE are often generalized for other contexts (i.e. other countries/ regions); even if the NLE might have a different purpose, implementation, and impact. This study found that in an Indonesian context, the consequences of the NLE were not similar to those that were (or were assumed to be) found in western/ developed countries.

b. **Intended and unintended consequences of the NLE**

   Consequences found in this study were categorised into intended and unintended referring to the intended outcomes of the NLE and the evidence for them in literature. As the NLE in Indonesia aimed to achieve

a common standard of graduate competence and medical school education this study found that this consequence emerged, even though it was perceived as an ongoing process. Medical schools made efforts to improve their quality, including their curricula, assessment practice, faculty development, learning resources, and facilities. This finding affirms the literature. Unintended consequences emerged as the unforeseen and unpredicted impact of the NLE, some of which were not mentioned in the literature. The most prominent finding was the competition between medical schools, the collaboration between stakeholders, the burden of NLE costs and the impact on all students, including those in newer private medical schools and also on failed students. The depiction of the intended and unintended consequences can be seen in the concept map in Figure No 9, which described the impact of the NLE, the surrounding issues, and their connections.

c. Competition and collaboration can coexist as the impact of the NLE

Competition created by the NLE in Indonesia took the form of a league table where medical schools competed for the best NLE results. This might be expected to widen the gap between top and lower medical schools. However, this study found that with the competition came collaboration and cooperation. In the Indonesian context, where most medical schools were still developing, these new schools needed support from other stakeholders (including other medical schools) to be able to achieve the standard.

The pivotal role of a convener influenced how the collaboration proceeded. This study revealed that the government held important role as a convener in the early stage after the introduction of NLE by establishing HPEQ programme. The collaboration started with regional collaboration and partnerships between medical schools. After the HPEQ programme ended, the role of convener shifted to medical schools and local government who initiated the collaboration between new schools and local hospitals.

This phenomenon is best described with theory of **coopetition**, where collaboration and competition can co-exist. While this is strongly related to

Indonesian context (i.e. strong in collectivity culture), **coopetition has never been mentioned** in the literature as a consequence of the NLE.

d. Achieving a common standard does not imply curricula uniformity

Although many experts argued that by assessing certain competencies (Harden, 2009), the NLE drove a uniform curricula, this was not true in the Indonesian context. There were core competencies taught and assessed, but the schools had different methods of delivery. Medical schools chose the methods that suited their needs (e.g. be it a PBL or traditional) and, additionally, taught competencies which v distinguished them from other schools. Local competencies linked to the characteristics of the community in which they trained and would work, such as the islet doctors' competencies, Islamic professionalism values, and community health as a curricula focus, were clear examples of this claim. The diversity of curricula was preserved through acknowledging and embedding the influence of the local context, and this differentiation was also part of how medical schools survived the competition.

e. The high costs of preparing and implementing the NLE were seen as investment by medical schools and their endowment bodies.

The high cost of the NLE was one of the arguments in opposing the assessment method. In developed and western countries, the cost became the student's (examinee's) concern, while in Indonesia it was a concern for both the medical schools and the students. Medical schools spent a significant amount of budget improving their facilities in order to become a test centre. These schools also secured funding for faculty development, improving curriculum and assessment practice. The burden of this cost was often more significant for new and private schools. However, most of them found this cost as an **investment**, where achieving future goals were more important. Their other interest was reputation, which would come with improvement of quality (education and graduates). In most of cases, the 'investment' occurred if medical schools were supported by their endowment bodies or local government.

On the other hand, students who raised concerns about NLE costs were those who took private preparatory/ revision courses. The NLE opened opportunities for profit-oriented courses, which was not predicted before its implementation and consequently, affecting students' learning behaviour. Furthermore, those who failed the NLE were affected the most (i.e. spending the most, for the NLE and ongoing educational costs). Although similar courses are commonly found in developed countries, there is limited research on how preparatory and revisions course interact with mainstream education. This highlights the need to explore this issue further in future studies.

f. The consequence on failing student

Students' failure was rarely observed and studied in the consequences of the NLE, however in this study the views of failing students were as important as those who passed the examination. This study revealed that, in Indonesia, the failing students experienced a psychological burden which may be repeated in a cycle of failure. The burden of educational costs, for students with multiple failures, hindered their learning and performance in subsequent resit examinations. This finding affirmed what Cilliers et. al (2010) described as the consequence of a high-stake assessment. Medical schools mostly recognised this problem, thus adding psychological support for these students to help them prepare for the NLE. However, beginning to explore the issue, which is rarely recognised in the literature, highlighted a number of factors, including admissions policy, which suggests the failing student problem need to be explored further.

g. Patient safety may be the ultimate purpose of the NLE but the concept may be contextual.

There was no shared recognition that patient safety is a significant purpose of the NLE in the study. However, in practice particpants acknowledge that patient safety is the purpose of the NLE but the way they understand the concept of patient safety differs from that found in the literature. In Indonesia, the patient's point of view is given less weight in medical education than in developed countries. The concept of patient safety in this study referred to the components of safe practice when

discussing the purpose of the NLE: competent doctors, knowledge of professional tasks, and preparedness for practice; but not from the patient's point of view.

7.4 Strengths and limitations of the study

This section will look at the strengths and limitations of this study, as part of the critical analysis and reflection. It is important to understand how this study can contribute to knowledge and how this research area can be expanded in the future. As the NLE has been increasingly used worldwide, more opportunities for research in this area are opened. By reflecting on the strengths and limitations, myself and other researchers can consider the methods and findings and identify areas to take this research further. This study gave me opportunities to improve myself as a researcher and develop my skills in investigating a complex policy in medical education. The strengths and limitations of this study are strongly related to its context and methodological approach; therefore, they will be discussed in sections below.

The NLE and multiple stakeholders

One of the strengths of this study is how it brings context into the discourse of the NLE. Indonesia is a developing country with a fast-developing medical education but limited resources, which made the NLE challenging when first introduced. With its unique context, the NLE in Indonesia has been a high cost policy, affecting not only medical schools and graduates, but also multiple stakeholders. They have been questioning whether the NLE actually made a difference to the quality of medical graduates and medical education. Understanding the impact of the NLE offers insight to the policy maker and stakeholders in medical education in Indonesia.

My experience as a national committee member who had been involved in the delivery of the NLE brought a bias to this study. However, being part of the system, allowed me to understand the context and the stakeholders involved in the NLE. It also helped me to identify the characteristics of medical schools and

how the NLE was situated in Indonesian medical education. This was an advantage that might not be found by other researchers outside the system. However, the challenge was how my experience affected my stand point in approaching the problem and analysing the data. I took steps to mitigate the possible bias by keeping a neutral stance when performing the interviews/ focus groups, keeping notes and discuss them with my supervisors, and using triangulation from the multiple groups of participants.

Being part of the committee, I saw the changes take place in most of the schools taking part in the NLE. This made me question why these schools put in effort on the changes and what role the NLE had in the process. In 2012-2013, what I observed in a medical school at the most eastern, remote part of Indonesia and the medical school in a capital city of Jakarta, caused me to reflect on why they were at a very different level of quality (e.g. facilities, curricula, assessment, faculties, clinical teaching). Even though both had students passing and failing the NLE, how the NLE affected the schools were different; they had different changes and different results. This experience affected my standpoint; my view toward the problem and, consequently, the methodology, methods, and analysis of the findings. With that background, I started the project aiming to look beyond numbers, beyond what the scores and statistical analysis said about the NLE in Indonesia. The characteristics of medical schools in Indonesia were vastly different, which also led me to question whether the impact found would be different between schools. This influenced my research design decisions, especially sampling, and the choice of methodology and methods which would enable the diversity of experience to be explored.

The modified grounded theory approach

Exploring the impact of the NLE on medical schools in depth is another strong point of this study. To obtain such depth and thorough understanding of the NLE's consequences, a qualitative approach would be more suitable than a quantitative one. Since the knowledge of the NLE impact was still limited to the scores of the NLE (e.g. comparing students' achievement in undergraduate and postgraduate study, comparing scores with complaints by patients, etc.), what this study sought to investigate needed an exploratory and interpretative paradigm to understand the phenomenon. A modified grounded theory would better explain the approach

this study took. This study used a modified grounded theory approach, as there were theories and findings in the literature to help shape the data collection tools and themes for analysis (Corbin and Strauss, 2015). This research expected the emergence of new findings, since the particular approach to, and context of, the research problem have never been studied before. Thus, findings from this study will construct new knowledge to add to the current literature on this area. This approach enabled me to view the NLE from a different standpoint, which then allowed a new concept, of *coopetition,* to be identified as an important consequence of the NLE.

The underpinning focus of this study was to understand the impact of the NLE through three stakeholders' experience. The perspective of the head of medical schools would give views on how the particular medical school made policy and decisions. However, this perspective alone would not be sufficient to understand the impact of the NLE at the teaching and learning level. To achieve this, it was necessary to include teachers and students. This more thorough view of the impact enabled triangulation that would add to the credibility of the findings. The approach would allow me to explore each school's experience of the NLE. To understand how the experience was shared and differed between medical schools purposive sampling needed to be conducted to cover the characteristics of medical schools.

Sampling method

The sampling was conducted by selecting medical schools based on regions (six regions), accreditation level (A/B/C), and ownership status (public/ private). By considering these three characteristics, the findings represent a broader picture of the consequences of the NLE.

However, this method had difficulties in the execution (and this would become a limitation that can be improved in the future): there was a limited time for this project and there were 60 medical schools that took the NLE during that period of time (November 2015-March 2016). The number of prospective participants in a school also needed to meet the minimal number of participants for focus groups. Geographical, location, budget, and travel constraints added to the difficult decisions concerning sampling. Not all cities were accessible in the specific data collection period, therefore, in the future this kind of study needs

more resource to conduct data collection. However, as this study sought explanation of the phenomenon (i.e. the impact of the NLE) rather than generalisation, the sampling focussed more on the characteristics than the numbers for sampling. The different characteristics of medical schools, which this study captured, are a significant element in understanding the phenomenon of NLE consequences.

Interviews and focus groups

The two methods were chosen to explore participants' experience and views regarding the NLE. In-depth interviews enabled me to have a closer look to how interviewees responded to questions and gave them security to raise and discuss sensitive issues. Focus groups with homogenous participants (teachers or students only from the same school) enabled them to speak their views and debate opinions with an easier group dynamic than if competitors or seniors had been present. These are also the reasons why the interviews and focus groups were conducted face-to-face where possible. I was able to conduct interviews face-to-face for 16 of the 18 schools. Two interviews with representatives of medical schools were conducted by phone because the interviewees had time and geographical constraints. As mentioned in Chapter 4, this method enabled me to visit the medical schools and interact with participants more conveniently for them in their environment. Participants, whether it was medical schools' representatives (vice deans/ programme directors), teachers, and students found it more comfortable to have the activities in their home institution. This also enabled me to observe them and their environment, which strengthened my insights into how they experienced the implementation of the NLE and its impact.

Qualitative methods, such as interviews and focus groups, need strong guidelines/ questions and the ability of interviewer/ moderator to ensure the conversation flows and the expected discussion emerges. Therefore, prior conducting this study, I conducted a pilot study to test the guidelines and to exercise my skills as an interviewer/ moderator. The guidelines were adjusted according to the pilot study, especially for the language and cueing questions. The pilot was helpful for me to understand the flow of conversation, anticipate responses and follow participants' responses with proper questions. The interviews were conducted one-on-one, which contributed to how the participant

and I as interviewer interacted. As the focus groups needed notes, I was assisted by a research assistant as an observer who took notes during the discussion. Her presence was introduced to participants as an observer, however as she sat outside the forum (i.e. away from participants) and did not interact with participants, this did not seem to disrupt the discussion. The use of an observer is a very common practice for focus groups. Observation and audio recording seldom alter participants' responses, as long as these procedures are introduced beforehand (Stewart and Shamdasani, 2015).

I was aware that some of the participants recognised me as a previous member of the national committee. The benefit was that I could recognise the stakeholders which helped me to arrange the interview/focus groups' guides and cue questions. This helped me understand the context and the background/history of the medical schools better. During the interviews and focus groups, participants did not seem to hesitate to share their opinions and the probing questions helped. Following the principle of grounded theory approach, I used opinion from previous interviews and focus groups to confirm or challenge their ideas. While some Vice Deans recognised me, teachers and students did not recognise me as a national committee member. They identified me as a teacher from my university, which led them to sometimes compare their school to mine. This actually gave me a benefit in how they viewed another school with different characteristics to their own.

Data analysis and cross cutting themes

Since this study was specifically designed for the Indonesian context, there were several limitations when it comes to data analysis. Interviews and focus groups were conducted using Bahasa Indonesia, then the verbatim transcripts were analysed using NVivo programme. After conducting the first thematic analysis, three transcripts were translated to English. The translated transcripts were discussed with supervisors for checking coding and thematic analysis. This translation might not provide the *cultural sense* that was used by participants, thus it might influence the interpretation when these transcripts were discussed. However, the transcripts were then re-translated into Indonesian by an independent researcher (from my home institution) as another checking measurement. The re-translation used almost similar terms with the original ones,

except for a few local language remarks. Furthermore, the notes taken during interview and focus groups (which contain nonverbal expression and specific comments/ actions), were added to the transcripts to include context-related comments. By conducting this process, I ensured that the coding and thematic analysis were sufficiently reliable. Ideally, user verification with students, teachers, and medical schools' representatives is necessary to obtain a more credible value of the transcription and translation. However, this could not be done for students, as they were assigned for internships in different sites after graduation.

During my fieldwork, I discussed my initial findings from pilot studies and early interviews with my supervisors. This was also part of theoretical sensitivity; where discussing findings could help me conceptualise and develop themes for the next interviews/ focus groups. My experience in visiting different regions in Indonesia enabled me to identify possible cultural challenges in interviews and focus groups. For example, in region S, the culture respects honesty and has a tendency to be outspoken and firm with their opinion. Therefore, my supervisors suggested that I carefully observe verbal expressions used by interviewees before my visit to a school in region S. The continuous discussion with supervisors and colleagues helped with the analysis and further contributes to the trustworthiness of this study.

Since this study is an explorative interpretative study I expected to find explanations of the impact of the NLE. Reflecting on the literature, my analysis started from identification of the consequences, intended and unintended, reported there. During the process I learnt that my experience, as part of the NLE system, helped me to view the impact from another angle, which gave me more meaning and explanation into how the consequences occurred and why they were not yet found in the literature. The cross-cutting themes emerged as I analysed, by comparing and contrasting, between schools, teachers, and students. The most prominent example of cross-cutting themes were competition and collaboration, which made me revisit theories of collaboration and develop the concept of coopetition between medical schools. This coopetition concept enabled me to look at the stakeholders differently: government had a more agency role, medical schools could be an initiator, and collaboration made this context a unique example.

7.5 Implications for policy, practice, and research

After ten years of implementation, the NLE is still considered necessary to quality assure medical graduates in Indonesia. Several studies have been conducted by the government and medical education researchers (Rahayu, 2017), but this study offers new insight into the impact of the NLE. This study provides new knowledge on the consequences of the NLE and the importance of context in the discourse. Thus, this study offers several implications for policy and practices in Indonesia and wider context.

Implications for Indonesia

This study offered some points to be considered by the government and stakeholders:

- In the phase of developing medical education, the NLE can act as a **catalyst** to drive improvement. This may be one of the arguments in continuing of the NLE as a policy in Indonesia. Improvement in medical education can be enhanced by coopetition; therefore, the role of regulator (i.e. the government) and major stakeholders (e.g. association of medical schools) in recognising this potential is vital. Since there is an increasing number of new schools and private schools, the regulator and founding organisations need to work together to maintain a common standard for education quality.
- The results of the NLE are a useful tool for medical schools' evaluation. It is best that the results not only contain scores, but also details of area of competence and analysis of students' performance. Medical schools found it useful to have their achievement monitored, which then they could use for their internal evaluation. Therefore, the committee must be able to provide specific and continuous data that can provide constructive feedback for medical schools. For example, data on how a school performs (in specific competence/ skills) in comparison to other schools in the same regions or to schools with the same accreditation level can be used to analyse their performance and plan the collaboration. In the future,

these results can have a bigger role in collaboration and shared-quality assurance system between medical schools.

- There is a need to evaluate the administration of the NLE and its resit system, to ensure the validity of the assessment itself. It is critical to maintain the validity of the NLE while ensuring the adverse unintended consequences (e.g. problems with students' failure) are minimal. This study found that there are opportunities for further research focussing on blueprinting, administration, and the resit system of the NLE which will improve its quality.
- The involvement of patients/ public voice and integration of patient safety into curricula needs to become a focus of the regulator and medical schools. The less prominent existence of patients' interest in the discourse of the NLE that this study found should be a warning sign. The concept of patient safety should not only be limited to "students achieving components of safe practices", but also how patients' views and interests are integrated in the curricula. Patients' voices would also be helpful in designing a distinct competence by recognising local health needs, which can be varied between regions. Including the local content would make a distinctive curriculum, which also means that it would be less likely to have curricula uniformity as a consequence of the NLE.

Implications for ASEAN countries

ASEAN countries implementing the NLE have found their own approach in delivering the NLE in their countries. This study provides a deeper understanding of how the NLE brings consequences that are influenced by a specific context and culture. The concept of coopetition is very likely to be found in countries with a similar culture to Indonesia. The Eastern culture, where collectivity and collaboration are more embedded than Western counterparts, can enhance the benefit of NLEs or other assessment programmes. The importance of culture in the implementation of educational policy provides opportunities to develop and improve this area further. Recognising culture can give benefit for education as well as the possibility to build networks and support from neighbouring countries. As most of the ASEAN members are developing countries, this study can be

referred to when these countries want to evaluate their NLEs and when their governments are designing improvement for health care education quality.

Implications for researchers

This study offers an in-depth understanding of the impact of the NLE in the Indonesian context, which clearly explains why there were more positive consequences of the NLE than adverse ones. However, there are wider opportunities to look at the issues more comprehensively. Future studies are necessary to bridge the knowledge gaps emerging from this study.

The most promising area for research is a longitudinal study following the changes/ improvement made by medical schools (especially new ones) and comparing between schools with different characteristics. Thus, there will be more holistic knowledge on how the NLE affected schools, their policy, and education practice including students and teachers. For other issues, such as students' failure and the cost of the NLE, future research with a more targeted sampling (specifically for failing students as participants) and wider population (involving endowment organisations/ medical schools' association) may be useful to understand these issues better.

Lastly, the concept of patient safety that this study found needs to be followed by another study on how newly graduated doctors perform in internship/ clinical placement. A more focussed study on how patient safety is placed in curricula and teaching learning activities is necessary to understand how significant the issue is and what can be done to manage this problem.

Chapter 8 Conclusion

The National Licensing Examinations (NLE) have existed in some countries for decades. However, their use still produces intense debate. This study, which initially aimed to understand the impact of the introduction of the NLE in Indonesia, explored more than just the intended impact of the NLE. It captured the complex consequences of the NLE, where the views of medical schools, students, and teachers views each contribute to the understanding of this area.

Although it has been known that the NLE affects curricula changes, clinical skills facilities, and assessment practice; there is limited evidence on how the consequences of the NLE affects medical schools and the stakeholders. Most of the literature in this area is from developed and western countries. Likewise, the debate surrounding the NLE mostly reflects a western context, which until recently highlighted how the NLE could be considered as a backward step in assessment. To add more understanding to this high-stakes assessment, this study offered new insight on the impact of the NLE in the context of Indonesia and developing countries.

To obtain a bigger picture of the impact, this study was designed as an explorative and interpretive study. The qualitative approach using interviews and focus groups allowed me to get rich and deep data, from multiple stakeholders, using a purposive sampling based on medical schools' characteristics, where the analysis yielded cross-cutting themes. This approach became a foundation of this study to look at the consequences and the stakeholders of the NLE from different point of view.

The context of the NLE became an overarching concept to explain how the NLE led to the consequences found in this study. Some of the intended consequences of the NLE triangulated with the literature, prominently in the changes to facilities related to the NLE, medical school curricula, assessment practice, and faculty development. These changes were found to be significant, especially for new and private medical schools. Recognising the potential impact

of the NLE on new schools is one of the keys for the advance of medical education in developing countries.

This study showed that the role of the NLE in Indonesia is significant for medical education improvement. It created a momentum for changes; medical schools evaluated themselves and started to carry out changes to improve their quality. The competition led to collaboration, which is best explained by the coopetition theory. This process resulted in improvement, although not at the same scale for each school, in almost all aspects of education. This study also provides evidence that the NLE helps to achieve a common standard whilst not sacrificing the diversity of medical schools and their curricula. The costs of the NLE, which became a main concern for stakeholders, are considered worth the benefit in a longer term. It could be viewed as an investment, especially by new schools that need to improve their quality.

Moving forward, the future of the NLE in Indonesia is expected to play an important role in the development of medical education. However, as some of the participants said, the NLE might not eventually be necessary, when the state of medical education (including its quality assurance system) is much better. This would also imply that the need for the NLE might be different when the context is different. Finally, this study opens opportunities for other area of research, mainly on the impact of the NLE on patient safety, collaboration of stakeholders, and the resit system (failing students).

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Appendices

Appendix A Medical Schools in Indonesia (Accreditation Status)

Medical Education in Indonesia refers to undergraduate medicine programme conducted by medical schools in a higher education institution or university. There are currently 74 medical schools in Indonesia; 33 public and 41 private schools. These schools are under coordination of Association for Indonesian Medical Schools and the Ministry of Education. They are distributed in six regions: I to VI; dividing the large area of Indonesia from west to east.

According to WHO, in 2008 there were 4325 doctors graduated from medical schools in Indonesia (WHOSEARO, 2011). In 2013, this number almost doubled, with 7047 graduates. This phenomenon indicates that medical schools have increased their student acceptance number. It was possible to happen because before 2013, there is no regulation for medical schools related to number of students per batch. It was only based on each university (private or public) internal policy.

Nowadays, medical schools in Indonesia produce roughly around 7000-8000 graduates per year. This number could increase in the future, it is growth in the number of new medical schools. It is expected that Indonesia will have a significant increase of medical doctors to meet health care needs in Indonesia. On average, there are 60-400 students in a batch of medical school in Indonesia, depends on school's capacity. Established schools (mostly public) have more capacities, facilities and teachers to meet the need of students' learning. New schools often struggle to establish a good implementation of their curriculum, recruiting teachers and developing their clinical skills centre. Quality assurance for medical schools are supervised under Higher Education Ministry and conducted every five years. High accredited (grade A) medical schools have higher points in quality assurance assessment, compared to medium (B) and low (C) accredited schools. The accreditation is carried as part of higher institution (university/ college) accreditation, performed by National Accreditation Agency for Higher Education *(BANPT–Badan Akreditasi Nasional Perguruan Tinggi)* in collaboration with Indonesian Medical Schools Association (*AIPKI–Asosiasi Institusi Pendidikan Kedokteran Indonesia*). The review process is based on general components of higher education institution, such as buildings, facilities,

human resources, teacher and student ratio, etc; since there is no specific accreditation for medical school. The assessment is conducted every five years and medical schools must renew their accreditation status at the end of the period. List of medical schools in Indonesia in 2015 and their accreditation status is presented in the table below.

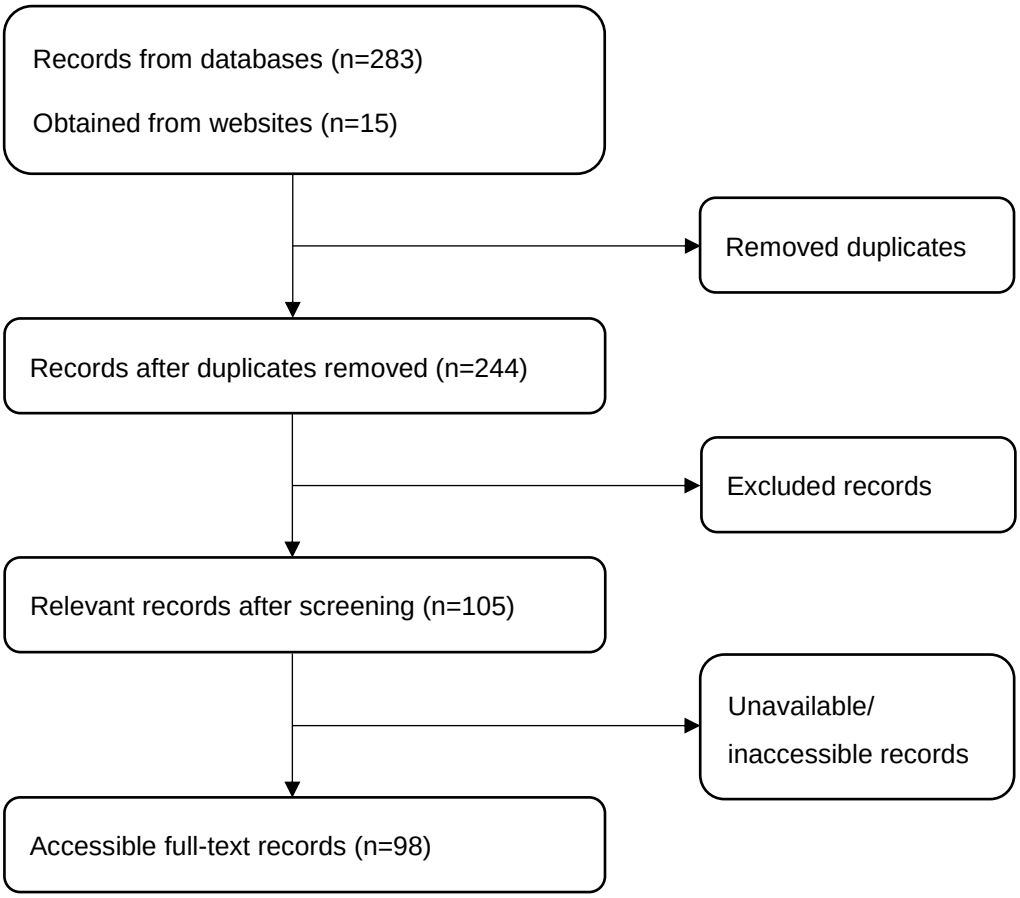
Table 10. Medical schools in Indonesia and their accreditation status.

Region	Medical School	Accreditation Status
1	Universitas Andalas, Padang	A
1	Universitas Sriwijaya, Palembang	A
1	Universitas Sumatera Utara, Medan	B
1	Universitas Malikussaleh, Aceh Utara	B
1	Universitas Muhammadiyah Palembang, Palembang	B
1	Universitas Muhammadiyah Sumatera Utara, Medan	B
1	Universitas Riau, Pekanbaru	B
1	Universitas Syiah Kuala, Banda Aceh	B
1	Universitas Abulyatama, Banda Aceh	C
1	Universitas Islam Sumatera Utara, Medan	C
1	Universitas Methodist Indonesia, Medan	C
1	Universitas Abdurrab, Pekanbaru	C
1	Universitas Baiturahmah	C
1	Universitas Batam, Batam	C
1	Universitas Bengkulu, Bengkulu	C
1	Universitas HKBP Nommensen, Medan	C
1	Universitas Jambi, Muaro Jambi	C
1	Universitas Prima Indonesia, Medan	C
2	Universitas Indonesia, Jakarta	A
2	Universitas Katolik Indonesia Atma Jaya, Jakarta	A
2	Universitas Kristen Indonesia (UKI), Jakarta	B
2	Universitas Muhammadiyah Jakarta, Jakarta	B
2	Universitas Tarumanagara, Jakarta Barat	B

2	Universitas Trisakti, Jakarta	B
2	Universitas Yarsi, Jakarta Pusat	B
2	Universitas Islam Negeri Syarif Hidayatullah Jakarta, Jakarta	B
2	Universitas Kristen Krida Wacana, Jakarta	B
2	Universitas Pelita Harapan (UPH), Jakarta	B
2	Universitas Pembangunan Nasional Veteran Jakarta	B
3	Universitas Lampung, Bandar Lampung	A
3	Universitas Padjadjaran, Bandung	A
3	Universitas Islam Bandung, Bandung	B
3	Universitas Kristen Maranatha, Bandung	B
3	Universitas Jenderal Achmad Yani (UNJANI), Cimahi	B
3	Universitas Malahayati, Bandar Lampung	C
3	Universitas Swadaya Gunung Djati, Cirebon	C
4	Universitas Gadjah Mada, Yogyakarta	A
4	Universitas Diponegoro, Semarang	A
4	Universitas Islam Indonesia, Yogyakarta	A
4	Universitas Sebelas Maret, Surakarta	A
4	Universitas Islam Sultan Agung, Semarang	B
4	Universitas Muhammadiyah Yogyakarta, Yogyakarta	B
4	Universitas Mulawarman, Samarinda	B
4	Universitas Jenderal Soedirman, Purwokerto	B
4	Universitas Lambung Mangkurat, Banjarmasin	B
4	Universitas Muhammadiyah Surakarta, Surakarta	B
4	Universitas Kristen Duta Wacana, Yogyakarta	C
4	Universitas Muhammadiyah Semarang, Semarang	C
4	Universitas Tanjungpura, Pontianak	C
4	Universitas Muhammadiyah Purwokerto	(new)
4	Universitas Palangkaraya	(new)
5	Universitas Airlangga, Surabaya	A

5	Universitas Brawijaya, Malang	A
5	Universitas Udayana, Denpasar	A
5	Universitas Hang Tuah, Surabaya	B
5	Universitas Islam Malang, Malang	B
5	Universitas Jember, Jember	B
5	Universitas Katolik Widya Mandala Surabaya, Surabaya	B
5	Universitas Mataram, Mataram	B
5	Universitas Muhammadiyah Malang, Malang	B
5	Universitas Wijaya Kusuma Surabaya, Surabaya	B
5	Universitas Nusa Cendana, Kupang	C
5	Universitas Warmadewa, Denpasar	C
5	Universitas Islam Al-Azhar (UNIZAR), Mataram	C
5	Universitas Nahdhatul Ulama Surabaya	(new)
6	Universitas Hasanuddin, Makassar	A
6	Universitas Muslim Indonesia, Makassar	B
6	Universitas Sam Ratulangi, Manado	B
5	Universitas Haluoleo, Kendari	C
6	Universitas Tadulako, Palu	C
6	Universitas Alkhairaat, Palu	C
6	Universitas Cenderawasih, Jayapura	C
6	Universitas Muhammadiyah Makassar, Makassar	C
6	Universitas Pattimura, Ambon	C

Appendix B Flowchart of literature review



Appendix C Ethical Approval from University of Leeds

UNIVERSITY OF LEEDS

Faculty of Medicine and Health Research Office
School of Medicine Research Ethics Committee (SoMREC)

Room 10.111b, level 10
Worsley Building
Clarendon Way
Leeds, LS2 9NL
United Kingdom

✆ +44 (0) 113 343 1642

10 September 2015

Rachmadya Nur Hidayah
Postgraduate Research Student
Leeds Institute of Medical Education
Faculty of Medicine and Health
Room 7.09, Worsley Building
University of Leeds
LEEDS LS2 9JT

Dear Rachmadya

Ref no: **SoMREC/14/087**

Title: **The impact of national certification examination for medical undergraduates in Indonesia: Perspectives from learners, faculties and medical schools**

Your research application has been reviewed by the School of Medicine Ethics Committee (SoMREC) and we can confirm that ethics approval is granted based on the following documentation received from you.

Document	*Version*	*Date Submitted*
Research Ethics Committee Application	3	06/08/2015
Participant Information Sheet & Consent Form - Institutions	3	27/08/2015
Participant Information Sheet & Consent Form - Students	3	27/08/2015
Participant Information Sheet & Consent Form - Teachers	3	27/08/2015
Focus Groups Guides for Student Participants	2	06/08/2015
Focus Groups Guides for Teacher Participants	2	06/08/2015
Interview Guides for Institutions	2	06/08/2015
Risk Assessment Form	1	08/07/2015
Invitation for FG - Students	2	08/07/2015
Invitation for FG - Teachers	2	08/07/2015
Invitation for Interview	2	08/07/2015

Please notify the committee if you intend to make any amendments to the original research ethics application or documentation. All changes must receive ethics approval prior to implementation. Please contact the Faculty Research Ethics Administrator for further information (fmhuniethics@leeds.ac.uk)

Ethics approval does not infer you have the right of access to any member of staff or student or documents and the premises of the University of Leeds. Nor does it imply any right of access to the premises of any other organisation, including clinical areas. The committee takes no responsibility for you gaining access to staff, students and/or premises prior to, during or following your research activities.

Please note: You are expected to keep a record of all your approved documentation, as well as documents such as sample consent forms, and other documents relating to the study. This should be kept in your study file, which

should be readily available for audit purposes. You will be given a two week notice period if your project is to be audited.

It is our policy to remind everyone that it is your responsibility to comply with Health and Safety, Data Protection and any other legal and/or professional guidelines there may be.

We wish you every success with the project.

Yours sincerely

Dr Roger Parlsow
Co-Chair, SoMREC, University of Leeds

Dr Ruth Brooke
Co-Chair, SoMREC, University of Leeds

(Approval granted by Co-Chair Dr Ruth Brooke on behalf of committee)

Appendix D Ethical Approval from Gadjah Mada University

MEDICAL AND HEALTH RESEARCH ETHICS COMMITTEE (MHREC)
FACULTY OF MEDICINE GADJAH MADA UNIVERSITY
– DR. SARDJITO GENERAL HOSPITAL

ETHICS COMMITTEE APPROVAL

Ref : KE/FK/ 1134 /EC/2015

Title of the Research Protocol	:	The Impact of National Examination for Medical Undergraduate in Indonesia: Perspectives from Learners, Faculties, and Medical Schools
Documents Approved	:	1. Study Protocol versi 01 2015 2. Information for Subjects versi 01 2015 3. Informed consent form versi 01 2015
Principle Investigator	:	dr. Rachmadya Nur Hidayah, M.Sc
Name of supervisor	:	1. Professor Trudie E Roberts, BSc (Hons) MB ChB, PhD, FRCP, FHEA 2. dr. Richard Fuller, MA MBChB FRCP (Lon) FRCP (Edin)
Date of Approval	:	02 SEP 2015 (Valid for one year beginning from the date of approval)
Institution(s)/place(s) of research	:	74 Fakultas Kedokteran di Indonesia

The Medical and Health Research Ethics Committee (MHREC) states that the above protocol meets the ethical principle outlined in the Declaration of Helsinki 2008 and therefore can be carried out.

The Medical and Health Research Ethics Committee (MHREC) has the right to monitor the research activities at any time.

The investigator(s) is/are obliged to submit:
□ Progress report as a continuing review : Annually
□ Report of any serious adverse events (SAE)
☑ Final report upon the completion of the study

Prof. Dr. dr. Sri Sutarni, Sp.S(K)
Chairperson

dr. Ahmad Hamim Sadewa, PhD
Secretary

Attachments:
□ Continuing review submission form (AF 4.3.01-014.2013-03)
□ Serious adverse events (SAE) report form (AF 6.1.01- 019.2013-03)

Recognized by Forum for Ethical Review Committees in Asia and the Western Pacific (FERCAP)
1-Sep-15

Appendix E Participant information sheets and informed consent form (Interview)

University of Leeds

Faculty of Medicine and Health

Leeds Institute of Medical Education

Participant Information Sheets

Title of study: ***The impact of national certification examination for medical undergraduate in Indonesia: Perspectives from learners, faculties and medical schools***

Invitation paragraph

Thank you for taking your time reading this information sheet. You are being invited to take part in a research study, which is a project undertaken for completion of the degree of Doctor of Philosophy (PhD) at the University of Leeds, United Kingdom. Before you decide to take part in this study, it is important for you to understand why the research is being conducted and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. If there is anything that is not clear, or if you would like more information, you can ask me (contact information is provided below). Please take time to decide whether or not you wish to take part in this study.

Background

It is necessary for medical doctors to be competent to ensure high quality health care and patient safety. Medical schools and regulatory bodies are obliged to assure that the output of medical education, i.e. the medical graduates, are competent before they go into practice. One of the methods to achieve this aim is the implementation of national licensure or certification examination. This kind of assessment is conducted in the United States, Canada, Switzerland, Korea, Taiwan, Japan and Thailand, amongst other countries. Indonesia introduced the national examination in 2006, using the multiple choice question format (MCQ) and in 2013 using the Objective Structured Clinical Examination (OSCE) format. It was named Uji Kompetensi Dokter Indonesia (UKDI) and changed to Uji Kompetensi Mahasiswa Program Profesi Dokter (UKMPPD) in 2014. The national examination is used as certification for new medical graduates in Indonesia. Until May 2015, there were 60 medical schools in total which took part in the examination. Although it has been eight

years since the national examination started, there has been a limited amount of research on the impact of the national examination from three stake holders' point of view: the institutions, the faculties and the learners.

Purpose of study

This study aims to understand the impact of the implementation of the national examination in Indonesia from the viewpoints of the three aforementioned stakeholders – medical students, teachers, and medical schools.

Why have I been chosen?

You have been chosen because the perceptions and experiences of your institutions are being explored within this study.

Do I have to take part?

Taking part in this study is entirely voluntary. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a consent form. Your views will be treated confidentially and you will not be identified in any way. Whether you take part in this study or not, your views and details shared in the interview will not be shared with your institution. Deciding not to take part or withdraw in this study will not involve any consequences for you, now or in the future. You can withdraw at any time without having to give any reason. It will not affect your institutions or your positions within them. You will not be sent any further information about participating in the research study, but you are welcome to attend any presentation on the results when they are disseminated.

What will happen to me if I take part?

If you decide to take part, you could contact me directly at the number or email address given below. You will be sent a letter or an email inviting you to participate in this study. You will be asked to sign a consent form before taking part in an interview.

If you decide to take part in the individual interview

You will be invited to attend personal semi-structured interviews, which will be held in your institution or in an environment familiar to you. The interview will be facilitated by me, and last approximately 45-60 minutes. The individual interviews will be audiotaped to enable me to check the collected data. In this interview, you will be given an opportunity to share your perception of the

national examinations (computer-based testing and Objective Structured Clinical Examination), your institution's experience in the implementation and the future plans of your institution.

How will the audiotapes and field notes be used?

The audiotapes will be transcribed into written transcripts. Field notes will be added into the transcripts. They will be analysed to generate the results.

How will my anonymity be protected?

Your name and other details will be removed so that you cannot be recognised. All of your personal details and information that you have shared will be kept in the strictest confidence. Your data will be anonymised so that no one could identify you and the data will not be shared with anyone. The data will be stored in a password and system protected computer. When the results are presented, no individuals or institutions will be identifiable and the views of individuals will be grouped together under emerging themes.

What are the possible disadvantages of taking part?

There are no disadvantages or risks for you to take part in this study.

What are the possible benefits of taking part?

You may find contributing towards this study to be interesting and useful to share your experiences with someone else. You may also find it rewarding to know that you have contributed to a study that may benefit the academic and practice of medical education in Indonesia. You may also find it helpful to learn about other people's views on this subject, if you want to be informed of the results of this study. If you wish, a short report of the results of this study will be sent to you via email. There is no financial remuneration for taking part in this study.

What if I want to know more about the research?

If you want more information about the study, please contact me via email (see below). The findings of the study will be presented at the Leeds Institute of Medical Education, University of Leeds, United Kingdom and Gadjah Mada University, Yogyakarta, Indonesia.

What happens with the results?

The results will be presented at conferences and written up in journals. They will also be presented at the University of Leeds, Gadjah Mada University, and The Association for Indonesian Medical

Schools *(AIPKI – Asosiasi Institusi Pendidikan Kedokteran Indonesia).* Results are normally presented in terms of groups of individuals. Your institution may get a written report if you so wish.

Who is organising and funding the research?

This study is organised by me as a researcher under the supervision of Leeds Institute of Medical Education, University of Leeds, United Kingdom. Funding for this research is supported by the Indonesia Endowment Fund for Education *(LPDP – Lembaga Pengelola Dana Pendidikan)*, the Ministry of Finance, Indonesia.

Who has reviewed the outline of the study?

This study has been reviewed and considered by:

1. University of Leeds School of Medicine Research Ethics Committee (ref:14/087)
2. The Gadjah Mada University Ethics Committee
3. The Association for Indonesian Medical Schools *(AIPKI – Asosiasi Institusi Pendidikan Kedokteran Indonesia)*

Contact for further information

Rachmadya Nur Hidayah

Leeds Institute of Medical Education

University of Leeds

Telephone: +447562597591 or +628112720213

E-mail: umrnh@leeds.ac.uk

Thank you for taking the time to read this information sheet and considering to take part in the interview as part of this study. Please do not hesitate to contact me if you require further information. – Rachmadya Nur Hidayah

University of Leeds
Faculty of Medicine and Health
Leeds Institute of Medical Education

Consent form for participants taking part in individual interviews as representatives of institutions/medical schools

Title of study: *The impact of national certification examination for medical undergraduate in Indonesia: Perspectives from learners, faculties and medical schools*

Name of researcher: Rachmadya Nur Hidayah

Please initial in the corresponding space below

1.	I confirm that I have read and understood the information sheet (Version 3, 06/08/2015) for the above study and have had the opportunity to ask questions.	……..
2.	I agree to take part in the interview.	……..
3.	I understand that the interview will be audio recorded and I give my permission for this.	……..
4.	I understand that my participation is voluntary and I am able to withdraw at any time without giving any reason. Any data collected up to the point of withdrawal may still be stored and used in the study.	……..
5.	I understand that all personal information will remain confidential and that all efforts will be made to ensure I cannot be identified (except as might be required by law).	……..
6.	I agree that my words can be stored anonymously and securely, and may be used for future research.	……..

Name of participant : …….
Date : …….

Signature : …….

Name of researcher and witness of consent:…….
Date : …….

Signature : …….

Appendix F Participant information sheets and informed consent form (Focus Groups)

University of Leeds

Faculty of Medicine and Health

Leeds Institute of Medical Education

Participant Information Sheets

Title of study: ***The impact of national certification examination for medical undergraduate in Indonesia: Perspectives from learners, faculties and medical schools***

Invitation paragraph

Thank you for taking your time reading this information sheet. You are being invited to take part in a research study, which is a project undertaken for completion of the degree of Doctor of Philosophy (PhD) at the University of Leeds, United Kingdom. Before you decide to take part in this study, it is important for you to understand why the research is being conducted and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. If there is anything that is not clear, or if you would like more information, you can ask me (contact information is provided below). Please take time to decide whether or not you wish to take part in this study.

Background

It is necessary for medical doctors to be competent to ensure high quality health care and patient safety. Medical schools and regulatory bodies are obliged to assure that the output of medical education, i.e. the medical graduates, are competent before they go into practice. One of the methods to achieve this aim is the implementation of national licensure or certification examination. This kind of assessment is conducted in the United States, Canada, Switzerland, Korea, Taiwan, Japan and Thailand, amongst other countries. Indonesia introduced the national examination in 2006, using the multiple choice question format (MCQ) and in 2013 using the Objective Structured Clinical Examination (OSCE) format. It was named Uji Kompetensi Dokter Indonesia (UKDI) and changed to Uji Kompetensi Mahasiswa Program Profesi Dokter (UKMPPD) in 2014. The national examination is used as certification for new medical graduates in Indonesia. Until May 2015, there were 60 medical schools in total which took part in the examination. Although it has been eight years since the national examination started, there has been a limited amount of research on the

impact of the national examination from three stake holders' point of view: the institutions, the faculties and the learners.

Purpose of study

This study aims to understand the impact of the implementation of the national examination in Indonesia from the viewpoints of the three aforementioned stakeholders – medical students, teachers, and medical schools.

Why have I been chosen?

You have been chosen because your perceptions and experiences as students who took the national examination are being explored within this study.

Do I have to take part?

Taking part in this study is entirely voluntary. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a consent form. Your views will be treated confidentially and you will not be identified in any way. Whether you will take part in this study or not, your views and details shared in the interview will not be shared with your institution. Deciding to refuse to take part or withdraw in this study will not involve any consequences for you, now or in the future. You could withdraw at any time without having to give any reason. It will not affect your institutions, your positions as students in your institutions, or your examination results. You will not be sent any further information about participating in the research study, but you are welcome to attend any presentation on the results when they are disseminated.

What will happen to me if I take part?

If you decide to take part, you could contact me directly at the available number or email address. You will be sent a letter/ an email inviting you to participate in this study. You will be asked to sign a consent form before taking part in a focus group.

If you decide to take part in the focus groups

You will be invited to a face-to-face focus group with up to a maximum of ten students from your institution. The focus group will be facilitated by me, the researcher, at an agreed time and date to enable all participants to attend, and it will last for 60-90 minutes. The focus groups will be audiotaped and notes will be taken during the discussion to enable the collected data to be checked. The discussion will be an opportunity for you to share your perception of the national examinations (computer-based testing and Objective Structured Clinical Examination), your

experience in the preparation for and taking of the examinations, and the future challenges of your profession/role in regard to the examination.

How will the audiotapes and field notes be used?

The audiotapes will be transcribed into written transcripts. Field notes will be added into the transcripts. They will be analysed to generate the results.

How will my anonymity be protected?

Your name and other details will be removed so that you cannot be recognized. All of your personal detail and information that you have shared will be kept in the strictest confidence. Your data will be anonymised so that no one could identify you and the data will not be shared with anyone, even your own institution. The data will be stored in a password and system protected computer. If any individual data are presented, the data will be totally anonymous, without any means of identifying the individuals involved.

What are the possible disadvantages of taking part?

There are no disadvantages or risks for you to take part in this study.

What are the possible benefits of taking part?

You may find contributing in this study is interesting and useful to share your experiences with someone else. You may also find it rewarding to know that you have contributed to a study that may benefit the academic and practice of medical education in Indonesia. You may also find it helpful to learn about other people's views on this subject, if you want to be informed of the results of this study. If you wish, the short report of results of this study will be sent to you via email. There is no financial remuneration for taking part in this study.

What if I want to know more about the research?

If you want more information about the study, please contact me via email (see below). The findings of the study will be presented at the Leeds Institute of Medical Education, University of Leeds, United Kingdom and Gadjah Mada University, Yogyakarta, Indonesia.

What happens with the result?

Results will be presented at conferences and written up in journals. Results will also be presented at the University of Leeds, Gadjah Mada University, and The Association for Indonesian Medical

Schools *(AIPKI – Asosiasi Institusi Pendidikan Kedokteran Indonesia).* Results are normally presented in terms of groups of individuals.

Who is organising and funding the research?

This study is organised by me as researcher under supervision of Leeds Institute of Medical Education, University of Leeds, United Kingdom. Funding for this research is supported by Indonesia Endowment Fund for Education *(LPDP – Lembaga Pengelola Dana Pendidikan)*, the Ministry of Finance, Indonesia.

Who has reviewed the outline of the study?

This study has bee reviewed and considered by:

4. University of Leeds School of Medicine Research Ethics Committee (ref:14/087)
5. The Gadjah Mada University Ethics Committee
6. The Association for Indonesian Medical Schools *(AIPKI – Asosiasi Institusi Pendidikan Kedokteran Indonesia)*

Contact for further information

Rachmadya Nur Hidayah

Leeds Institute of Medical Education

University of Leeds

Telephone: +447562597591 or +628112720213

E-mail: umrnh@leeds.ac.uk

Thank you for taking the time to read this information sheet and consider being involved in focus group within this study. Please do not hesitate to contact me if you require further information. – Rachmadya Nur Hidayah

University of Leeds
Faculty of Medicine and Health
Leeds Institute of Medical Education

Consent form for participants taking part in focus groups as student participants

Title of study: *The impact of national certification examination for medical undergraduate in Indonesia: Perspectives from learners, faculties, and medical schools*

Name of researcher: Rachmadya Nur Hidayah

Please initial in the corresponding space below

1.	I confirm that I have read and understood the information sheet (Version 3, 06/08/2015) for the above study and have had the opportunity to ask questions.	……..
2.	I agree to take part in the focus group.	……..
3.	I understand that the focus group will be audio recorded and I give my permission to this.	……..
4.	I understand that my participation is voluntary and I am able to withdraw at any time without giving any reason. Any data collected up to the point of withdrawal may still be stored and used in the study.	……..
5.	I understand that my participation will not affect my examination results in the national examination nor my position in this institution.	……..
6.	I understand that all personal information will remain confidential and that all efforts will be made to ensure I cannot be identified (except as might be required by law).	……..
7.	I agree that my words can be stored anonymously and securely, and may be used for future research.	……..

Name of participant : …….
Date : …….

Signature : …….

Name of researcher and witness of consent:…….
Date : …….

Signature : …….

Appendix G Interview Topic Guide for Medical Schools' Representatives

Topics of semi-structured interview are presented below. Interviewer may probe using modified questions and give response to interviewee's answer.

Opening

The role in institution

As a dean/ vice dean/ programme director, could you explain your position and your role in this medical school?

Perception on national examination

I understand that your school is engaged in national examination, both the CBT (MCQ) and OSCE. What do you think about the national examination?

What do you think the purpose of examination?

Do you think national examination meet its purpose?

Do you agree that the national examination is used as exit exam for medicine programme in Indonesia? Why?

Do you think national examinations using CBT (MCQ) and OSCE are appropriate to assess the competence level of medical graduates? Why?

How do you think the national examination affect medical education and the quality of its output in Indonesia?

Do you think the national examination is beneficial for patients or communities? Why?

Do you think the national examination is beneficial for your institution? Why?

National examination implementation in Indonesia

How long have your school been engaged in the examinations?

How do you think your students perform in the examination?

How do you think the involvement of your teachers in the management of examinations and as examiners?

Do you think the curriculum and learning activities in your institution support the students to face the examination? Why?

How do you think your institution's resources (human resources and facilities) support the examinations?

How do you describe the cooperation of your institution with other medical schools within your region regarding the national examination?

Changes related to national examinations

Could you tell me about how you managed to run the examinations in your institution for the first time?

Are there any changes if the first examination compared with the last one or two periods of examinations? Could you explain more about the change?

How do the examinations affect your institution (e.g. in educational aspect, financial, faculty development)?

Do you have specific policy applied (e.g. staff training, staff recruitment, preparation programme for students, target of passing rate) as a response for national examination in your institution?

Are there any changes in the curriculum other than assessment programmes (learning objectives, learning activities, teaching strategies), either in preclinical or clinical years? Could you elaborate more?

Are there any changes in assessment program, either preclinical or clinical years? Could you elaborate more?

Are there any changes in human resource management (teachers or staff)? Could you elaborate more?

How do you think your institution progress within the next five years?

Summary for confirmation

Closing

Appendix H Focus Groups Guides for Students Participants

Introduction

1. Moderator introduces herself and explains briefly about the purpose of this research to get the same perception on terminology used and referred skills training among participants.
2. Moderator explains briefly how the session will be conducted, outline the taping procedure, emphasises confidentiality, outline how data will be used, and ask participants to sign consent forms.
3. Moderator explains the ground rules of focus groups: each participant has equal opportunity to present his/ her opinion without feeling intimidated.
4. Moderator asks participants to introduce themselves and to state briefly their interest/ experience of the topic.

Discussion

Moderator is expected to perform in depth exploration of participants' opinions, elaborate them, and confirming the conclusion with participants. It is important that moderator should be able to probe questions responding participants' opinions.

Opening is conducted by asking question to get everyone to talk early in discussion.

Topic	Probing questions
Experience of national examination	How did you perform in the national examination (CBT and OSCE)?
Perception of national examination	What do you think the purpose of national examination?
	Do you think national examination (MCQ/ CBT and OSCE) is appropriate tools to assess the competence of medical graduates? Why?
	What do you think the advantages of national examination implementation?
	What do you think the disadvantages of national examination implementation?
Adaptation toward national examination	Do you think there are changes in policy and learning within their institution (or hospitals)? What are they?

	(Examples for probing: learning strategies, teaching strategies by teachers, assessment program, staff training, improvement of facilities/ resources)
	How do you prepare yourself for national examination (as an examinees)?
	What do you think the role of institution in preparing students to face the national examination?
Future practice as health care professionals	Do you think your education in medical school will significantly affect your future practice?
	Do you think the educational process in medical school is significant to produce competent doctors? Why?
	Do you see yourself as competent doctors after graduating from medical school? Why?
	What changes do you want to see regarding the national examination implementation?

Closing

Moderator closes the discussion after summarising findings of focus groups.

Appendix I Focus Groups Guides for Teachers Participants

Introduction

1. Moderator introduces herself and explains briefly about the purpose of this research to get the same perception on terminology used and referred skills training among participants.
2. Moderator explains briefly how the session will be conducted, outline the taping procedure, emphasises confidentiality, outline how data will be used, and ask participants to sign consent forms.
3. Moderator explains the ground rules of focus groups: each participant has equal opportunity to present his/ her opinion without feeling intimidated.
4. Moderator asks participants to introduce themselves and to state briefly their interest/ experience of the topic.

Discussion

Moderator is expected to perform in depth exploration of participants' opinions, elaborate them, and confirming the conclusion with participants. It is important that moderator should be able to probe questions responding participants' opinions.

Opening is conducted by asking question to get everyone to talk early in discussion.

Topic	Probing questions
Experience of national examination	How did you perform as examiners during examination or tutor in preparation for examination? Could you elaborate more?
Perception of national examination	What do you think the purpose of national examination?
	Do you think national examination (MCQ/ CBT and OSCE) is appropriate tools to assess the competence of medical graduates? Why?
	What do you think the advantages of national examination implementation?
	What do you think the disadvantages of national examination implementation?
	Do you think there are changes in policy and learning within their institution (or hospitals)? What are they?

Adaptation toward national examination	(Examples for probing: learning strategies, teaching strategies by teachers, assessment program, staff training, improvement of facilities/ resources)
	How do you prepare yourself for national examination (as an examiner)?
	What do you think the role of institution in preparing students to face the national examination?
	What do you think your role as teacher in preparing students to face the national examination?
	How does institution's policy (e.g. national examination as exit exam, passing rate target) affect their performance as teacher and examiners?
Future practice as health care professionals	Do you think national examination will help to shape competent doctors? Why?
	Do you think the educational process in medical school is significant to produce competent doctors? Why?
	What do you think the role of teachers in producing competent doctors?

Closing

Moderator closes the discussion after summarizing findings of focus groups.

Appendix J Example of transcripts (English)

This is part of an interview transcript which has been translated to English.

School D. 13 January 2016

Opening

Interviewer introduced herself, explained about the research and took informed consent.

…

Interviewer (I): Dr. A, I understand that your position is the Vice Dean of Academic Affair. Would you explain more about your role in this school?

Dr. A (A): *In general, the Vice Dean of Academic Affair makes policy (regarding the education), do the planning, and execute the programmes. Since this school was established in 2008, we have been implementing competence based curriculum (CBC). I personally thought it was a hard challenge because I never had experiences with CBC before that… But it is such an advantage that I was a lecturer in School Y, teaching histology and anaesthesiology, before assigned to this school by Kopertis (Coordinating Body of Private Higher Education Institutions). We implemented CBC with the assistance of Diponegoro, as an official supervising medical school. We also collaborate with School Y because we are in the same region. In 2008, we tried to design the curriculum, which was difficult because our faculties did not have any experience in academia before. Really, it was just me who had experience in academia. I also worked in academic affair office for three years and two years in student affair office before moved here. So I had plenty of experience, if I may say, worked with the Vice Dean of Academic Affair there, who was a Dutch (laughing). We found it hard to design the first curriculum, but it we succeeded. Of course, there were some revisions following that first curriculum… We had our last curriculum revision in 2012 after the 2012 SKDI was published.*

I: Can you elaborate more about your experience with the national examination/ UKMPPD?

A: *Our first UKMPPD was in 2014; which was the graduation year for our first batch. From 22 students enrolled in 2008, only 20 completed their study in 2014, who then took the UKMPPD. In total, from the first batch, only 11 students passed the examination. Three of them passed the examination as first takers (at their first try). That was stressful for us (sigh). We knew that there was something missing here. My analysis said that it was because most of our faculties were just graduated (from postgraduate study) and they had very little experience in teaching. Not that I am proud of myself, but it was just me who had experience in academia. Knowing this problem, since 2014 we carried out trainings and courses for our faculties: training for tutors, clinical skills instructors, and clinical teacher training.*

I: So you invited clinical teachers from all affiliated hospitals?

A: *Err, yes. We got them into the trainings. Thank God there was improvement after the trainings. In our second batch, from 25 students, 22 completed their study, and 17 of them passed the examination. I am very happy with the progress we made. We have two faculties completed their study in medical education. They helped designing the trainings and building academic environment here. Now, we have a competence based curriculum referring to 2012 SKDI and regular trainings every 2-3 months. For example, we already have training for tutors for eight times now.*

I: Can you explain more about the trainings?

A: *Well, we cooperated with School X to improve the Skills Laboratory, dr. T, dr. D, and dr. G frequently come here… Now I can execute the policy better because our faculties understand how academia works; there is quality improvement for teachers in tutorial (small group discussion), skills training, lectures… even though not all of the teachers have to give lecture. The most important thing is that our teachers understand 2012 SKDI, so we implement (the policy) better. For example, we tried to use CBT for our MCQ tests. Now it's about 80% of the tests are computerised. We have SOCA (Student Oral Case Analysis) and triple jump*

tests at the middle and end of the blocks… The tests can be used to be compared with MCQ scores, so we would know what is lagging behind for the students. Students can interact with teachers; more student-centred methods are used… So now it is mostly interactive lectures and small group discussions, really… Students are expected to be more active, giving their opinions in the discussion that would make their understanding better… For example, this works for clinical reasoning. Other thing that makes me happy is that the teachers made a lot of progress after taking the trainings. We plan to involve doctors practicing in affiliated community health care centres in the training and also the hospitals... It used to be only limited to our teachers here, but now we asked clinical teachers too to get them to be national OSCE examiners. Now we have 30 examiners and we are ready if we need to send them as external examiners to other school… I can conclude that it was our work, to fulfil our needs, and now it gives us a good result: teachers' quality. They have better method and strategy of teaching; whether it is in lectures, tutorial, skills training, or laboratory sessions. I am very happy with the progress, because we now have teachers improving their skills and can interact with students as expected.

I: From what you told earlier, I can conclude that the most significant changes happened in the last year. Is there any correlation between the changes and the UKMPPD?

A: *Yes, we had these intense trainings since the curriculum changed following 2012 SKDI two years ago. We formulate the design to be able to comply with the changes… That is what I did during these years. Thank God, the Dean agreed and gave us full support for the programmes. He believed all the changes are necessary to improve our quality. One of the improvement we showed to him is the increasing cumulative GPA for the third batch. That is why we are more optimistic toward UKMPPD. But still, we should improve some aspects, that will be facilitated in our next trainings. I want the weak points to be identified and covered in the future trainings…*

I: Do you always perform evaluation for your trainings?

A: *Yes, a continuous evaluation is performed; including how teachers use what they learned during the trainings in their teaching activities. Students' perspective is also part of evaluation… So then I know how students perceive their teachers…*

I: It is fascinating that you achieved the progress with your teachers. Did they receive your programme well? What was the challenge?

A: *I can say that about 90% received it well… There were one or two teachers who, let's say, did not feel enthusiastic about the trainings. They attended only parts of the training. I asked them to meet me, and we discuss about the problem. Sometimes I gave warnings to teachers who missed the trainings. At last, I asked them to drop their lectures if they are unable to do the changes…*

I: So they cannot teach the subjects?

A: *Yes, that is a reward and punishment system. By chance, we received a grant from HPEQ to install CCTV system, so I can monitor all teaching rooms… In skills laboratory, lecture hall, small group discussion rooms, and laboratories; except deans' rooms (laughing). This helps me to supervise teachers and faculties… When they are supposed to be teaching but they are not there, I can quickly ask for a substitute… This means we now have the same commitment to improve our quality. This statement was always emphasised during our meetings and my discussion with students too… Started from the third batch (2011), we want to improve our quality, and it affected the admission process. But really, it was not easy, there were a lot of pressure, in a rural area, especially to me… For example, the mayor sent us five (prospecting students) … I cannot refuse but there are certain rules that need to be fixed…*

This kind of environment that I feel progressing now… Some teachers that I told you before got their punishment: their credit/ teaching hours were reduced. I was being a little mean, but the result was that no teachers missed the trainings. We had the trainings in the weekend so they can join it… This academic environment now is not because they feel intimidated or daunted by me, but they have their own motivation. I don't have to give any instruction… Since batch 2011, it has been very encouraging for academic and supporting staff… Now, from 40 faculties, only two people who have not enrol in postgraduate study. They will take the master programme this fall. Everyone else already took their postgraduate study. It was quite hard to ask them to do it, but because it is a requirement, they have to. It is good that they can enrol in a weekend or distance class, so we can still do the daily teaching activities…

…

Appendix K Example of transcripts (Indonesian)

This is part of a focus group transcript (teachers) in Indonesian language.

School F. 13 January 2016

M: Moderator

P: Participant

[…]

M: Dapat saya simpulkan, ada beberapa masalah dalam ujian OSCE dan kaitannya dengan pembelajaran klinik ya dok… Seperti misalnya adanya ketidakseragaman, baik di dalam satu institusi maupun secara nasional. Tetapi untuk OSCE sendiri, sebagai dosen, tidak terlalu khawatir karena yang menguji adalah dosen sendiri. Apakah benar begitu ya dok?

P1: *Iya begitu (tertawa)*

M: Mengenai pressure dan ketidak seragaman, hal ini juga dirasakan oleh mahasiswa… Mahasiswa menyarankan, seharusnya ada panduan nasional yang digunakan sebagai referensi. Kalau menurut dokter sekalian apa solusinya untuk masalah ketidakseragaman tadi?

P3: *Kalau bisa sih bentuknya seperti modul… Misalnya untuk penyakit dalam, penyakitnya ini, pemeriksaannya begini, terapinya begini… Jadi itu yang diminta untuk dilakukan. Jadi kita tahu, misal penyakit saraf kita diminta untuk mengajarkan epilepsi. Epilepsi penyakitnya begini, pemeriksaannya begini, misal diminta untuk pemeriksaan apa yang sesuai kompetensinya. Jadi kita mengajarkannya juga jelas… harus menguasai sampai sejauh mana.*

M: Jadi maksudnya tidak hanya daftar kasusnya, tapi juga penjelasan mengenai penyakit, pemeriksaan, dan manajemennya ya dok? Sesuai dengan yang nanti akan diujikan?

P3: *Iya, benar begitu…*
P6: *Jangan dibiarin begitu dok…*
P3: *Iya, jadi supaya apa yang kita ajarkan baik di S1 maupun bagian [klinik], sudah sesuai… Jadi misal pemeriksaan motorik, mahasiswa harus menguasai, jadi kita minta untuk mempelajari ini… Pemeriksaan refleks patologis itu wajib, misalnya… Jadi sebelum dia keluar [rotasi klinik] dan uji kompetensi itu dia sudah tahu cara pemeriksaannya…*
P4: *Saya ingin berbagi saja, untuk uji kompetensi OSCE ini kan diusahakan seobyektif mungkin, betul itu ya? Bagaimana cara kita jadi obyektif? Lihatlah kembali kepada rubriknya… Pertama saya pengalaman sendiri pada saat membuat soal OSCE, dua hari kerjanya pembuatan soal. Itu sakit kepala (tersenyum)… Bagaimana menyusun rubrik, supaya semudah mungkin dan selengkap mungkin antara nilai 0-1-2 itu sakit kepala untuk menyusun pembaginya itu, sangat sulit. Karena tujuannya supaya penguji mampu menilai itu sesuai dengan rubrik yang disediakan. Sebenarnya itu tujuannya agar seobyektif mungkin… Bagus sebenarnya tujuan UKMPPD OSCE ini sendiri. Dan menurut saya UKMPPD sangat perlu. Tidak bisa dihilangkan. Karena kita tahu sendiri, kita tidak bisa membohongi tes.... Masing-masing universitas pasti, bagaimana penyaringan awal mahasiswa masuk pun, pasti ada yang ditunjukkan di sana [dari hasil itu] kita tidak bisa… Walaupun awal-awal banyak peminat yang masuk ke kita, tetap saja pasti ada [kualitas mahasiswa yang kurang], itu pasti ada… Dan bagaimana cara agar kita bisa memacu mahasiswa untuk belajar… Nah dengan UKMPPD… [bisa]. Dan kita semua pasti mengalami, pas koas, wah kita di stase ini*

dapat dokter A, di stase berikutnya dapat dokter B, itu kan [subyektif]. Kalau seleksi itu kan masih ada yang tidak jelas. Nah kalau ada UKMPPD ini, jadi sebagai seleksi…

M: Apakah yang lain juga memiliki pengalaman kesulitan yang sama saat membuat soal?

P1: *(tertawa)*
P3: *Iya dok, apalagi kalau kita spesialis harus membuat soal, harus diturunkan [kompetensinya] bagaimana ya… Kalau saya jadi dokter umum, apa ya yang bisa saya buat… Itu susah, berhari-hari… Pertama soal tidak boleh menyimpang, soal harus sudah menjurus, kemudian yang dilakukan atau harus dijawab… Apalagi jika kita harus menilai tindakan, dengan gradasi 0-1-2-3 itu, dia harus bisa apa ya di poin ini. Dia harus melakukan apa supaya dapat skor ini. Nah paling susah itu di situ.*

M: Apakah FK F ini memiliki bank soal?

P3: *Bank Soal OSCE ada. Tetapi tidak menggunakan rubrik, menggunakan ceklis…*
P1: *Tetapi skenario ada. Yang untuk review ada soal yang kita kirim 5…*
P3: *Kalau OSCE itu soalnya tidak bisa kita buat dari sini, jadi dari bank soal yang meminta soalnya apa saja. Sampai sekarang kita tidak tahu soal apa yang akan diminta untuk dibuat. Jadi kita tidak bisa membuat sendiri lalu dikirimkan, tetapi dari center yang meminta.*

M: Kalau untuk pembuatan soal CBT ada ya dok di wilayah?

P1: *Iya ada, wilayah 6 bank soalnya di Makassar. Biasanya sebelum try out kami diundang untuk memberikan soal. Dari wilayah ditentukan soalnya dari bagian mana saja. Kita sudah meluluskan 25 soal dari 50 soal yang dikirimkan…*

M: Apakah di sini ada pelatihan pembuatan soal untuk dosen?

P1: *Sejak dulu ada, sejak awalnya bagian dari kegiatan HPEQ. Ada pelatihan penguji dan pembuatan soal…*

M: Bagaimana penerimaan para dosen terkait UKMPPD? Apakah semua berkenan mengikuti kegiatan-kegiatan tersebut?

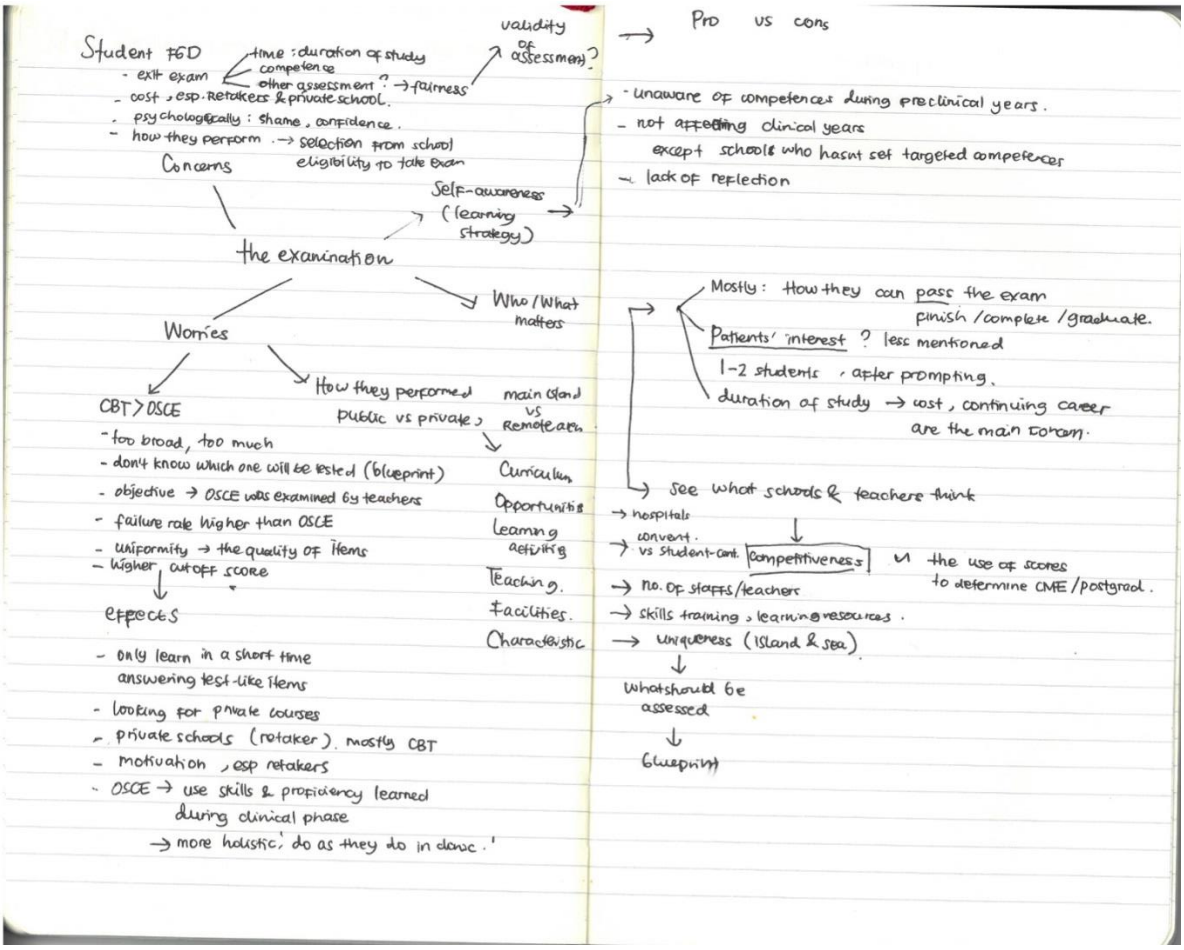
P1: *(Tertawa) Ada beberapa sih…*
P6: *Mungkin kita kan dari universitas baru ya, maksudnya dengan adanya UKMPPD, justru membuktikan sebenarnya.*
P1: *Diakui universitasnya…*
P6: *Justru malah kalau tidak ada UKMPPD, kita bisa diunderestimate… Tapi dengan adanya uji kompetensi yang jelas, walaupun kita dari universitas baru, tapi kan anak-anak kita, lulusan kita jadinya sama dengan [lulusan] universitas yang lain…*

M: Jadi menurut dokter UKMPPD ini memang dibutuhkan ya?

P6: *Iya…*

[…]

Appendix L Fieldwork notes and early concept map



Appendix M Initial coding process

The initial coding process was conducted manually. This is an example of initial coding for transcript of the first students' focus groups.

P2: Ya kalau misalnya yang CBT itu kan jawabannya ada yang pasti kan dok, kalau misalnya jawabannya A nya A kalau misal kita milih B ya salah. Tapi kalau misal yang OSCE itu, kita bisa menambah nilai entah pada pemeriksaannya yang benar, atau nggak di edukasi yang kita banyakin, sama komunikasi itu

Comment [RNH1]: Strategies for examination

R: Jadi kalau OSCE ada kompetensi-kompetensi lain yang mungkin bisa berkompetensi kita kurang, tapi masih bisa dilengkapi yang lain? Karena itu penilaiannya lebih ke keseluruhan apa yang kita lakukan. Ada yang punya alasan berbeda?

P5: Oh iya ini juga, karena OSCE kan berhubungan dengan skill. Kita kan sudah koass 2 tahun, kalau menurut saya pribadi paling ga adalah beberapa hal yang paling sering kita kerjain sendiri, misalkan kayak psychiatry kan lebih dominan di anamnesis. Pasti sudah banyak kita melakukan anamnesis, alloanamnesis ke pasien, terus diagnosisnya kan kalau psikiatri kan itu itu aja, misal ada 5 Axis, terapi juga ini begitu. Maksudnya hal-hal, menurut saya sih kenapa intensifnya baru ini, karena saya rasa kan sudah koas, paling nggak kalau yang saya pelajari semua itu nggak keluar semoga aja dulu saya pernah nemuin waktu koas. Misalkan kayak sirkumsisi kalau keluar, kalau nggak saya kan sudah pernah melakukan sirkumsisi. Jadi walaupun saya nggak belajar sirkumsisi kan bisa "oh ya dulu pernah"

Comment [RNH2]: Preparedness for examination

Comment [RNH3]: Competence awareness

R: Karena itu katanya keterampilan itu bukan sesuatu yang dipelajari secara instan teman-teman sudah terbiasa melakukan mengukur tekanan darah kan nggak baru kemarin kan tapi sudah berkali-kali jadi ya masalah sudah sering dilakukan ya sudah cukup sebenarnya persiapannya mungkin menambah bagian knowledge-nya. Tapi kalau CBT?

P5: CBT Kan beda, apalagi dengan protap rumah sakit. Terus yang kita kampus dulu kita pelajari zaman kita kan pasti ada perubahan.

Comment [RNH4]: Differences in clinical practice

R: Ilmunya berkembang, mungkin ganti, terapinya ganti. Karena lebih luas dan kurang ada panduannya, dan faktor lain seperti faktor penguji itu yang membedakan kenapa CBT dan OSCE teman-teman rasakan itu. Tapi kalau untuk hasilnya? Apakah CBT sesuai harapan, OSCE sesuai harapan yang sudah teman-teman lakukan?

P5: Kalau hasilnya untuk yang CBT itu untuk kita berharap tinggi ya. Soalnya kita sudah dipatok standar lulus sekian

Comment [RNH5]: Motivation

R: berapa standar lulus ?

P5, P7: 66

P10: Sebenarnya kita dari hati yang terdalam itu pasti pengen lah 80 keatas. Tetapi kalau dipikir lagi 66 gak papa yang penting lulus. Dari situ kita bisa memperkirakan kita punya chance salah sekian. Jadi itu kayak, gambling. Jadi aku kira-kira bener segini, salah ku harus segini dan itu untuk hasilnya,, Yah, begitulah. Yang OSCE sebenarnya sama seperti Donna tadi, kalau sebenarnya santai, selain karena faktor psikologis, pengujinya di sini, terus ujiannya di sini, terus juga ada try out-try out kayak kita sudah prepare, dan dari sejak kuliah sudah sering ujian OSCE. Jadz sudah biasa. OSCE

Comment [RNH6]: Motivation

Comment [RNH7]: Psychological impact of the NLE

Comment [RNH8]: Preparedness for examination

Appendix N Notes from the pilot project

Pilot: students focus groups

Experience of national examination

Students regarded CBT as very important, because:

- Wide range of competence that should be covered in medical knowledge
- No books or guidelines agreed nationally as references for the knowledge
  → There were worries that items were developed by other institutions, thus affect the answers
- Technical problems (e.g. internet or computer problems) will affect their work

Students were more relaxed and prepared for OSCE, because

- The OSCE was similar to the ones they encountered in undergraduate programme
- The examiners were their own teachers: they know how to deal with and what to expect from them
- They practiced a lot and wide range of cases

Perception of national examination

Students agreed that national examination is necessary to ensure the quality of medical graduates. They considered the differences among medical schools (teaching-learning, quality) as one of the determining factor in doctors' performance when dealing with patients. The thought that the CBT and OSCE are fit for the purpose.

They acknowledged that it might be different if they were unable to pass the exam or came from a different institution (lower accreditation status, private).

Some friends of the students who failed the exam mentioned that 'one shot assessment' is unfair. The failed students felt that they worked hard during clerkship and it should contribute to their results (i.e. results should indicate their performance during clerkship).

Adaptation toward national examination

- Preparatory programmes by institution:
  - Progress testing, 3-4 times during undergrad & clerkship → help students to be aware of their achievement/ incompetence
  - Progress testing will be better if administered periodically during clerkship → periodic assessment of students' competence
- Peer group learning
- Private preparation course
  - Modules → clear structure
  - Discussion → more time to practice more cases, feedback

Future practice as health care professionals

- They were confident because they passed the examination
- Feedback from the exam → not really helpful because they only want to know that they pass the exam. But they knew that the feedback is important and they knew how to use it
- They understood that their institution prepared them better than other institution (based on their experience during clerkship), but there are competences they were not confident with (e.g. prescribing, skills for immediate response in ER)